New educational methodologies and strategies to prevent early school leaving



Erasmus+

RE ENGAGE

NEW EDUCATIONAL METHODOLOGIES AND STRATEGIES TO PREVENT EARLY SCHOOL LEAVING

Methodological Guide of *Recognize, Remedy, Re-Engage*
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1. INTRODUCTION

School, the quintessential learning ground, proves to be a real obstacle course for some students. On reaching adolescence, a number of them no longer identify with the school system and drop out. By offering lessons based almost exclusively on verbal linguistic intelligence, in other words using language to understand and express complex ideas, school is no longer really in line with modern society. The challenge is therefore to rethink this form of education that is sorely lacking diversity in terms of learning methods, and move towards a school model that is more fun and engaging for all students.

The Erasmus+ project RE-ENGAGE is the follow-on from an initial project (Coménius) focusing on issues around preventing school dropout and in particular on identifying underperforming students and sharing teacher experiences. The RE-ENGAGE project involves, on the one hand, assessing to what extent previously shared methods are effective in allowing students, who have already dropped out or appear to be likely to do so, to find a renewed interest in learning as well as a sense of satisfaction in returning to school and, on the other, introducing new teaching practices at five partner schools.

Through RE-ENGAGE, partners implemented in schools in partner countries in Luxembourg, Belgium, Latvia and Malta, innovative teaching methods promoting the students' numerous cognitive abilities. Following an assessment of the struggling students and their abilities, the teachers can define how and when to use the innovative methods put forward by the project, selecting from cooperative learning, multiple intelligence and tangible user interfaces.

What is new is that the student is the protagonist. He becomes an actor, co-builder of knowledge. Its responsibility is committed, his energy is mobilized, its frames of intelligences are enhanced. We will focus not only on the individual student but as a participant in a group. During the project, (2015 to 2017), the partnership aims to work towards this goal by developing and incorporating new teaching methods and tools of socio-educational intervention through teacher training, sharing best practices and experiences of the participating organizations and echoing the results with public institutions capable of implementing these new methodologies in the education system of their countries.

This guide contains the diagnostic and all the three methods, cooperative learning, multiple intelligence and tangible user interfaces, that have been developed, improved and adapted according to the project consortium. It will allow each teacher interested to use these methods.

2. TECHNICAL AND PEDAGOGICAL JUSTIFICATION

The traditional methodologies of teaching and learning are part of a system that doesn't fit for everyone. There are a lot of students with a lack of motivation and disengaged. They don't want to go to school. With this guide we want to give some educational methodologies, techniques and tools to the teachers in order to improve the students' motivation and self-esteem, so they really want to go to school.

COOPERATIVE LEARNING

"*Cooperative learning, when implemented correctly, can make a difference in a student's decision to stay in school"* (Smink and Schargel, 2013).

We have detected that teachers and institutions are more focused on completing the training program (what to do) and lack the knowledge and appropriate tools to address such important and current issues as, multicultural educational contexts, violence in the classroom, bullying, intolerance, gender equality, lack of motivation. It is necessary that institutions, schools and teachers become aware of what young people really need and adapt to current demand (on how to do it). For example: cooperative learning, formal and informal education through artistic, cultural and other group activities, to secure other formal knowledge, etc. Definitively to get closer to motivation and interests of young people to prevent school failure.

What is new also is that the student is the protagonist. He becomes an actor, co-builder of knowledge. His responsibility is committed, his energy is mobilized, his frames of intelligences are enhanced. We will focus not only on the individual student but as a participant in a group.

And to detect the status level and the relationships between the students we propose the use of a sociometric tool (Chapin, 1950). It is a systematic method to represent all of this. It provide a wealth of information about classroom friendship and interaction patterns, and it's very usefull for those teacher who are planning to use cooperative learning, setting work-group composition. Also it helps to understand the group behaviour in order to act more wisely in the group management (conflicts, diversity, and so on).

Knowing mutual acceptance and rejection between students the teachers can divide them into small heterogeneous groups, avoiding putting together best friends, problematic students, high status students, etc.

The cooperative learning is proved to **increase students' test scores** (Slavin, 1991), and other learning outcome measures like higher level reasoning, greater transfer of what is learned from one situation into another, more frequent generation of new ideas (Barkley, et al, 2005).

But it also has been proved to **increase students' psychological health, self-esteem** (Johnson and Johnson, 1989), **and the quality of the relationships**. This last one is important because the more positive the relationships among students, the **lower the absenteeism and dropout rates**, among other benefits (Johnson and Johnson, 2009). As we have said this method increases self-esteem in students, and this motivate them to participate more in the classes (Panitz, 1999).

Furthermore cooperative learning also has an impact in the relationships between students and teachers, and the family communication (Kagan, 1994). And it also **develops students' social interaction skills**. This can improve engagement because it gives them social motivation. Cooperation between students provides each other **greater social support** (Johnson and Johnson, 1985).

All of these benefits has been shown to work for **students of different ethnic, economical level, race, academic skill levels and with disabilities** (Millis, 2009).

Therefore cooperative learning has shown to increase students' motivation, which is crucial to decrease dropout and absenteeism rates.

MULTIPLE INTELLIGENCES

Howard Gardner, a professor of cognitive psychology at Harvard University, challenged the simplistic view that equates intelligence with what is measured by the IQ, which only takes into account the logical and verbal intelligence, moreover enhanced by traditional education. In 1983, he offered a broader vision of our human potential with his theory of multiple intelligences, assuming that **several types of intelligences combine and interact with each other** in all of us. So everybody has a unique intelligence profile, which is a result of this combination and which we continue to develop throughout our lives.

The theory suggests that rather than focusing on a standardized course for all children, schools should provide education focused on the individual with tailor-made training and education according to the needs of each child.

According to Gardner, the principal **types of intelligence** are:

- Logical/mathematical intelligence: ability to reason, to count, to calculate, to solve problems, logical reasoning.
- Verbal/linguistic intelligence: language and communication – native language and other languages (ability to use language to express or to understand complex ideas).
- Musical/rhythmic intelligence: ability to recognize, interpret and create music, rhythms and sounds - think in rhythm).
- Bodily/kinesthetic intelligence: ability to control own body, hands with precision, to express oneself physically.
- Interpersonal intelligence: social and relational capacity.
- Intrapersonal intelligence: self-understanding (ability to know yourself: emotions, needs, desires).
- Naturalistic intelligence: ability to observe, recognize and classify nature in all its forms.
- Visual/spatial intelligence: ability to perceive and image the world, sense of direction and space.

In all daily activities, whether in the school, family or friendly environment, several intelligences can be activated at the same time. Classroom activities frequently use more than one of the multiple intelligences, for example:

- Group discussion - Verbal-Linguistic; Interpersonal.

- Constructing timelines - Logical-Mathematical; Visual-Spatial.
- Putting on a play - Musical-Rhythmic; Verbal/Linguistic; Interpersonal; Visual-Spatial.
- Making a video - Logical-Mathematical, Musical-Rhythmic; Verbal/Linguistic; Interpersonal; Visual-Spatial.
- Writing a report or essay - Verbal-Linguistic.
- Making graphs - Logical-Mathematical; Visual-Spatial.
- Designing posters - Verbal-Linguistic, Visual-Spatial.
- Communicating with peers or experts online - Verbal-Linguistic; Interpersonal.
- Hands-on experimentation - Kinesthetic; Logical/Mathematical.
- Composing a song - Musical/Rhythmic; Verbal-Linguistic.

The interest of using multiple intelligences is to **motivate the student** on the one hand to **be attentive in class** but also to **get involved** according to his dominant intelligence.

TANGIBLE USER INTERFACES (TUI)

The use of a table and physical objects instead of mouse and keyboard provides a number of affordances that we can exploit as part of a classroom activity. The most relevant affordances are:

- **Face-to-face collaboration**: Learners can see each other, talk to each other, touch each other, exchange objects.

- **Multiple-users**: The table is a social place where people can meet. TUI can be manipulated by multiple users in an interpersonal way.

- **Hands-on activities**: On a TUI, problems can be solved by moving and manipulating objects on the surface. Learners can find the solution and learn about the phenomenon by physically trying out different options and reflecting about them.

- **Multiple modes of communication**: Around the TUI, multiple modes of communication can be combined - talk, gesture, gaze, action, and posture – allowing for richer discourse available for teaching and learning.

The TUI provides users with a common, shared space for a small group, where each of the group members can actively contribute by manipulating one of the physical objects. This is a unique design characteristic which can hardly be found in other interfaces and systems.

Rogers and Lindley (2004) found that this horizontal tabletop setting, in contrast to a vertical one, supports learners in more often changing their roles, exploring more ideas, and enhancing the awareness about what each of the group members is doing.

Furthermore, the tangible tabletop provides users with the possibility to inforce ownership for physical objects and/or certain areas of the tabletop surface. This so-called aspect of territoriality was found to be an important factor in collaboration.

The physical objects and the interactivity of the table provide new ways of user engagement. The system itself, as well as watching others interacting with it is an attraction point in itself, motivating active engagement. The tangible tabletop incorporates many entry points minimizing the barrier to use them, and promising an interesting experience (Hornecker, 2007).

Externalization of concepts is considered as catalyst for useful learning (Kharrufa et al., 2010). When students externalize their thinking in a group, there is a high probability that a discussion about this externalization will follow. The table and the physical objects can support this process as they naturally support learners in expressing themselves through speech, gestures and object manipulations.

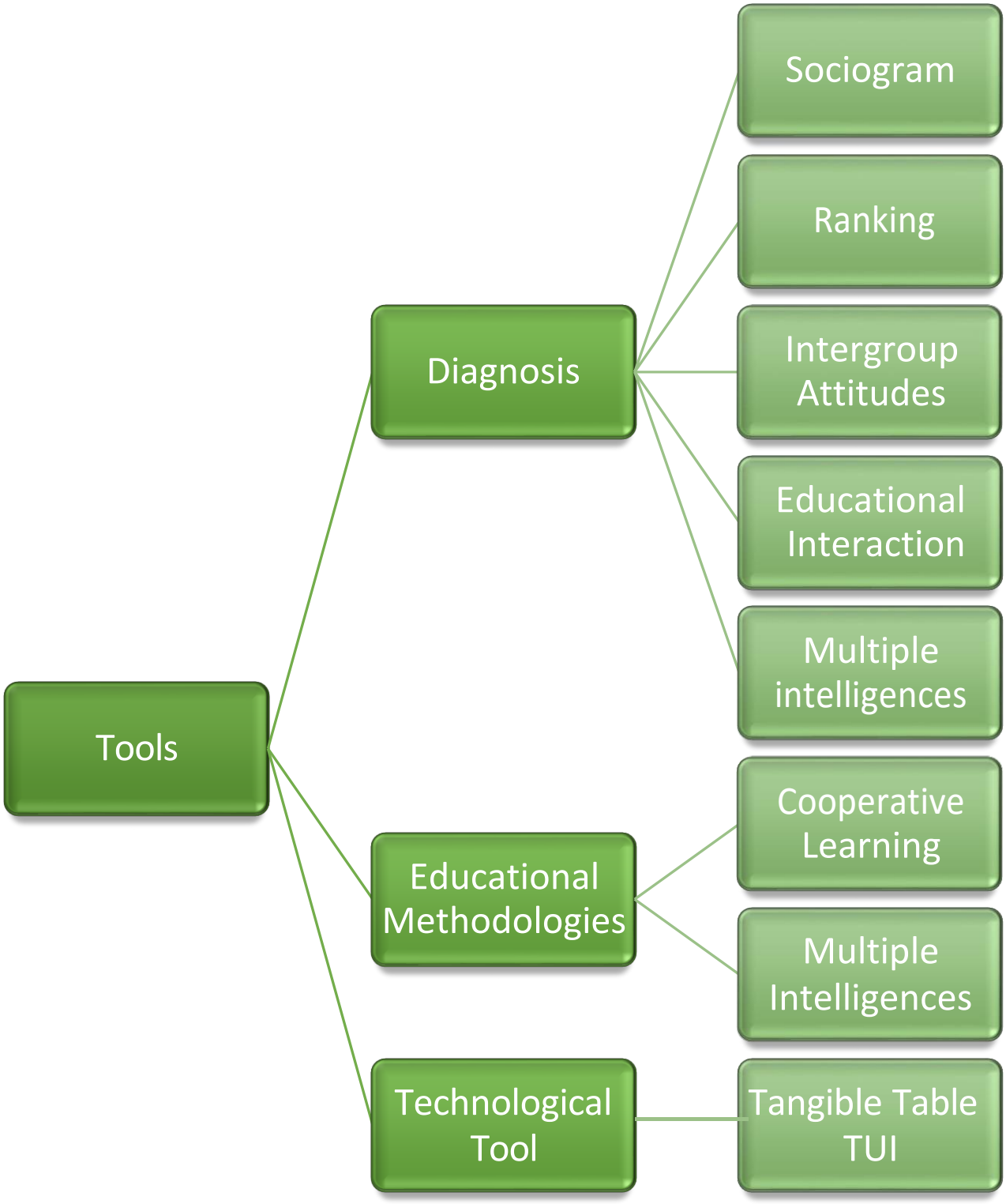
TUIs are perfectly suited to support learners in **collaboratively exploring a complex phenomenon** modelled and presented as a Microworld. A Microworld is generally understood as a computational environment that embodied or instantiates a mathematical or scientific subdomain . It instantiates the central objects and relations of this subdomain and provides them as an interactive representation that is accessible to new learners.

Typically, computer microworlds are used to offer access to phenomena that are difficult or impossible to encounter in the real world, as for example, the frictionless universe provided by the Dynaturtle. An important characteristic of the microworld is the non-explicitness: the learner is not informed about the underlying laws and scientific principles. The **learner must discover** it while solving a problem or playing a game.

Learners can do one of two basic operations in a Microworld: manipulate objects and interpret feedback. By undertaking these actions, learners are able to formulate and test hypotheses with the goal of understanding the Microworld and, thereby, solve a specific problem or challenge.

3. PRESENTATION OF TOOLS

Throughout this guide, we are going to explain in detail a series of diagnostic tools, socio-educational methodologies and a technological tool that will help teachers as a tool to work within their classrooms from an innovative perspective that fosters significant learning. The versatility of these tools is very high, so teachers will not have problems adapting them to their subjects and students.



We will start with a series of **socio-educational diagnosis tool**, which will allow us to know the current status of relationships between a group of students, as well as their perception of education and the type of intelligence they prefer.

The **sociogram** presented in a form of a questionnaire to the students, with a few simple questions they have to answer regarding what peers they prefer to work with in teams and to be during their spare time. The outcome data, apparently so simple, are very extensive, allowing us to analyze the relationship between students, as well as the integration level of each of them in the group.

The **ranking** is used as a complement to the previous tool. In this case, each student has to assess how they do like their classmates. The main utility is to obtain data much easier to analyze when comparing previous and post-intervention results.

The **intergroup attitudes questionnaire** is applied in those groups where it is suspected a segregation between two subgroups, either for reasons of gender, religion, ethnicity, country of origin or other reason. The students from one of the subgroups are asked (for example the gypsies) for their opinion about other subgroup (for example white population). Just like the ranking, this tool is very useful to make a pre-post assessment, comparing the data obtained before and after the intervention.

The **educational interaction questionnaire** is a semi-structured interview which explores the opinion that the students have about the education, and the teaching-learning process: the attitude concerning cooperation between classmates and the representation of teacher's role. It is useful for the teacher to know the predisposition of his/her students toward cooperative learning, and the vision they have about he or she as teachers and how they interact with the students.

The **multiple intelligences evaluation** allows students to know themselves better, and teachers to better understand the types of materials and methodologies that are better suited to their students according to their dominant intelligences.

Once the diagnosis is completed, all the data has to be analyzed together, in a way that provides a global vision of both: the relational and socio-educational situation in the classroom, and students that stand out for some reason. All this information will be reflected in a **report** with an **intervention proposal** attached. This will collect which intervention methodologies are best suited to the characteristics and problems of a student group, and the activities or concrete tangible table micro-worlds to carry out.

The **methodologies of socio-educational intervention** which are detailed in this guide are oriented to improve the relationship and the climate in a group inside the classroom, in order to create a more relaxing environment in which the students feel more motivated and interested in their teaching-learning process.

The first of them is **cooperative learning**, an educational methodology based on focusing the teaching-learning process in the interaction between the own students. So these have leadership and take charge of their education, being in the middle of the whole process. The teacher then assumes the role of a guide and a companion during classes, allowing students to be more involved. This will mainly foster the motivation and the interest of students, who will reach a significant learning.

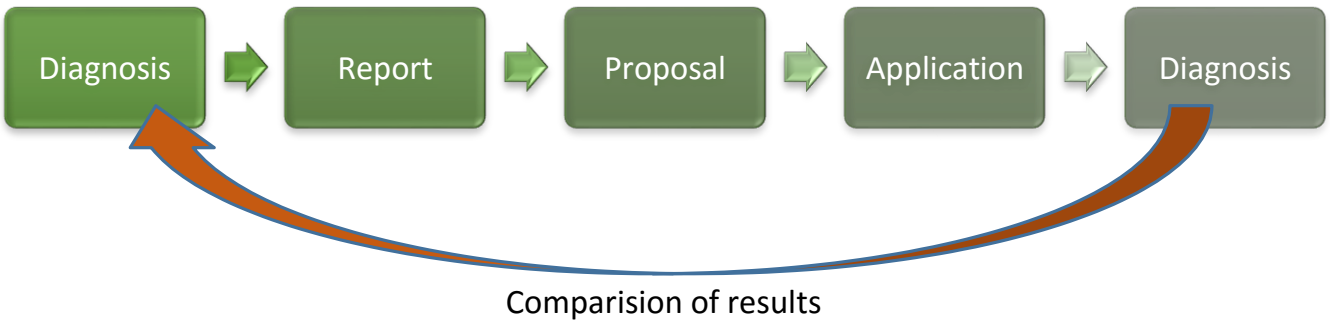
The second one is the application of **multiple intelligences** in the classroom. We start from the base that each student is unique and that the intelligence is not just one, but several. Therefore, knowing the type of intelligence that highlights in a student, you can know how he/she learns better, and adjust the materials and methodologies as appropriate.

The third and fourth are intervention tools rather than methodologies, since they offer guidelines to **manage diversity** and to **manage conflicts** inside the classroom. Through a series of intervention tools it is possible to prevent and/or solve segregation problems and interpersonal or intergroup conflicts.

Regarding the **technological tools**, it is the **tangible table TUI (Tangible User Interfaces)**, an innovation that produces a hardware with multiple application possibilities. It consists in a "screen" table which detects a series of elements that are placed on it; with these elements physically manipulated with your hands, you interact with the table, several users can work simultaneously on it. The software allows you to create different settings with items that the students have to explore in order to understand the underlying processes. So, students can change variables (inputs) and see what happens with the results (outputs), learning this way the relations between inputs and outputs from the experimentation and collaboration.

Although beforehand it may seem like each methodology and tool are independent of each other, our proposal goes beyond the isolated application of each. The use of methodologies all together and in an integrated manner is much more than the sum of parts, as they strengthen each other, allowing to maximize its results. That is why we also propose guidelines of **integration of methodologies and tools**.

In order to get the best results we suggest to follow this process:



4. DIAGNOSTIC TOOLS

It's essential to know the socio-educational status of the student group whom you work with, before applying a methodology or an intervention. As each student is different and unique, it is also every single group. On them, the relationships established between members are determined by many factors, ranging from the personal experience of each member, going through their personalities, the environment they are in, their attitudes and aptitudes, to reactions to certain established behaviors. This is why, the same methodology can be applied differently depending on the group and the teacher.

It is true that the teachers spend many hours with their students, they know them more or less in depth and they are aware of many relationships and dynamics generated within the group. But this perception is usually incomplete and subjective, since the teacher is part of the group and actively participate in it, although is not a relationship of equals with the students. Therefore the diagnostic tools presented below will be useful for teachers to know objectively what occurs in the students group in their class, a solid starting point for later to choose and adapt methodologies in a way that best suit the students characteristics and group needs.

This is the first required step before considering any further action. We recommend the use of four tools in all cases: the sociogram, the ranking, the educational interaction questionnaire and the evaluation of multiple intelligences. In the case of intergroup attitudes questionnaire it is only recommended its application in case of suspicion that there is a strong segregation between two subgroups based on gender, race, religion, country of origin or other reason.

4.1.SOCIOGRAM

What is a sociogram and what is its utility?

A sociogram is a sociometric analysis tool, used to evaluate and analyze the relationships between people, in this case the internal social relationships that exist between peers in a classroom and at first glance may be unnoticed by the teachers. The main information that we are going to obtain with its application is related to the integration level and adaptation of each student to the context and to the group he/she is in. We will explore the cohesion degree and the spontaneous structure of the group, knowing the status of each student in it. Questions about other group members are asked, in order to know his/her status in the group, the amount of friends he/she has, and their opinions that affect each other.

The sociogram is based on observations that lead us to know quantitative indexes regarding the nature and intensity of relationships and communication that occurs within a group. We must not forget that each student acts in an environment establishing a relationship that can modify the situation and, at the same time, impacts and changes his/her behavior.

Students are maintaining a relational structure that gives a special structure to the group. Every group member is involved and affects academic results. Human beings are social by nature, even cognitive psychology suggests that learning tasks completed by a student does better in a group than alone. The competition can be individual and it shows higher performance when it is a simple tasks, and if the task is complex, performance is

higher when students collaborate with each other. So we must try to enhance feelings and attitudes such as solidarity and self-esteem, which depends on the acceptance-rejection and love-antipathy that students experience in the classroom.

Thoughts and opinions that a student states may not be accepted by the group, being able to generate an aggressive behavior for the rejection in the student. In case of his/her thoughts and opinions are accepted, the student is accepted, he/she might be able to become a leader.

How is the sociogram useful for the teacher? The following we will answer this question with some uses:

The teacher can detect dynamic aspects of the classroom such as:

- Level of cohesion in the group.
- Existence or nonexistence of lead students.
- Detect students that are accepted.
- Identify students that are rejected.
- Locate students that are isolated.
- Level of integration of new students within the classroom.
- To know the relationship between peers: best friends, “enemies”, possible facilitators to help other students to get integrated, etc.

It allows to prevent school absenteeism, low academic achievement, violence and bullying, as these problems may arise as a consequence of difficulties and problems in personal interactions.

In case of the existence of conflictive situations at group or individual level, allows the teacher to intervene to modify them.

It guides teacher on what values and qualities are the most appreciated or despised among students, as are those who have the most accepted and student leaders or rejected respectively.

So, when the teacher has analyzed the sociogram results he/she will be able to know which students are rejected or isolated and to work on their inclusion in the classroom:

- By paying more attention to those students, assigning them a representative tasks and valued for others.
- Analyzing which students have elected the isolated ones, and use them as facilitator resources to integrate them.
- Observing if students rejected have been chosen in the acceptance questions, therefore the people which elected him/her would have an important role to integrate students rejected.
- Organizing cooperative work groups to facilitate the integration.
- Using the leader figure to obtain collaboration of students in certain educational aspects.

How and when to apply a sociogram?

We recommend to apply the sociogram at least twice in each grade: one at the beginning of the school year when the students know each other, and another one at the end of the school year. If the group of students already know each other and they have been together in previous classes, it can be applied soon after starting the school year. If it is a new group of students, whose members don't know each other, wait at least one month to apply it, so they have time to know each other. This application in two moments will allow the teacher to know whether the interventions and methodologies that have taken place during the school year have been effective and if the group cohesion has improved. It must be taken into consideration that the socio educational interventions affect social processes and group dynamics, and that these require a long term intervention to be substantially modified.

Students should answer to a questionnaire about their choices both positive and negative, regarding their academic and intellectual affinities (effective type) and their ludic affinities (affective type). Depending on the students age they may take 15 to 30 minutes to answer to the questionnaire. The explanation of it takes about 5 to 10 minutes, answering possible doubts they may have. Bellow follows **step by step the implementation of the sociogram.**

- Separate the students so the information is confidential and they can answer honestly. Explain to them that the answers will not be disclosed.
- Motivate the students to collaborate by explaining that the objective of this exercise is to help them to improve the relations between the students in the class in order to make everyone to feel more comfortable.
- Write a list of students on the blackboard, where everyone has an assigned number. You can use the same list that the teacher has.
- Ask them to fill in personal data: name, gender, age, grade, nationality, country of birth, and time living in the country. Wait for everyone to finish this part.
- Explain that they will answer 4 questions. Indicate them that they have to choose 3 classmates for each question, placing them in order of preference.
- Later they must choose the reason why they chose the first student.
- When answering the questionnaire they must indicate both the number of the student chosen and his/her first name. If you have more than one student with the same name they must also indicate the last name initial.
- Give an example and answer questions that may arise from them.
- Indicate that they must answer every question.
- Give them time to answer the questionnaire, an average of 15 minutes.
- When collecting the answer sheets make sure that personal data is correctly filled, that every question has been answered properly, and that two reasons has not been chosen in the same question. In case there is a mistake, return the questionnaire to the student to fix it.
- Thank them for their participation.

The following is the sociogram questionnaire.

Nº_____Name and initial of last name: _____

Age:_____Grade:_____Gender (Male/Female): _____

Country of birth: _____

Country of origin of parents: _____

How long have you lived in this country?: _____

1. Who would you choose to be your team mate?

    1) _____

    2) _____

    3) _____

Why did you choose the first option?

a) He/she is very smart.
b) She/he is a good student.
c) He/she is responsible.
d) He/she does it all.
e) She/he is my friend.
f) Other reasons (explain) _____

2. Who would you **NOT** choose to be your team mate?

    1) _____

    2) _____

    3) _____

Why did you choose the first option?

a) He/she is not very smart.
b) She/he is not a good student.
c) He/she is irresponsible.
d) He/she doesn't do anything.
e) She/he is not my friend.
f) Other reasons (explain) _____

3. Who would you like to be with during play time/break?

1) _____

2) _____

3) _____

Why did you choose the first option?

a) He/she is my best friend.
b) She/he is very funny and nice.
c) I want to be his/her friend.
d) He/she is the most popular in class.
e) She/he is a good student.
f) Other reasons (explain) _____

4. Who would you **NOT** like to be with during play time/break?

1) _____

2) _____

3) _____

Why did you choose the first option?

a) He/she is not my friend.
b) She/he is boring.
c) I don't want to be his/her friend.
d) Nobody likes him/her in class.
e) She/he is a bad student.
f) Other reasons (explain) _____

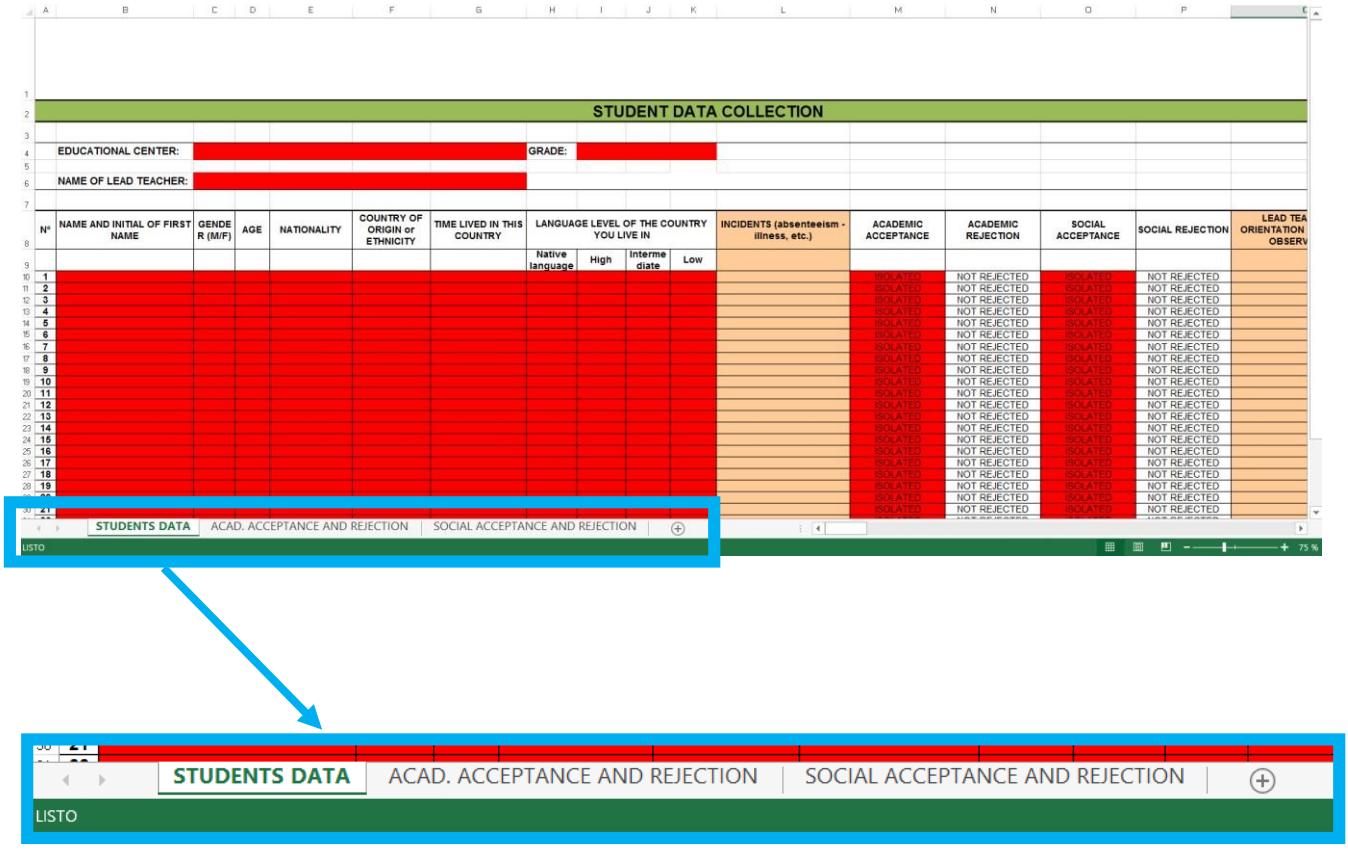
How to analyze sociogram data?

Once the questionnaire has been applied, the answers have to be transferred to the Excel template, getting a sociometric matrix which will allow you to observe and analyze the data and to obtain some interesting indexes. Next we will explain step by step, how to enter data into Excel tables. For each classroom/group of students, a file has to be completed. We will use screen capture of tables to explain each step.

The template used has formulas in some of the cells, they have been locked, so you can't write anything on them. This will ensure nothing is changed by accident or mistake. The cells where data must be entered, will be explained in detail in this section. It is very important that data is entered as indicated so the formulas work and the results obtained are interpretable.

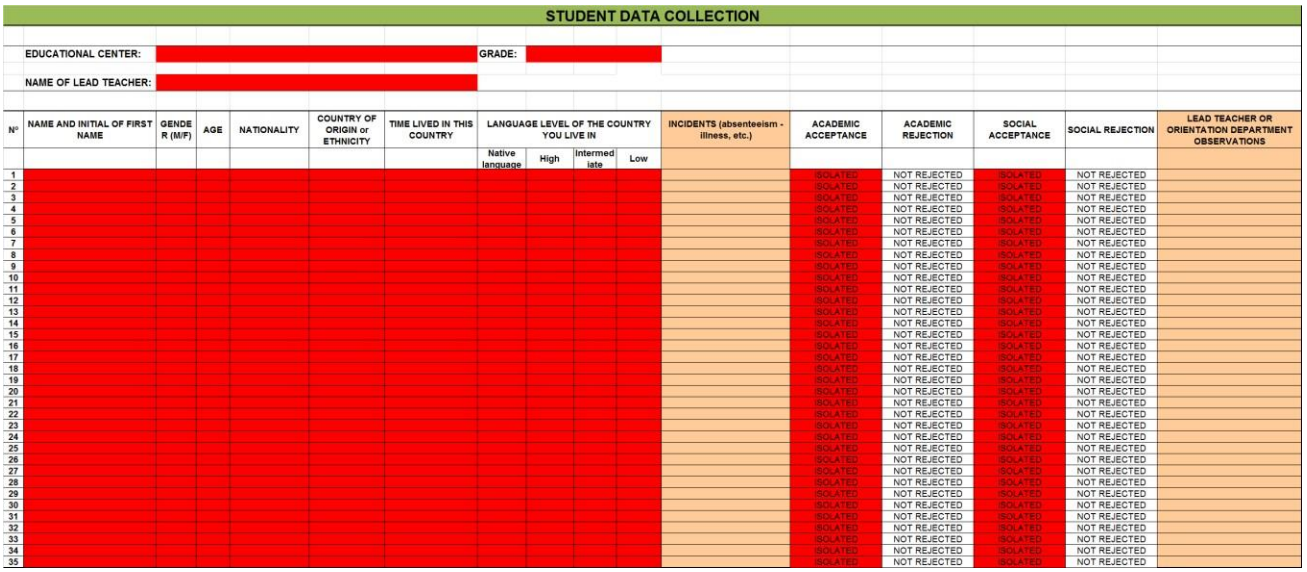
When you open the Excel file there are 3 tabs through which you can access to three different tables (figure 1): students data, academic acceptance and rejection, and social acceptance and rejection.

Figure 1



By clicking on the first tab **"students' data"** you access the table in which you have to insert all the data of the students group (figure 2).

Figure 2



STUDENT DATA COLLECTION

EDUCATIONAL CENTER: GRADE:

NAME OF LEAD TEACHER:

Nº	NAME AND INITIAL OF FIRST NAME	GENDER (M/F)	AGE	NATIONALITY	COUNTRY OF ORIGIN or ETHNICITY	TIME LIVED IN THIS COUNTRY	LANGUAGE LEVEL OF THE COUNTRY YOU LIVE IN				INCIDENTS (absenteeism - illness, etc.)	ACADEMIC ACCEPTANCE	ACADEMIC REJECTION	SOCIAL ACCEPTANCE	SOCIAL REJECTION	LEAD TEACHER OR ORIENTATION DEPARTMENT OBSERVATIONS
							Native language	High	Intermed iate	Low						
1												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
2												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
3												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
4												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
5												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
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18												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
19												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
20												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
21												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
22												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
23												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
24												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
25												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
26												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
27												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
28												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
29												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
30												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
31												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
32												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
33												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
34												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	
35												ISOLATED	NOT REJECTED	ISOLATED	NOT REJECTED	

First you have to fill in the data of the educational center and the classroom: "School or High School", "Grade" and "Name of lead teacher" (Figure 3).

Figure 3



EDUCATIONAL CENTER: GRADE:

NAME OF LEAD TEACHER:

Later on you need to fill in the data of every student in this classroom: "name and initial of last name", "gender", "age", "nationality", "country of origin or ethnicity", "time lived in this country" and "language level of the country you live in" (figure 4). At this point it is important to clarify the following:

- The "nationality" and "country of origin or ethnic group" must be filled with a nationality code, not with the full name of the country or ethnicity. This codification is attached in a table in the following pages.
- Nationality makes reference to the student's nationality, the one is on their ID.
- Country of origin refers to the country where their parents were born, if it is different from the student's nationality. For example, a student may have been born in Luxembourg and have that nationality, but their parents have emigrated from Portugal. In this case, it would be filled as follows: Nationality: "Luxembourgish", Country of origin "Portugal" (but with the country code).
- Ethnicity refers to the possibility that a student belongs to an ethnic minority in their country, although their nationality and family has always been from this country. For example, a student born in Spain with this nationality and whose parents are also from Spain, but they belong to the gypsy ethnic group. In this

case it would be registered as follow: Nationality “Spanish”, Ethnicity “Gypsy” (but with corresponding codes).

- The section “time lived in this country” it is relevant in case of immigrant students. It has to be registered the number of years.
- “Language level of the country you live in” is also important if student’s native language is not the main one in the country they are living in and they are attending to a school or high school. In this case you have to record the level and in the section of “native language” write their native language. If a student has as a native language the same as the main one in the country it would be enough to put it into the “native language”.

Figure 4

Nº	NAME AND INITIAL OF FIRST NAME	GENDER (M/F)	AGE	NATIONALITY	COUNTRY OF ORIGIN or ETHNICITY	TIME LIVED IN THIS COUNTRY	LANGUAGE LEVEL OF THE COUNTRY YOU LIVE IN			
							Native language	High	Intermediate	Low
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										

The country codes and ethnicities are assigned in the following table. For example, if a student was born in Belgium and has this nationality, in nationality you would put ‘BEL’; if a student is gypsy, in “country of origin or ethnicity” you would put GYP.

Table 1

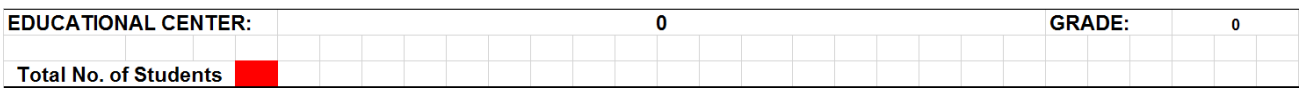
COUNTRY	CODE	COUNTRY	CODE	COUNTRY	CODE
Afghanistan	AFG	Grenada	GRN	Pakistan	PAK
Albania	ALB	Guatemala	GUA	Palau	PAU
Algeria	ALG	Guinea	GUI	Palestine	PAL
Andorra	AND	Guinea-Bissau	GBI	Panama	PAN
Angola	ANG	Guyana	GUY	Papua New Guinea	PAP
Argentina	ARG	Haiti	HAI	Paraguay	PAR
Armenia	ARM	Honduras	HON	Peru	PER
Australia	AUT	Hungary	HUN	Philippines	PHI
Austria	AUS	Iceland	ICE	Poland	POL
Azerbaijan	AZE	India	IND	Portugal	POR
Bahrain	BAH	Indonesia	IDO	Qatar	QAT
Bangladesh	BAN	Iran	IRN	Romania	ROM
Barbados	BAR	Iraq	IRQ	Russia	RUS
Belgium	BEL	Ireland	IRE	Rwanda	RWA
Belize	BEZ	Israel	ISR	Saint Kitts Nevis	SKN
Benin	BEN	Italy	ITA	Saint Lucia	SLU
Bhuta	BHU	Ivory Coast	IVO	Saint Vicent & the Grenadines	SVG
Bolivia	BOL	Jamaica	JAM	Samoa	SAM
Bosnia & Herzegovina	BOH	Japan	JAP	San Marino	SMA
Botswana	BOT	Jordan	JOR	Sao Tome & Principe	STP
Brazil	BRA	Kazakhstan	KAZ	Saudi Arabia	SAR
Brunei	BRU	Kenya	KEN	Senegal	SEN
Bulgaria	BUL	Kiribati	KIR	Serbia	SER
Burkina Faso	BUR	Korea, North	NKO	Seychelles	SEY
Burundi	BUN	Korea, South	SKO	Sierra Leone	SLE
Cambodia	CAB	Kosovo	KOS	Singapore	SIN
Cameroon	CAM	Kuwait	KUW	Slovakia	SLK
Canada	CAN	Kyrgyzstan	KYR	Slovenia	SLV
Cape Verde	CAV	Laos	LAO	Solomon Islands	SOL
Central African Republic	CAR	Latvia	LAT	Somalia	SOM
Chad	CHA	Lebanon	LEB	South Africa	SAF
Chile	CHL	Lesotho	LES	South Sudan	SSU
China	CHI	Liberia	LIB	Spain	SPA
Colombia	COL	Libya	LYB	Sri Lanka	SRI
Comoros	COM	Liechtenstein	LIE	Sudan	SUD
Democratic Republic Congo	DCO	Lithuania	LIT	Suriname	SUR
Republic Congo	CON	Luxembourg	LUX	Swaziland	SWA
Costa Rica	COS	Macedonia	MAC	Sweden	SWE
Croatia	CRO	Madagascar	MAD	Switzerland	SWI

Cuba	CUB	Malawi	MAW	Syria	SYR
Cyprus	CYP	Malaysia	MAY	Taiwan	TAI
Czech Republic	CZE	Maldives	MAV	Tajikistan	TAJ
Denmark	DEN	Malta	MAL	Tanzania	TAN
Djibouti	DJI	Marshall Islands	MAI	Thailand	THA
Dominica	DOI	Mauritania	MAU	Togo	TOG
Dominican Republic	RDO	Mauritius	MAR	Tonga	TON
East Timor	ETI	Mexico	MEX	Trinidad Tobago	TTO
Ecuador	ECU	Moldova	MOL	Tunisia	TUN
Egypt	EGY	Monaco	MON	Turkey	TUR
El Salvador	SAL	Mongolia	MOG	Turkmenistan	TUM
Equatorial Guinea	EGU	Montenegro	MOT	Tuvalu	TUV
Eritrea	ERI	Morocco	MOR	Uganda	UGA
Estonia	EST	Mozambique	MOZ	Ukraine	UKR
Ethiopia	ETH	Myanmar	MYA	United Arab Emirates	UAE
F.S. Micronesia	MIC	Namibia	NAM	United Kingdom	UKN
Fiji	FIJ	Nauru	NAU	United States	USA
Finland	FIN	Nepal	NEP	Uruguay	URU
France	FRA	Netherlands	NET	Uzbekistan	UZB
Gabon	GAB	New Zealand	NZE	Vanuatu	VAN
Gambia	GAM	Nicaragua	NIC	Venezuela	VEN
Georgia	GEO	Niger	NIG	Vietnam	VIE
Germany	GER	Nigeria	NIA	Yemen	YEM
Ghana	GHA	Norway	NOR	Zambia	ZAM
Greece	GRE	Oman	OMA	Zimbawe	ZIM
		ETHNICITY	**CODE**		
		Gypsy	GYP		

With this you have finished completing the necessary initial data on this page. Next, you go to the second page, by clicking on the tab **"Academic acceptance and rejection"**.

On this page you have to fill in first, the total number of students in the classroom or group. The name of the educational center and the grade will be automatically filled in with the data inserted in the first page (figure 5). It is important to fill in this data, otherwise the formulas on the page will show an error and will not give results.

Figure 5

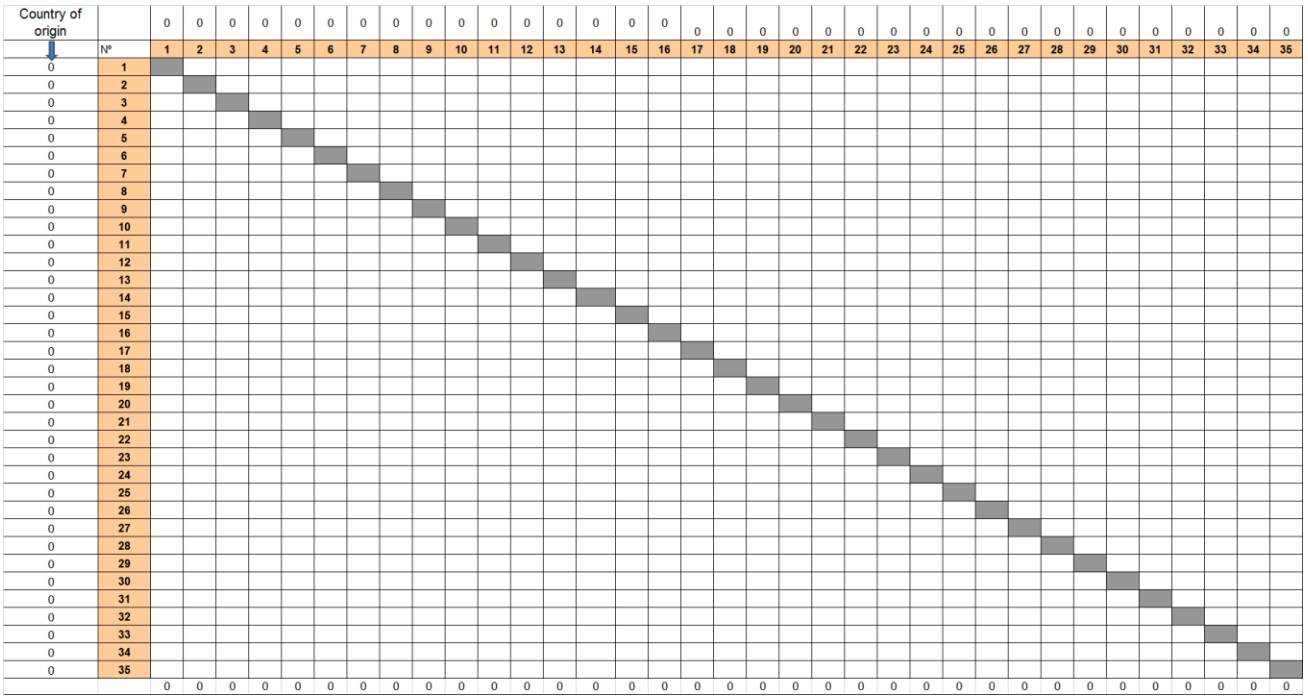


You can see that the column and rows corresponding to "country of origin" are already filled. This is because the page takes the data filled previously and it is automatically completed. So you only have to fill in data related to elections in academic acceptance and rejection (figure 6).

In order to do that, you will take into consideration the students' answers to questions in the academic area:

- Who would you choose to be your team mate? (ACCEPTANCE)
- Who would you **NOT** choose to be your team mate? (REJECTION)

Figure 6



For each question students have chosen three classmates in specific order. This order is very important and is to be noted when coding and writing data in the Excel table. How do you code data?

- Acceptance: you will write a 1 in the box corresponding to the student who has been chosen in first place, 2 in the box corresponding to the student who has been chosen in second place, and 3 in the box corresponding to the student who has been chosen in third place.
- Rejection: you will write a 4 in the box corresponding to the student who has been chosen in first place, a 5 in the box corresponding to the student who has been chosen in second place, and a 6 in the box corresponding to the student who has been chosen in third place.

You have to take into consideration that in the vertical (column) are voter students, and in the horizontal (row) are students chosen. For example, suppose that No.1 student answered that he/she wants to have as a teammate students 5, 23 and 17 (in this order of preference); and he/she does NOT want to have as a teammate students 20, 7 and 12 (in this order of preference). This would be coded as shown below (figure 7). As you can observe in the row of student No. 1 it has been filled with the boxes corresponding to students

mentioned: in the column of student 5 there is a 1, in the student 23 a 2, in the student 17 a 3 (the three students accepted academically by the student 1); in the column of student 20 there is a 4, in the student 7 a 5, and in the 12 a 6 (the three students academically rejected by the student 1). The remaining boxes in this row are unfilled.

Figure 7

1. Who would you choose to be your team mate?

Reasons: a) He/she is very smart b) She/he is a good student. c) He/she is responsible. d) He/she does it all.

2. Who would you NOT choose to be your team mate?

Reasons: a) He/she is not very smart. b) She/he is not a good student. c) He/she is irresponsible d) He/she doesn't do anything.

ATTENTION!! In the left column are the electors and the elected are in the upper line.

Country of origin		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nº	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	1					1		5					6					3			4			2	
0	2																								
0	3																								
0	4																								

This way you will have to fill in all the rows. In each of them it will be numbers from 1 to 6 distributed according to the choices each student has made.

In this page, below the table you have just filled in, you can observe an orange, yellow and blue table (figure 8).

Figure 8

Acceptance	1st Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2nd Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3rd Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reason																																			
SCORE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SCORE%		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rejection	1st Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2nd Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3rd Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reason																																			
SCORE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SCORE%		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INTEGRATION INDEX		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COHESION INDEX		####																																	

In the orange zone you will find a summary of data related to the acceptance that each student has, in the yellow zone the data related to rejection that each student has, and in the blue zone the index of total integration and the index of the group cohesion. We are going to explain each section in detail.

In the summary of acceptance (orange area) the results that each student has received are gathered: how many times he/she has been chosen as accepted as first option, how many times as second option, and how many times as third option. For example, if the student No. 3 has been chosen 4 times in first place, 5 in second place and none in third place, it will appear as this in the following table (figure 9).

Figure 9

Acceptance	1st Elec.	0	0	4	
	2nd Elec.	0	0	5	
	3rd Elec.	0	0	0	
Reason					

So the next step is to fill in the boxes right below, “Reason”. Recall that the reason makes reference only to the first option between the three classmates they have been chosen. In order to fill in this part you have to write the letter corresponding to the reason. Let’s see how to fill in the reasons according to the previous example. Since the student No. 3 has been chosen 4 times as the first option, you will have to write four letters in the corresponding box for “Reason”, like this (figure 10). Note that when the same reason has been chosen twice, you don’t write the same letter twice, but you put the number of times before the letter.

Figure 10

Acceptance	1st Elec.	0	0	4	
	2nd Elec.	0	0	5	
	3rd Elec.	0	0	0	
Reason				2a,b,d	

As you can see it says “2a, b, d”. This means he/she was chosen in first place as accepted by two classmates for the reason “a: he/she is very smart”, by one classmate for the reason “b: he/she is a good student”, and by one classmate for the reason “d: he/she does it all”.

In the rejection summary (yellow zone) the results that each student has received are gathered: how many times he/she has been chosen as rejected as first option, how many times as second option, and how many times as third option. For example, if the student No. 4 has been chosen 5 times in first place, 7 times in second place and 4 times in third place, it will appear in the table like this (figure 11).

Figure 11

Rejection	1st Elec.	0	0	0	5	0
	2nd Elec.	0	0	0	7	0
	3rd Elec.	0	0	0	4	0
Reason						

Next you have to fill in are the rejection reasons, in the same way that you filled in the acceptance reasons. Following the example above, you have to write 5 reasons in the corresponding boxes for the student No. 4, since he/she has been chosen by 5 classmates in first place as rejected. Suppose he/she has been rejected in first place for the next reasons: three classmates because of reason “b: he/she is not a good student”, and two because of reason “e: he/she is not my friend”. When filling in the table it will be as follows (figure 12).

Figure 12

Rejection	1st Elec.	0	0	0	5	0
	2nd Elec.	0	0	0	7	0
	3rd Elec.	0	0	0	4	0
Reason					3b,2e	

Therefore you will be able to see which students have been chosen as accepted or rejected in first place, and the boxes of reasons filled in each of them. In case of students have not been chosen in first place, you will not have to write anything in the reason box of such students.

Right below this two areas there are two rows named “Score” and “Score %” (figure 13). These cells contain formulas and it will produce results according to what has been filled above.

Figure 13

Acceptance	1st Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2nd Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3rd Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reason																				
SCORE		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SCORE%		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Rejection	1st Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2nd Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3rd Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reason																				
SCORE		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SCORE%		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The data relating to “score” is useful to find integration indexes of each student (of which we will talk about shortly). And the data relating to “score %” is useful to classify students into the categories that appear in the page “students data” (we will also see these categories more in detail later on).

By applying the sociogram at the beginning of the school year (before any intervention) and at the end of the school year (after completing socio-educational interventions) indexes of each student can be compared, being able to see if any improvement occurs especially in those students more rejected or isolated.

In this Excel page we have to explain the blue area corresponding to the integration index of each student, and the cohesion index of the entire group (figure 14).

Figure 14

INTEGRATION INDEX	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
COHESION INDEX	**####**															

The integration index is an indicator that provides information about how integrated is each student in the group. The result is a number that could be negative or positive. The lower it is, the less integrated the student is in the classroom. The higher it is, the more integrated the student is in the classroom.

The cohesion index makes reference to the unity of the group in general. The higher the index is, the greater is the group cohesion.

Finally, to the right of the main table that you have to fill in, there is another table that is self-filled (figure 15). Here you can see the countries of origin or ethnicity (but not nationality) of the students who have been chosen as accepted or rejected.

Figure 15

Acceptance (country of origin)			Rejection (contry of origin)		
1st election	2nd election	3rd election	1st election	2nd election	3rd election
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

So you can understand better, we will see an example of possible results. Suppose the student No. 1 has chosen as accepted a Belgian student in first place, in second place a Lithuanian student and in third place a Maltese student; and he has chosen as rejected a Spanish student in first place, a Belgian student in second place and also a Belgian student in third place. It would be recorded as follows (figure 16).

Figure 16

Acceptance (country of origin)			Rejection (contry of origin)		
1st election	2nd election	3rd election	1st election	2nd election	3rd election
BEL	LAT	MAL	SPA	BEL	BEL
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

This table is especially useful to see at a glance, whether the rejections or acceptances are higher towards a specific group or not. It may be that there is greater rejection towards foreign or foreign origin students, or towards an ethnic minority; or the opposite, that there is a higher acceptance towards those groups.

Once all this data is filled in the worksheet “academic acceptance and rejection”, you must click on the tab “social acceptance and rejection” and repeat the process. In order to do this, you will consider the students’ answers to the questions in the social area:

- Who would you like to be with during play time/break? (ACCEPTANCE)
- Who would you **NOT** like to be with during play time/break? (REJECTION)

The rest of the process is the same as explained for academic questions.

Once you have filled in all the data mentioned so far in the three pages of Excel, you have to come back to the first tab “student data”. Now you can see that the four columns “academic acceptance”, “academic rejection”, “social acceptance” and “social rejection” are completed automatically (figure 17).

Figure 17

ACADEMIC ACCEPTANCE	ACADEMIC REJECTION	SOCIAL ACCEPTANCE	SOCIAL REJECTION

Each student will now have a category for each of these options, and an associated color, as follows:

- Acceptance: “isolated”, “slightly integrated”, “integrated” y “leader”.
- Rejection: “not rejected”, “normal rejection”, “mild rejection”, “rejected” y “highly rejected”.

ACCEPTANCE	ISOLATED	SLIGHTLY INTEGRATED	INTEGRATED	LEADER
REJECTION	NOT REJECTED	NORMAL REJECTION	MILD REJECTION	REJECTED	HIGHLY REJECTED

These categories are the final results you are going to work with to form cooperative groups and to carry on cooperative learning. Keep in mind that you are going to obtain acceptance categories in the academic and social area, and the same applies to rejection categories. They don’t have to coincide, for example a student that is academically a leader, could be socially isolated as well. Next we are going to explain what each category means.

- **Isolated** students are those who have not been chosen by any classmates as accepted in first, second or third place. These students are not likely to have friends in class, who are alone, especially if the isolation is in the social area. An isolated student academically and socially has to get our attention. They have difficulty establishing friendly relationships with their classmates, peers tend to ignore them, and they are unnoticed. The isolated students are aware of it, which may produce high levels of stress and they have a tendency to underestimate their social competence. It is possible that these students have

lack of social skills to build relationships, or they don't implement them. It is important to analyze possible reasons for their isolation.

- **Slightly** integrated: These students receive some acceptance elections, but few. They may have some friends in the group, or at least some relationships with peers. You should observe if they have friendly relations with peers, if they participate in activities, etc.
- Integrated students: They are usually the majority of students in the group. Their level of integration is average, they have some friends, they participate in activities and in general they do well in the group.
- **Leader** students: Usually there is one or two per group. These students are highly valued by their peers, being a reference for the rest of the group, models to imitate or look alike. They have a strong influence over the group. You have to clarify if it's a positive leadership (for positive behaviors that promote integration, good atmosphere in the classroom, cooperation, solidarity) or if it's a negative leadership (for negative and disruptive behaviors that favor segregation, conflicts, competition and selfishness). In case of a positive leadership, this student will be an important piece when designing interventions. In case of a negative leadership you have to try to redirect this leadership towards positive behavior.

- Not rejected students: They are students who don't generate conflicts, getting along with others, but are unnoticed. Nobody has chosen him/her as rejected.
- Students with normal rejection: Usually almost every student is rejected by a classmate at some point. This doesn't mean that they are conflictive and they are within a normal range.
- Students with mild rejection: They are not students that are highly valued in class, but they don't usually generate conflicts continuously.
- **Rejected** and **highly rejected** students: It is quite possible that a rejected student has constant conflicts with many of his/her peers and usually with teachers too, trespassing social rules very often. They are those who frequently leave education early because of low scores and conflicts. This lead them to be unmotivated, not wanting to go to the educational center, and maybe to have a low self-esteem.
- Controversial students: This category does not appear in the sociogram columns, but it is possible that some students comply with the characteristics which describe them. They are leader students, but at the same time rejected. This may sound strange, that is because they are students who typically have a higher level of activity, with great intellectual, social or athletic capability and with initiative, but they also tend to omit established rules and they end up getting involved in conflicts with peers. So they may have a group of friends in the classroom, but at the same time a group of classmates who reject them. It also tends to coincide with a negative leadership style.

You can see two other columns unfilled: "incidents" and "lead teacher or orientation department observations". (Figure 18).

Figure 18

INCIDENTS (absenteeism - illness, etc.)	ACADEMIC ACCEPTANCE	ACADEMIC REJECTION	SOCIAL ACCEPTANCE	SOCIAL REJECTION	LEAD TEACHER OR ORIENTATION DEPARTMENT OBSERVATIONS

It is very important that these two columns are filled in, particularly the “lead teacher or orientation department observations”, because it will give relevant extra information about the possible causes of the imbalances in the classroom. These two columns must be completed manually for each student as follows.

- Incidents: in this section you must indicate possible incidents that have occurred to a student during the implementation of the sociogram: if a student has not attended for reasons of being an absentee, being sick, didn’t want to answer the questionnaire; if he/she participated in an incident such as fighting; etc, in the box corresponding to that student record the incidents occurred. In case of students with no incidents, leave this box blank.

- Lead teacher or orientation department observations: This section has to be filled by the person who applied the questionnaire with the lead teacher (if the teacher is not the person who applied the questionnaire or filled in the Excel pages) and if possible with the orientation department from the educational center. Here you must indicate in the corresponding cell for each student, observations that could explain the categories each student is in. For example, he/she comes from a dysfunctional family whose parents are never at home and the student spends long hours on the streets; or he/she has dyslexia and other students laugh when he/she makes mistakes; or he/she belongs to a group that fights with others; etc. It is important to indicate here, for students in the category of “leader” if this leadership is a positive type or if on the contrary is a negative leadership kind.

Once the questionnaire data is transferred to the Excel table and you have completed all the sections, you can analyze data. You can do it independently, considering just the information obtained in the sociogram, or jointly with the rest of the diagnostic tools. We recommend the last option, since it will give you an overview more adjusted to the real interaction and the dynamic inside the classroom. This analysis will be explained in section 5 in this methodological guide.

4.2.RANKING

What is ranking and what is its utility?

The ranking is a tool that complements the information offered by the sociogram, assessing the social status (level of popularity) of each student. Thanks to it you can make a much simpler and efficient pre-post evaluation that also you can contrast with the sociogram and the teacher’s observations in the classroom. It is useful to know how well or bad a student likes other classmates. So the information we are going to obtain is through an arithmetical average, it means we are going to know if a student is popular, unpopular or an average person.

The main usefulness that the ranking offers to the teachers is to contrast their belief about the popularity of each student. If it is also used in conjunction with the sociogram, the information could be greater, while confirming and supporting information obtained from it, because of students are able to assess their classmates, you can obtain information about the perception and the relationship they have between each other. The sociogram is much

more restrictive in this regard, since it limits the number of eligible students to three, either in acceptance and rejection.

With this information, you start from a deeper knowledge about the relationship between a group of students, and about the opinion of every group member about other classmates. Also you can see if the most popular students are from a specific nationality, or gender, which could indicate certain kind of segregation.

How and when to apply the ranking?

We recommend to apply the ranking in each course at least twice, just like the sociogram: one at the beginning of the school year and the other one, at the end of it. If the group of students already know each other and have been together in previous grades, you can apply it as soon as you start the school year. If it is a new group, whose members don't know each other, wait at least one month to apply it, so they have time to know each other. This application in two moments will allow the teacher to know if the interventions and methodologies carried out over the school year have been effective and if they have succeeded improving relations between students.

Answering the questionnaire will take about 10 minutes, and the explanation of it takes about 5 minutes, clarifying the doubts that may arise from students. So you can apply the ranking in the same session than when applying the sociogram questionnaire.

Next we are going to explain in detail **step by step the application of the ranking.**

- Previously you have to obtain the students list from the class. You will fill out the questionnaire template with the names of all of them.
- Separate the students, so the information can be confidential and they can answer honestly. Explain to them that the answers will not be displayed.
- Motivate the students to complete the questionnaire, by explaining that the purpose of this exercise is to improve the relationship between the students in the class.
- Explain to them that they are going to score how well or bad they like their classmate by scoring with (5) if they like a lot or (1) if dislike a lot. The question is: "How do you like…?" It is important to explain what each number means, especially to younger kids. If they are younger, you can use numbers with expression faces that go from happiness, to indifference to anger.
- They have to score all their classmates, whether or not they are in the class that day, but they can't score themselves. Ask them to cross off the box corresponding to their name to avoid mistakes.
- Give them time to answer, about 5 to 10 minutes.
- When collecting the answer sheets, make sure that personal data is correctly filled, and that they have scored every classmate, except for themselves. In case of an error or omission, ask the student in question to fix it.
- Thank them for their participation.

The following is the ranking questionnaire

Nº_____Name and initial of last name: _____

Age:_____Grade:_____Gender (Male/Female): _____

1 DISLIKE A LOT	2 DISLIKE	3 NORMAL	4 LIKE	5 LIKE A LOT

1.- **1 2 3 4 5**	**2.-** **1 2 3 4 5**
3.- **1 2 3 4 5**	**4.-** **1 2 3 4 5**
5.- **1 2 3 4 5**	**6.-** **1 2 3 4 5**
7.- **1 2 3 4 5**	**8.-** **1 2 3 4 5**
9.- **1 2 3 4 5**	**10.-** **1 2 3 4 5**
11.- **1 2 3 4 5**	**12.-** **1 2 3 4 5**
13.- **1 2 3 4 5**	**14.-** **1 2 3 4 5**
15.- **1 2 3 4 5**	**16.-** **1 2 3 4 5**

17.- 1 2 3 4 5	18.- 1 2 3 4 5
19.- 1 2 3 4 5	20.- 1 2 3 4 5
21.- 1 2 3 4 5	22.- 1 2 3 4 5
23.- 1 2 3 4 5	24.- 1 2 3 4 5
25.- 1 2 3 4 5	26.- 1 2 3 4 5
27.- 1 2 3 4 5	28.- 1 2 3 4 5
29.- 1 2 3 4 5	30.- 1 2 3 4 5
31.- 1 2 3 4 5	32.- 1 2 3 4 5
33.- 1 2 3 4 5	34.- 1 2 3 4 5
35.- 1 2 3 4 5	

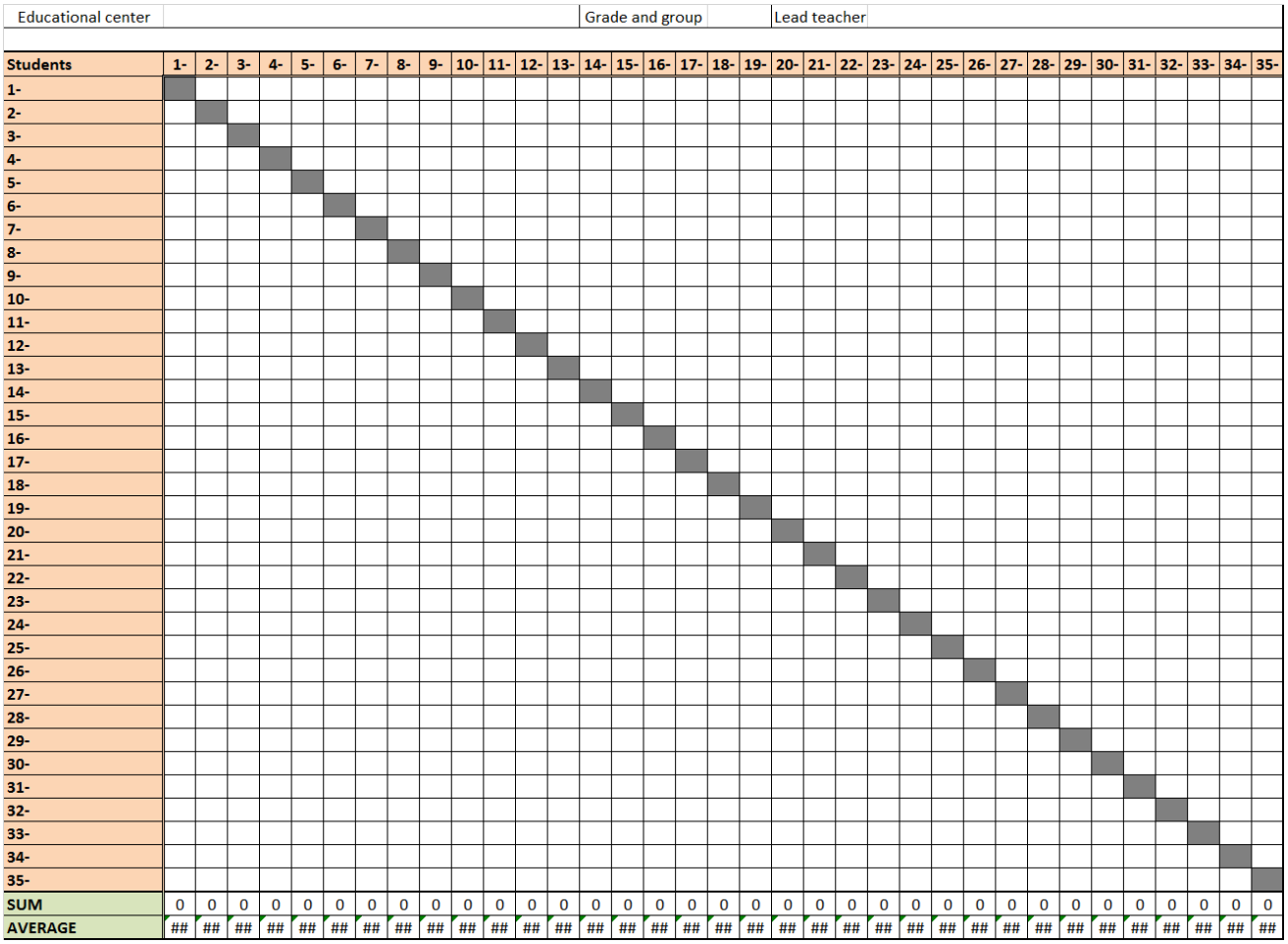
How to analyze ranking data?

Once you have applied the questionnaire, you have to transfer the answers to the Excel template which will obtain arithmetic averages for each student. This will let you know how popular or unpopular each student is. Next we are going to explain step by step how to enter data in the Excel table. You have to fill in one file per class/ group of students. We are going to use screen captures of the table to explain each step.

As in the sociogram, the template to be used has formulas in some cells, so those cells where you can't write anything on it have been locked. The cells where data must be entered will be explained in detail in this section.

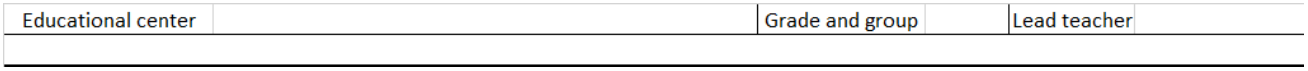
When opening the file you will find a single tab in the table where the data is entered (figure 19).

Figure 19



The first to be filled in is the data related to the "educational center", "grade/group" and the name of the lead teacher of that group (figure 20).

Figure 20



And then you have to fill in the data related to the students, it means entering their names into the colored column named “Students” (figure 21). It is to be noted that the number must be the same as the one entered in the sociogram, and also corresponding to the class list. In this way, the number 1 refers to the same student in the sociogram, in the ranking and in other diagnostic tools used.

Figure 21

Students	1-	2-	3-	4-	5-	6-	7-	8-	9-	10-	11-	12-
1-												
2-												
3-												
4-												
5-												
6-												
7-												
8-												
9-												
10-												
11-												
12-												

Subsequently you have to enter the assessment data that the students have done on each classmate. As in the sociogram, vertically you will find the students who are scoring, and horizontally the students scored. So in order to enter the scores that the number 1 student has given to his/her classmates, you will write in the first row (figure 22). These scores will have to be whole numbers from 1 to 5, as shown in the answer sheets.

Figure 22

Students	1-	2-	3-	4-	5-	6-	7-	8-	9-	10-	11-	12-	13-	14-	15-	16-	17-	18-	19-	20-	21-
1-		2	2	4	3	3	2	3	1	5	3	3	2	4	5	5	1	3	4	3	
2-																					
3-																					
4-																					
5-																					
6-																					
7-																					
8-																					

Once you have filled in all the corresponding cells you can see in the two bottom rows, the results obtained for each student. One is the total sum, and the other one is the average (figure 23). The last is the one that is really interesting and will be used later.

Figure 23

SUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVERAGE	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##

The averages will range between 1 and 5, and these can have decimals. In order to analyze this data you have to remember the scale the students used to answer, which is the following.

1	2	3	4	5
DISLIKE A LOT	**DISLIKE**	**NORMAL**	**LIKE**	**LIKE A LOT**

This way it is possible to know the level of popularity of students in a specific group.

- Average between 4 and 5: Students with high average is very popular among their classmates within that group. It is possible that also coincides with a high level of integration in the social area in the sociogram, even in the leader category. This is a student who has certain ability to influence their peers, which is respected and valued. It would be interesting to know what features these students have, because those are the characteristics that the group values and are present in those students.

- Average between 3 and 4: Students with an average in this range have a level of popularity among their classmates, people like them without being the most popular ones of the classroom. It is probably that in the sociogram coincides with the category of integrated students. In this case, as in the following range (between 2 and 3) you must observe if the opinions about the students are polarized. The students may have had many scores of 1 or 2 and many of 5. In this case they are not as popular among their classmates, but they are controversial students, because some peers like them a lot and some dislike them a lot.

- Average between 2 and 3: Students with average in this range have a medium popularity level tending to be low and is possible that they are almost unnoticed among their peers. Probably the sociogram coincides with an isolated or slightly integrated category. As in the previous range (between 3 and 4) observe if the scores received by students are polarized or not.

- Average between 1 and 2: Students with such a low range tend to be very unpopular among their peers in the group. Probably also coincides with a low level of integration into the social area in the sociogram, possibly they are in the rejected or highly rejected category. It would also be interesting to know the reasons why their peers dislike them, and what features they have that the group don't like.

INTERGROUP ATTITUDES QUESTIONNAIRE

What is an intergroup attitudes questionnaire and what is its utility?

We understand the attitude as the disposition a person has to react favorably or unfavorably to a given stimulus. In case of intergroup attitudes, this stimulus are people belonging to another group that is perceived as different or opposite to the own one, either because of ethnicity, gender, nationality or other reasons. The attitude has three components: cognitive (beliefs and thoughts held about the other group), affective (feelings evoked by the group) and behavioral (how to react to members of the other group).

This questionnaire is originally a scale of behavioral disposition and ethnic identification (E.D.C.I.E.) created by Maria Jose Diaz-Aguado team. This is also based on a behavioral disposition scale Likert type, where a group of people are asked about their willingness to participate in activities with people who belong to a different ethnic group than the own one.

In the present case you can use it to detect behavioral dispositions regarding ethnic groups (for example gypsies and non gypsies), regarding gender (boys and girls), or nationalities (for example Spanish and Moroccan; Luxemburg and Portuguese, etc). The objective of this questionnaire is to assess students' willingness to interact and participate in activities with people from different groups who are not their own (ethnicity, gender, nationality, etc).

The questionnaire has 10 items (questions) that students have to answer on a scale of four degrees: a lot, quite a bit, not much and not at all. All items except number 3, make reference to the other group. The 10 items that form the scale of behavioral disposition (intergroup attitudes questionnaire) are divided into two levels, according to the level of interpersonal commitment that they have:

- Moderated interpersonal commitment: includes items corresponding to the numbers 2, 3, 4, 6, 7 and 9.
- High interpersonal commitment: includes items 1, 5, 8 and 10.

So this questionnaire is useful in those groups where there is segregation between two groups, or there is a risk that this segregation happens. In the first application you will know how strong the dispositional rejection of students from one group is to the other (whether or not they are willing to interact with members of the other group). In case the results obtained with the questionnaire indicate high rejection is evident that intervention should be oriented to work on stereotypes and prejudices about each other as well as improve mutual knowledge to enable students to empathize with each other. This way you will achieve to reduce the gap between both groups.

In the second application, after the intervention, you will be able to observe if there has been some improvement: segregation reduction. It will be evident in the pre-post comparison results.

It is useful for teachers to confirm segregation with an objective evaluation system which will allow to guide the intervention.

This problem in a group of students is also an opportunity, since it allows you to work subjects of different cultures or from different perspectives. For example in case of ethnic segregation between non gypsies and gypsies you can work contents of both cultures, where students themselves are responsible for presenting them: games, music, dance, gastronomy, family styles, etc. Or in case of segregation based on sex between boys and girls you can work contents of gender, favoring a more egalitarian approach, being the students themselves responsible for presenting their difficulties and views in the same situation, working on classic tales and changing students their plot to be equal, analyzing movies or series, etc.

How and when to apply the intergroup attitudes questionnaire?

You don't have to apply this questionnaire in all groups, only in those in which a clear segregation is detected (or risk that a segregation will happen) between two groups in the classroom. For example gypsies and non gypsies, boys and girls, students from two different nationalities, etc. If no such segregation is suspected or detected do not apply this questionnaire.

We recommend to apply the intergroup attitudes questionnaire at least twice in each grade, as in the sociogram and in the ranking: one at the beginning of the school year when the students already know each other, and another one at the end of the school year. If the student group already know each other and they have been together in previous grades, it can be applied soon after starting the school year. If it is a new group of students, whose members don't know each other, wait at least one month to apply it, so they have time to know each other. This application in two moments will allow the teacher to know whether the interventions and methodologies that have taken place during the school year have been effective and whether they have succeeded improving relations between students, reducing or eliminating the prejudices and counteracting reference stereotypes of the group in the classroom.

Students should answer to the questionnaire where they are asked about whether or not they would carry out certain behaviors related to another group, for example gypsies are asked about non-gypsies and non-gypsies are asked about gypsies. Depending on the students' age, they can take to answer between 5 and 10 minutes. The explanation of it takes about 5 minutes, clarifying doubts that may arise from them. Next we are giving details **step by step about the implementation of the intergroup attitudes questionnaire.**

- Before going to the classroom you have to prepare two versions of questionnaires: one for each group. You have to pay attention when preparing the two versions and make sure that the name of the group is the right one.
- Separate the students so the information is confidential and they can answer honestly. Explain to them that the answers will not be disclosed.
- Motivate the students to collaborate by explaining that the objective of this exercise is to help them to improve the relations between the students in the class.
- Give the corresponding questionnaire to each student, it is very important to pay attention to this detail.

- Explain to them that first they have to fill in the sections corresponding to personal data.
- Indicate that they must answer every question.
- Give an example and answer questions that may arise from them.
- Give them time to answer (approximately 5 to 10 minutes).
- Collect answer sheets and check if they have answered every question. In case of errors or unanswered questions, return the questionnaire and ask them to complete it.

Next we are presenting the intergroup attitudes questionnaire that a gypsy student would complete in reference to non gypsies.

Nº_____Name and initial of last name: _____

Age:_____Grade:_____Gender (Male/Female): _____

Country of birth: _____

The following you will find a series of questions. Read them and circle the corresponding word according to how much you like to do what the question ask; a lot, quite a bit, not much or not at all.

ANSWER BY CIRCLING A WORD

1	Would you like to invite to your home a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
2	Would you like to be with a non gypsy person during playtime/break?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
3	Would you prefer to go to a school just for gypsies?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
4	Would you like to go to a field trip with non gypsy people?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
5	Would you like to tell a secret to a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
6	Would you like to work in teams with a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
7	Would you like to sit next to a non gypsy person in the cafeteria?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
8	Would you like to go to a birthday party for a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
9	Would you like to sit next to a non gypsy person in class?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
10	Would you like to be best friends with a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL

How to analyze data of intergroup attitudes questionnaire?

This questionnaire is useful to reveal the level of prejudice, the rejection to participate in activities with other group members. So the items are scored as follows:

- Items 1, 2, 4, 5, 6, 7, 8, 9 and 10: not at all=4, not much=3, quite a bit=2, a lot=1
- Item 3: not at all = 1, not much = 2, quite a bit = 3, a lot = 4.

The higher a score is on an item, the higher level of prejudice manifested. These scores have to be entered into an Excel table which will analyze the data (figure 24).

Figure 24

Educational center:							Grade and group:		Lead teacher:				
	STUDENT	QUESTION 1	QUESTION 2	QUESTION 3	QUESTION 4	QUESTION 5	QUESTION 6	QUESTION 7	QUESTION 8	QUESTION 9	QUESTION 10	SUM	PERCENTILE
1												0	5
2												0	5
3												0	5
4												0	5
5												0	5
6												0	5
7												0	5
8												0	5
9												0	5
10												0	5
11												0	5
12												0	5
13												0	5
14												0	5
15												0	5
16												0	5
17												0	5
18												0	5
19												0	5
20												0	5
21												0	5
22												0	5
23												0	5
24												0	5
25												0	5
26												0	5
27												0	5
28												0	5
29												0	5
30												0	5
31												0	5
32												0	5
33												0	5
34												0	5
35												0	5

In first place you will enter the data “educational center”, “grade and group” and “lead teacher” of this group (figure 25).

Figure 25

Educational center:		Grade and group:	Lead teacher:	

Then you have to fill in the students’ data, in this case only the name and the initial of the last name (figure 26). Remember that in all questionnaires and tables where the students’ data is entered it must be done in the same way. Also to highlight the importance of the confidentiality of the information you collect, as well as the protection of the students’ data, especially if they are minors.

Figure 26

Educational center:						
	STUDENT	QUESTION 1	QUESTION 2	QUESTION 3	QUESTION 4	QUESTION 5
1						
2						
3						
4						
5						

Subsequently you must enter the data of students' answers. You have to keep in mind the scores corresponding to each answer depending on the question, as indicated above and we copy it here to make it easier.

- Items 1, 2, 4, 5, 6, 7, 8, 9 and 10: not at all=4, not much=3, quite a bit=2, a lot=1
- Item 3: not at all = 1, not much = 2, quite a bit = 3, a lot = 4

The scores entered will be whole numbers from 1 to 4. For example, this is how you will enter the data of student number 1 if he/she answered the questions as follows: question 1 not at all, question 2 not much, question 3 a lot, question 4 not much, question 5 not at all, question 6 not at all, question 7 not much, question 8 not much, question 9 not at all, question 10 quite a bit.

Figure 27

	STUDENT	QUESTION 1	QUESTION 2	QUESTION 3	QUESTION 4	QUESTION 5	QUESTION 6	QUESTION 7	QUESTION 8	QUESTION 9	QUESTION 10	SUM	PERCENTILE
1		4	3	4	3	4	4	3	3	4	2	34	90
2												0	5
3												0	5
4												0	5
5												0	5
6												0	5
7												0	5
8												0	5
9												0	5
10												0	5

As you can see the total sum of this example is 34. But this information is not really important, because the useful data for the teacher is the percentile that the student has in relation to the other group. The case in the example he/she is in percentile 90, which means that his/her level of prejudice over a group is very high. This distribution in percentiles is very reliable for the majority group, and is not so much for the minority group. So when you are analyzing data you have to keep in mind the following:

- First determine if the student that is being analyzed belongs to the majority or minority group. In case of gender difference, the girls are considered the minority group, because they have less power compared to the boys group.
- If the student belongs to a majority ethnic group, it will be considered the percentile result he/she is in, adding it to the analysis and the first report.

- If the student belongs to a minority ethnic group the percentile result will not be taken into consideration much in the first analysis and report. But you will consider it in the pre-post analysis.

- The students with a percentile between 5 and 20 could be considered to have low or very low prejudice level.

- The students with a percentile between 25 and 45 could be considered to have medium prejudice level.

- The students with a percentile between 50 and 70 could be considered to have a medium high prejudice level.

- The students with a percentile between 75 and 85 could be considered to have a high prejudice level.

- The students over a percentile of 85 could be considered to have a very high prejudice level.

So in a previous and posterior application to the intervention you can compare the data and know if there has been a reduction in the prejudices of the students from the majority and minority groups.

EDUCATIONAL INTERACTION QUESTIONNAIRE

What is the educational interaction questionnaire and what is its utility?

This questionnaire is based on the semi-structured interview about educational interaction which was developed by Maria Jose Diaz-Aguado and Maria Teresa Andres in a research in 1999. It is useful to know the attitude and the representation that the student has about the system, the teaching-learning methodology and their relationship with the teacher.

The questionnaire has 15 items in which you can identify two dimensions already mentioned.

- Attitude and representation of cooperative learning: thanks to this dimension you will obtain data about the attitude that the students have about the teaching-learning process in collaboration with their classmates. The assessment takes into consideration the reciprocity, the possibility of teaching their classmates and learning from them, how the student explains the teaching-learning process, and the contents that they think they can teach and learn. This dimension includes items 12, 13, 14 and 15.

- Representation of the teacher's role: thanks to this dimension you will obtain data about the representation that the student has about the teacher's role. According to the students' answers you can differentiate six models depending on the role that the teachers have in the teaching-learning process and the kind of relationship established with their students. This dimension includes items 7 and 8.

As you can see items 1 to 6 and 9 to 11 don't belong to any dimension. These questions are useful to have a view about the perception that the students have about high school, their favorite subjects and why, and their motivation for learning in the educational center.

So this questionnaire is used to know the initial predisposition of students toward cooperative learning (collaborating with their classmates in the teaching-learning process, being able to learn from them and teach them). This will give an idea to the teacher about which attitudes and behaviors may occur when applying a more collaborative educational methodology between students, if they expect to find resistance when implementing it, or if there will be students who are more or less comfortable with it.

On the other hand, the teacher will know the students' perception about their role, and the perception they have about the relationship with the teacher. Usually this is something difficult to perceive, because is very subjective and the teacher can miss it. This information will allow them to change and correct it if it is not the most ideal, being able to grow and improve as a professional. The relationship between the teacher and students is an important element in the teaching-learning process, because it strongly influences classroom atmosphere, students' motivation, favoring or not the integration of a new students, students' self-esteem and self-concept, etc.

How and when to apply the educational interaction questionnaire?

We recommend to apply the educational interaction questionnaire in each course at least twice: one at the beginning of the school year and the other one at the end of it. If the group of students already know each other and they have been together in previous grades, you can apply it as soon as the school year starts. If it is a new group, whose members don't know each other, wait at least one month to apply it, so they have time to get to know each other. This application in two moments will allow the teacher to know if the interventions and methodologies carried out over the school year have been effective and if they have succeeded changing the perception and representation that the students have about the education, the teachers' role, the students' role, etc.

This questionnaire has to be applied if you are going to use the methodology of cooperative learning in the socio-educational intervention stage, because it will allow to know about the students' attitude and representation previously. You will know priori if students are willing to teach and learn from their classmates, or if you will find resistance to this kind of teaching-learning. Applying the questionnaire after the intervention you will know if their attitude and perception have changed.

Also it will be used to detect if the teachers' style is appropriate to cooperative learning, or if you need to work on this issue to ensure an intervention more satisfactory and efficient later on.

Although you are not going to implement cooperative learning in the socio-educational intervention stage, it is also recommended to apply this questionnaire because it provides valuable information about the attitude and representation that students have towards education, and their perception they have about the teachers' role.

When applying this diagnostic tool is important to emphasize the relevance of answering honestly about what they really think. It is also important to indicate that they must give answers as long as they consider, giving explanations and motives for their view. If they think they will not have enough space in the blank, they can write below the line and margins if necessary. The more they explain the better, because it will be easier to interpret their answers in the analysis phase.

Next we are giving details **step by step about the application of the educational interaction questionnaire.**

- Separate the students, so the information is confidential and they can answer honestly. Explain to them that the answers will not be disclosed.
- Motivate the students to collaborate by explaining that the objective of this exercise is to improve the relations between the students in the class.
- Explain them that first they have to fill in the sections corresponding to personal data.
- Indicate that they must answer every question.
- Give an example and answer questions that may arise from them.
- Give them time to answer (approximately 5 to 10 minutes).
- Collect answer sheets and check if they have answered every question. In case of errors or unanswered questions, return the questionnaire and ask them to complete it.

Next we are presenting the educational interaction questionnaire.

Nº_____Name and initial of last name: _____

Age:_____Grade:_____Gender (Male/Female): _____

1. Do you like high school?

YES NO

Why?

_____

2. What do you like about high school the most?

_____

Why?

_____

3. What do you like the least about high school?

_____

Why?

_____

4. What do you like the most: being on break or in class?

_____

Why?

_____

5. What subject do you like the most?

_____

Why?

_____

6. What subject do you like the least?

_____

Why?

_____

7. What is the most important thing you do in high school?

Why it is important?

8. What does your teacher do?

9. If the teacher is not there, who would teach you?

10. In your family, who can teach you?

11. Why it is important to learn?

12. Can any boy/girl from your class teach you?

YES	NO

Who?

13. What can she/he teach you?

14. Can you teach a classmate?

YES	NO

Who?

15. What can you teach him/her?

How to analyze data of the educational interaction questionnaire?

To analyze this questionnaire there is not an Excel template or any quantitative methodology. The analysis you have to do is qualitative depending on the content of the students' answers. This way you have two different evaluations, one for each dimension previously mentioned.

For the dimension **attitude and representation of cooperative learning** are four levels that are scored from 1 to 4 based on the following characteristics:

- Score 1: you score with 1 when the arguments are negative and absolute, simplistic and unelaborated, you may have the following situations:
  - He/she rejects the possibility that other classmate can teach him/her and he/she can teach other students with radical arguments.
  - There is not reciprocity in the possibility that she can teach or learn from other classmates.

- Score 2: this score is given when one of the following situations occurs:
  - They start to accept the possibility of peers learning and teaching, but the arguments are simplistic, general and unelaborated and don't explain the teaching-learning process.
  - The student can explain the teaching-learning process, but accepts peer learning unidirectional, for example he/she helps other students, but considers that other students can't help him/her.

- Score 3: you score with a 3 when two of the following conditions are met:
  - The attitude towards cooperative learning is positive, referring to the possibility of teaching and learning from classmates.
  - The description of the teaching learning process is more elaborate than the previous level, but without reaching comprehension explained in level 4.

- Score 4: you score with a 4 when both of the following conditions are met:
  - The arguments include the ones specified in level 3 (positive attitude towards cooperative learning, reciprocity in the teaching-learning process).
  - The description of the objectives and the advantages of cooperative learning reflects a good knowledge in the teaching-learning process.

For the dimension of **representation of teacher's role,** 6 models have been observed. These are included in two classifications, with three types each, depending on: the teacher's style manifested in the way of dealing with diversity (models 1, 2 and 3), and the style of relation with norms and discipline (models 4, 5 and 6).

- Model 1: the teacher is represented as somebody who designates homework, evaluates results and with whom the student fails or sometimes feels ridiculous. It corresponds to the model over-reactive.

- Model 2: the teacher's representation is stereotyped and/or distant, as someone who just explains, answers questions, designates homework or evaluates results. Partly it corresponds to the reactive model.

- Model 3: They see the teacher as someone available to help students to overcome difficulties that can arise in the learning process and who succeed adapting the education to the students' diversity. It coincides with some characteristics of the proactive teacher.

- Model 4: the teacher is perceived as responsible for maintaining order, someone to obey, otherwise punishes the student.

- Model 5: the teacher is perceived as someone you learn to behave with, who dictates the norms and says what to do.

- Model 6: the students' perception of the teacher is of a democratic authority, who builds and applies rules agreed by everyone. He/she is a mediator in the conflict resolution.

We have mentioned three models or teacher styles that we are going to clarify for a deeper understanding of the results given by the questionnaire.

- *Over-reactive*: they don't consider themselves responsible for what may happen to their students. They assume that their role is focused and limited to transmit information and evaluate the achievement of objectives and performance. They treat difference inappropriately: putting in marginal areas the students that they perceive as problematic; expressing recognition only to students with higher performance, which don't hinder their work; for difficult students they only have criticism for their behavior without giving them opportunities to demonstrate their competence. They usually perceive students as stereotyped, quickly demonstrating to favor students with good performance and behavior, which are those they want to have in class, and they are against the ones they perceive with opposite characteristics.

- *Reactive:* this type of teachers let students interact naturally with each other, without trying to compensate inequalities or the lack of opportunities of some of them that may occur. It is easy that the differences between students dominate, even though the teacher doesn't encourage it. They usually don't have resources to adapt to diversity, treating students as if there were no differences between them (they state that all their students are equal, desiring not to discriminate against anybody, what is called "illusion of equal treatment"), or they assume differences without trying to compensate them. They openly recognize the students' successes, but if a student never succeed, he/she will never have the teacher's recognition.

- *Proactive*: this type of teacher has and transmits positive, flexible and precise expectations, which he/she uses to individualize teaching and make it more effective. They achieve that all students participate in the class dynamic and use effective resources to adapt to diversity. They initiate and maintain interactions with the whole class and students individually. They don't allow

students to determine the structure, one of their objectives is to have equal opportunities, actively compensating the discriminations that are taking place. They think that their role is to adapt to the level of each student and ensure maximum progress. They consider themselves responsible for their results. They have a vast repertoire of resources for teachers to adapt instruction to all students: they express recognition to all of them, considering those most in need; give them time to think about the answers to the questions made; they offer guidelines to solve problems and place students with more attentional difficulties in facilitator areas.

We don't intend that this questionnaire is perceived by teachers as a criticism to their work, their function, their style or their role in the classroom. The intention is always oriented to improve education, so this questionnaire is an opportunity for them to see themselves from the "outside" and to know themselves better to improve professionally. This is why we encourage teachers to do a self-analysis of how they behave in the classroom, what kind of relationship they establish with their students and how they are perceived by them.

EVALUATION OF MULTIPLE INTELLIGENCES

Test of Multiple Intelligences for teachers and educational staff

Read each sentence and color the smiley of those that corresponds to your personality.
Answer spontaneously.

- 1. I have many questions about the functioning of objects.
- 2. I spontaneously offer help to my friends when they need it.
- 3. I like to tell stories and pranks.
- 4. I am sensitive to noises and sounds.
- 5. I usually engage in physical activities.
- 6. I spend a lot of free time drawing.
- 7. I see images in my head when I think of something.
- 8. I am independent and I want my ideas.
- 9. I seem to be a popular person.
- 10. I am interested in horticulture.

- 11. I enjoy reading in my spare time.
- 12. I quickly find the flaws in people's reasoning.
- 13. Taking notes helps me understand and memorize.
- 14. I count quickly in my head.
- 15. I easily remember the melodies I hear.
- 16. I enjoy playing cards or board games.
- 17. I keep my house or my office in order: a place for everything and everything in its place.
- 18. I am motivated to work alone in some projects.
- 19. It is easy for me to move or dance with rhythm.
- 20. The contact with nature pacifies me, calms me down.

- 21. I like to identify birds, plants, trees.
- 22. I am attentive when I listen to a lecture, a presentation.
- 23. I need to know why I should do something before agreeing to do it.
- 24. I have a fairly good memory of what I read or what I hear.
- 25. The fact that I am structured contributes to the success of what I do.
- 26. I need to touch people when I talk to them.
- 27. I decide for myself what I think, what I choose, what I do.
- 28. I can follow the measure in a musical piece.
- 29. When I was a child or a teenager, I had a kit of chemistry or other sciences with which I liked to experiment.
- 30. I read maps, tables and diagrams without difficulty.

- 31. I am concerned about the environment in my daily actions (recycling, use of resources).
- 32. I am deft with my hands; I like working with tools or instruments.
- 33. I am adept at strategy games and I win often.
- 34. I express myself with a rich vocabulary.
- 35. I draw objects and people precisely.
- 36. Before I decide on anything, I weigh the pros and cons.
- 37. I recognize the wrong notes in the performance of a musical piece.

38. I am skilled in the practice of several sports.
39. I am the one consulted when there is a conflict in a group.
40. I like to chat about everything and nothing.

41. I like being in contact with animals or observing them in their environment.
42. I can spend hours trying to solve problems.
43. I am interested in all sorts of music; I regularly listen to music, on the radio or on disc.
44. When a book is illustrated, I am primarily interested in illustrations.
45. I like to classify and categorize.
46. I touch objects when I walk or when I move around the house.
47. I like going out to meet friends.
48. I listen to the feelings of others; I take them into account.
49. I react strongly to the controversial opinions.
50. I have difficulty concentrating on work when I listen to radio or television.

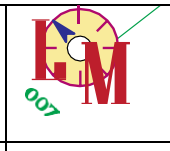
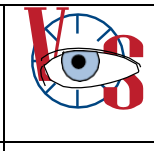
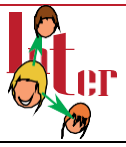
51. I learn by doing.
52. I love solving riddles or puzzles that require logic.
53. I often organize activities around me.
54. I like to collect objects and classify them.
55. I like concerts, recitals, musicals or opera.
56. I trust in myself.
57. I am an entrepreneur.
58. I have a “green thumb”.
59. I easily orient myself in a new city.
60. I like to watch movies, slides and watch photographs.

61. I have the facility to write.
62. I consider it important to preserve our national parks. I like to frequent nature parks.
63. I like to express myself in family discussions.
64. I like to think about my life, my desires and my beliefs.
65. I like visualization exercises. When I think of rearranging a room, I can easily see it in my head.
66. I can easily recognize the rotation of a geometric figure in space.
67. I work well alone.
68. I like to solve crosswords or play Scrabble.
69. I sing right or play a musical instrument.
70. I like movies that give you thrills!

71. I like outdoor hikes, hunting or fishing.
72. I like to assemble and dismantle objects.
73. I like to be on my own to pursue my personal interests.
74. I participate in social or sports clubs.
75. I have a good memory for the names of people, places, dates or details.
76. I appreciate word plays.
77. I can mimic the gestures, manners and behaviors of other people.
78. I am sensitive to the musicality of poems, texts, and speech.
79. I have a telescope, binoculars, or a microscope.
80. It is difficult for me to sit too long; I need to move.

Results of the MI Test for teachers and educational staff

Color the big smileys below whose numbers correspond to the affirmations of the test on the previous pages. After, add up the number of coloured smileys of each column and write down total number below them.

							
76	52	66	78	80	74	73	79
75	45	65	69	77	63	67	71
68	42	60	55	72	53	64	62
61	36	59	50	70	48	57	58
34	33	44	43	46	47	56	54
24	29	35	37	51	40	49	41
22	25	30	28	38	39	27	31
13	14	17	19	32	16	23	21
11	12	7	15	26	9	18	20
3	1	6	4	5	2	8	10
Total:	Total:	Total:	Total:	Total:	Total:	Total:	Total:

MI Test for students

Read each sentence and color the smiley of those that corresponds to your personality. Answer spontaneously.

1. I read a lot.
2. I like to use the calculator, spreadsheet or database software to the computer.
3. I play or like to play a musical instrument.
4. When I read, I prefer the illustrations and I easily see them in thought.
5. I love working with others and keeping myself with others.
6. I need to move.
7. I work better alone than with others.
8. I like to learn new things about nature.
9. I am self-sufficient and I have the will.
10. I mark the bar with my body when I listen to a musical piece.

11. I easily perceive the feelings of others.
12. I see images in my head when I think of something.
13. I often hum a song (or a tune) in my head or out loud.
14. I like my things to be in order.
15. I like to make alphabet soups or play Scrabble.
16. I love animals (dogs, cats, hamsters, squirrels, birds ...).
17. I count quickly in my head.
18. I easily remember the rhythm or music of commercials.
19. I read maps, tables and diagrams without difficulty.
20. I have several friends. I'm popular.

21. I move or tap my foot when sitting too long.
22. I am able to have my own opinions.
23. I am concerned about the environment in my daily actions (recycling, use of resources).
24. I like to tell stories or play word games.
25. I spend a lot of time outdoors; I love the outdoors.
26. I write and compose better than average.
27. I like to experiment with science.
28. I am able to feel my emotions thoroughly.
29. I am deft with my hands; I like to work with my hands.
30. I like to listen to music very often.

31. I have a good sense of observation.
32. I share, I help out easily.
33. I have the ability to listen to explanations or to read texts of information.
34. I have difficulty concentrating on work when I listen to radio or television.
35. I love drawing or scribbling drawings.
36. I gesticulate a lot in speaking.
37. I like to recognize or classify plants, animals, insects, shells or rocks.
38. I have many questions about the functioning of objects; or about the causes of a phenomenon or event.
39. I can mimic the gestures, manners and behaviors of other people.

- 40. I am aware of my strengths and weaknesses.

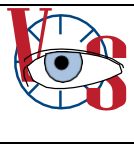
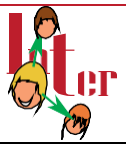
- 41. I express myself with a rich vocabulary.
- 42. I am adept at strategy games (chess, checkers...)
- 43. I organize activities with my friends.
- 44. I love doing puzzles, labyrinth and construction games.
- 45. I am able to hear music in my head.
- 46. I have a good sense of coordination (e.g. in sports, dance, theater ...).
- 47. I need a space of mine.
- 48. I feel good in nature.
- 49. I like to go hunting and fishing, or walking in the forest.
- 50. I like writing my diary, expressing my feelings in poems or practicing certain hobbies alone.

- 51. I am skilled in many sports or physical activities.
- 52. I speak easily to people I do not know.
- 53. I listen to several styles of music.
- 54. I find it easy to solve problems.
- 55. I like to invent and write stories.
- 56. I am easily oriented in a new neighborhood.
- 57. I am a member of a sports team or a social club.
- 58. I like to watch movies and watch photos.
- 59. I pay attention to noises and sounds.
- 60. I like to touch things.

- 61. I have personal projects.
- 62. It helps a lot to have a step-by-step approach when doing something.
- 63. I love collecting sports cards, recognizing car models or clothing brands.
- 64. I learn better when the person who shows me says in words what she does.

Results for the MI test for students

Color the big smileys below whose numbers correspond to the affirmations of the test on the previous pages. After, add up the number of coloured smileys of each column and write down total number below them.

							
64	62	58	59	60	57	61	63
55	54	56	53	51	52	50	49
41	42	44	45	46	43	47	48
33	38	35	34	36	39	40	37
26	27	31	30	29	32	28	25
24	17	19	18	21	20	22	23
15	14	12	13	10	11	9	16
1	2	4	3	6	5	7	8
Total:	Total:	Total:	Total:	Total:	Total:	Total:	Total:

Thanks to this test, now you are aware of which are your more developed intelligences. But what does it mean in your life?

My learning model

Next to each item, write your results and reflections for your learning. For Example: *I can learn well by reading, I can learn well with a mind map, etc.*



1. Verbal-Linguistic : _____
Reflection**:** _____
_____
Student **:** _____



2. Logical -Mathematical: _____
Reflection **:** _____
_____
Student**:** _____



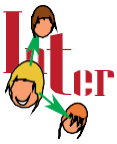
3. Visual-Spatial : _____
Reflection**:** _____
_____
Student**:** _____



4. Musical: _____
Reflection**:** _____
_____
Student**:** _____



5. Bodily-kinesthetic: _____
Reflection**:** _____
_____
Student**:** _____



6. Interpersonnal: _____
Reflection**:** _____
_____
Student**:** _____

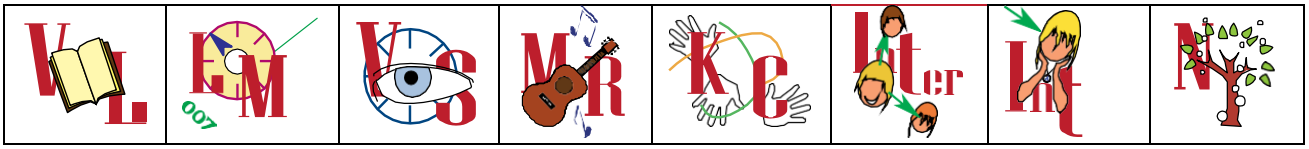


7. Intrapersonneal: _____
Reflection**:** _____
_____
Student**:** _____



8. Naturalistic : _____
Reflection**:** _____
_____
Student**:** _____

And the other students in your class, what forms of intelligences have they developed?
Shows their names next to their first form of intelligence.
Cut and paste the logos corresponding to your type of intelligence on the card with your name.



MI in the classroom

Write down your students' names and results of the MI test. Do the same for teachers in this class. Circle the 3 highest results per student/teacher.

Student Name								
Teacher Name								

5. DIAGNOSTIC ANALYSIS: REPORT AND INTERVENTION PROPOSAL

It might seem that the application of all diagnostic tools we have presented so far, takes a lot of time, but we strongly believe that is not a waste, but an investment, because having a broad and deep diagnosis both quantitatively and qualitatively implies a more exhaustive knowledge of the reality of the classroom, the relationships in the group, the level of integration and motivation, the prejudices, etc.; and these offer possible explanations of the group dynamics, individual behaviors of students, their performance issues, their motivation to dropout school, causes of school failure, etc. In this way you will understand better what is happening in the group and why it occurs.

Knowing all this you can design a teaching plan and curriculum adaptations oriented to compensate differences, intervening in what every classroom needs specifically. You can't assume that all groups of students are equal, that they have the same issues and potentialities, or that they interact in the same way between them. Quite the opposite, each group of students establish unique relationships between them, with differentiating characteristics. So the intervention or methodology that will be used can't be only one. Although some general guidelines are offered, each teacher must know the group well and analyze it, as well as their students individually, in order to adapt methodologies of socio-educational interventions, to expand their repertory of resources and to be more flexible in their teaching style.

So in order to design a socio-educational intervention is important to first make a report to analyze and collect all the results from the diagnosis of the classroom. With this report is intended to unify all the data, make relations between the information and to look for explanations of possible causes, but trying not to venture into hypotheses on information you don't have. The teacher has to be careful not to project in the report his/her expectations, prior beliefs or possible prejudices about the group, the relationships or specific students. Therefore we offer this model as an option that you can use when systematize data and look for possible explanations.

Notice that in addition to diagnostic tools propose, the teacher must also include data regarding classroom observations, which have to be as objective as possible, leaving aside prejudices, previous ideas and stereotypes that teachers may have about the group or any student in particular. So we encourage teachers to discuss observations with other colleagues who also teach classes in that group, so they can compare opinions (this is called inter-judge reliability).

The attached document "report and intervention proposal" you will find some notes in parenthesis. These parts are instructions and guidelines to make it easier to write the report and to analyze it. The instructions detailed below and the indications in the document of the report will be a good guideline to make a report and an intervention proposal of high quality and very useful.

Group data

In this first section you will collect group data which will be analyzed, so it has to be clear to what class it belongs to the report and the intervention proposal. Since this report includes confidential data, you must keep it in a private place and not disclose the information

in it to anyone outside the educational center, moreover if the students are minors. It is important to include the following data (figure 28):

- Name of the educational center, city and country.
- Grade and group.
- Report date: Month and year.
- Name of group teacher.
- List of students in the group: name, initial of last name, age, nationality and country of origin or ethnicity.

Figure 28

1. **GROUP DATA**

Educational Center			
City and country		**Month and year**	
Grade and class		**Lead teacher**	

STUDENTS INFORMATION					
N°	**NAME AND INITIAL OF FIRST NAME**	**AGE**	**GENDER (H/M)**	**NATIONALITY**	**COUNTRY OF ORIGIN OR ETHNICITY**
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Analysis of group dynamic

In this second section you have to collect all the information related to the general dynamic of the group.

First you will include the **analysis of sociogram data** (figure 29). In the first table list the cohesion indexes, which are in the blue zone of the Excel table. Copy the academic and social indexes. The total is calculated by getting the average between the two of them. Afterwards you record on the table how many students are in the extreme categories (leader, isolated and rejected or very rejected) and the reasons why other students chose them as accepted or rejected in the first place; in addition, the teacher can add causes that he/she observes in the classroom, but be careful not to make risky assumptions. In case of isolated students is the teacher who observes possible causes. You must also take note whether students chose the motive "f) other reasons", and write down the motive they wrote, since it is extra valuable information.

Figure 29

GROUP COHESION INDEX					
Total		Academic		Social	

	¿HOW MANY?	REASONS
LEADERS		
ISOLATED STUDENTS		
REJECTED STUDENTS		

Later you analyze the **leadership style** of existing leaders. You have to record if there are positive leaders, saying who they are and explaining the reasons why the teacher thinks the student is a positive or negative leader. If there is a negative leader, part of the intervention has to reorient the leadership style towards a positive one, using positive behavior reinforcements.

Knowing the reasons for acceptance and rejection, as well as the characteristics which leaders and rejected students have, you can complete the following part, corresponding to the **characteristics more and less valued** by the group. If the characteristics more valued are negative, this indicates that you have to address part of the intervention towards the values, ethics and morals, so the students begin to acquire positive human and social values to replace the negative ones.

Next you analyze the elections for **acceptance and rejection in relation to the country of origin or ethnicity**, collecting the data in the following summary table (figure 30).

Figure 30

	1st OPTION IN ACADEMIC LEVEL	1st OPTION IN SOCIAL LEVEL
ACCEPTANCE		
REJECTION		

The information to complete this table is taken from the yellow and orange tables to the right of the sociometric matrix of the Excel file. This information will be complemented with the one from the intergroup attitudes questionnaire, if there is a strong segregation for

ethnicity or country of origin. In case of the first options for acceptance are mostly from the country which they reside or the ethnic majority group and the first options of rejection are from another country of origin or ethnic minority, you may suspect segregation in this regard. This analysis has to be included right after the table.

The following is to analyze the students that have chosen each other as accepted in the first option in the academic and social area (it has been codified in the sociometric matrix as a mutual 1); and the students that have chosen each other as rejected in the first option in academic and social area (it has been codified in the sociometric matrix as a mutual 4). This is important when organizing cooperative groups with students, because the elections of mutual acceptance may indicate that they are “best friends”, or in case of mutual rejection they may “hate each other” or they are “enemies”.

This concludes the analysis of data obtained from the sociogram. Then you analyze the class atmosphere with the **ranking data** (**popularity level**). Remember that in this case the data is the average of scores obtained by each student, ranging between 1 (they dislike him/her a lot) and 5 (they like him/her a lot). First is to get the average from all the average scores of all students, in order to know the general atmosphere in the classroom. If the total average of the class is high, it means they have good relationships and is not likely to find many conflicts between students; if the average is low indicates possible conflicts between several students in the classroom, we are talking about a conflictive atmosphere.

Then you have to make a list of students with the highest average, organizing them from the highest to the lowest (from the most popular to the least). In this case you have to analyze if any of the most popular students are also in the leader category and indicate it. You have to make another list of students with the lowest average, organizing them from the lowest to the highest (from the least popular to the most). In the second case you have to analyze if any of those very unpopular students are also in the rejected or very rejected category and indicate it. Finally in this section you have to mention isolated students, indicating the average score obtained in the ranking.

Subsequently you analyze data corresponding to the **intergroup attitudes questionnaire**, if it has been applied. First is to indicate the two existing groups, where you have detected a possible segregation for any reason: gypsies and non gypsies, Luxembourg and Portuguese, boys and girls, etc. You have to justify segregation with the percentile data of the questionnaire, highlighting the highest percentile of mainly the majority group. This is complemented with a summary table where you have to enter: students’ name and initial of last name; categories obtained in the sociogram in the social area, in acceptance and rejection; group to which they belong, also indicating if it is a majority or a minority; and the percentile they are in (figure 31).

Figure 31

	NAME	CATEGORY	GROUP WHICH HE-SHE BELONGS TO	PERCENTILE
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Then you have to compare if it coincides that the isolated students or the most socially rejected belong to a minority group, as well as the social leaders belong to a majority group.

Then indicate if you have observed “gangs” or similar; for example: a group that is dedicated to strike or threaten others, “Latin Kings”, “Skinheads”, “SHARP”, etc. This can be a risk for violence, distorted values (domination, sectarianism or similar as something that is positive) so that promote conflicts, disruptive and defiant behaviors, etc. If you detect it through observation or any other media, that must be reflected and taken into consideration when designing the socio-educational intervention.

Then you have to analyze the attitude and representation about learning and the teacher’s role that the students have, through the data obtained in the **educational interaction questionnaire.** Remember that in this questionnaire two dimensions are distinguished: the attitude and representation of cooperative learning and the representation of the teacher’s role. Both are analyzed separately.

Regarding the attitude and the representation of cooperative learning a table to fill in is attached, so is easier to summarize data (figure 32). Enter data of all students who have obtained “score 1”, “score 2”, “score 3” and “score 4”. The number of students is also entered. With this data you calculate students’ percentage, for each score and enter it in the corresponding boxes.

Figure 32

SCORE	STUDENTS	PERCENTAGE
Score 1		
Score 2		
Score 3		
Score 4		
TOTAL		100%

After you highlight the students with the best and worst scores, you can enter literally some answers particularly significant. According to the results you can make a prediction of

whether the group is expected to host the new methodology (cooperative learning) with more or less enthusiasm, or if you are going to find a strong or weak resistance to change the educational methodology.

Later you analyze data regarding the representation of teacher's role, which you will record in a summary table similar to the one above (figure 33). That may indicate what the overall perception of students is regarding the teacher. With this data a small recommendation is provided to the teacher.

Figure 33

MODEL	STUDENTS	PERCENTAGE
Model 1		
Model 2		
Model 3		
Model 4		
Model 5		
Model 6		
TOTAL		100%

Concerning **multiple intelligences** analysis. Write down the types of intelligences preferred by the group, as well as the least preferred. Having this information, you can adjust the materials, methodologies, exercises and the kind of expositions given in the class, to the intelligences that most stand out in the group. Fulfill the table show before.

To conclude the section of group analysis, you have to add **other observations** of behavior and attitudes that happen in a generalized form in the group. These might be negative: generalized disruptive behaviors (standing up whenever they want, eating and/or drinking in class, throwing objects, talking constantly, etc), disrespect to the teacher or other authority figures, cases of bullying, racist or sexist attitudes. But also there might be positive signs of behaviors: helping and collaborative behaviors, asking other classmates to respect rules, helping the teacher without being prompted, etc. Any additional relevant and important observations need to be recorded in this section.

Analysis of specific students

In this section you will highlight those students who have extreme scores in any of the evaluation and diagnostic tools applied, so they are significantly relevant and stand out. First you will analyze isolated or rejected students according to the categories of the sociogram, naming them and indicating their corresponding category, possible reasons for their isolation or rejection. These motives are in the sociogram (reasons given by the students to reject them as the first option), as well as in the observations of the teacher and the psycho pedagogical department.

Later on you will mention students that are especially disruptive, with special educational needs, or diagnosed (ADHD, borderline, gifted, Down syndrome, autism, etc.). If any of these students coincide with the list above, you will write it down.

Then you will make a list of students with high level of absenteeism, and possible reason for it.

Regarding the leaders, you will explicitly mention who are the positive and negative leaders.

You must also mention if there is any student who might favor the integration of isolated or rejected students, since it is important for cooperative work. Indicate which categories these students have in the sociogram, as well as their level of popularity (average ranking).

If there are mutual rejections as first option (students with a mutual 4 in the social area in the sociogram), indicate if there are open and evident conflicts between those students.

If there is any student in particular that belongs to a young gang: Latin Kings, Skinheads, Redskins, etc.

If there is still any other information to include about a particular student that has not been recorded so far in the previous sections, this would be the opportunity to indicate it and write it down.

To finish, you will record all this data in a table to have a more visual summary, which will allow to have quick consultations (figure 34). If necessary you can add more rows.

Figure 34

Nº	STUDENTS	SOCIOGRAM	RANKING	INTELLIGENCES	OBSERVATIONS

Proposal of socio-educational intervention

In this section, the teacher with the psycho pedagogical team of the educational center (educational psychologist, therapeutic pedagogy, etc.) and based on diagnostic results, they have to make a proposal of socio-educational intervention. This proposal will include new educational methodologies to implement in the classroom every day, new materials and educational tools, specific sessions oriented to improve a particular aspect of the group, and/or the creation of a “different school” class.

It is important that the decisions made in this respect follows a coherent and logical line regarding the diagnosis, if possible integrating different methodologies. Some ideas on this last point are offered in section 8 of this guide.

Implementation timetable

Once you have decided what methodologies, tools, materials and actions you are going to implement in the group and/or with specific students, you have to plan everything on a timetable. This will allow you to organize what you are going to do and when you are going to do it. The first thing you will have do is tasks of information and training, then the interventions, starting to gradually introduce novelties (not all at once), and you have to finish with an evaluation that will allow you to know if there is some improvement. Remember that improvements in the socio-educational area will be seen long term.

Our recommendation is to use a calendar format where you explain:

- What you are going to do: i.e. introduction of methodology, first testing of cooperative groups, first explanation of TUI, etc.
- When you are going to do it: write down the specific date of the activity, as well as the time and length.
- Who is going to do it: people implied in the activity.
- How you are going to do it: also write down basic aspects that should not be written down in the calendar, but in an attachment. If it has been well explained the “proposal of intervention” section, simply attach the proposal.

6. METHODOLOGIES OF INTERVENTION

ORGANIZATION OF COOPERATIVE GROUPS

Basic fundamentals

The expression of cooperative learning makes reference to learning methodologies that promote collaboration between individuals to know, share and increase information that each one has about the subject. In order to form a good cooperative group you have to take into consideration five basic elements:

- **Positive interdependence:** students should perceive a bond that make them feel closer to other group members, so they see clear that their success in learning is linked to the success of others. Cooperation happens when the group feeling is over the individual feeling. Positive interdependence creates a personal commitment to the success of others, without it there is no cooperation.

- **Promotional face to face interaction:** the effects of social interaction and verbal exchange between peers can't be achieved through instructions or materials. The free exchange of ideas and experiences between participants, wide and deep analysis of the mentioned subject, is needed to reach group agreements.

- **Responsibility and personal assessment:** cooperative learning is not incompatible with customized learning. You can't expect that all students learn the same. The purpose of learning groups is to academically strengthen its members. It is required an evaluation of personal progress, so the group knows who needs more support to complete the activities, and to avoid that they don't rest while others work. It is recommended:
  a. Evaluate the effort made by each member in the team work.
  b. Provide feedback on individual and group level.
  c. Ensure that each member is responsible for the final result.

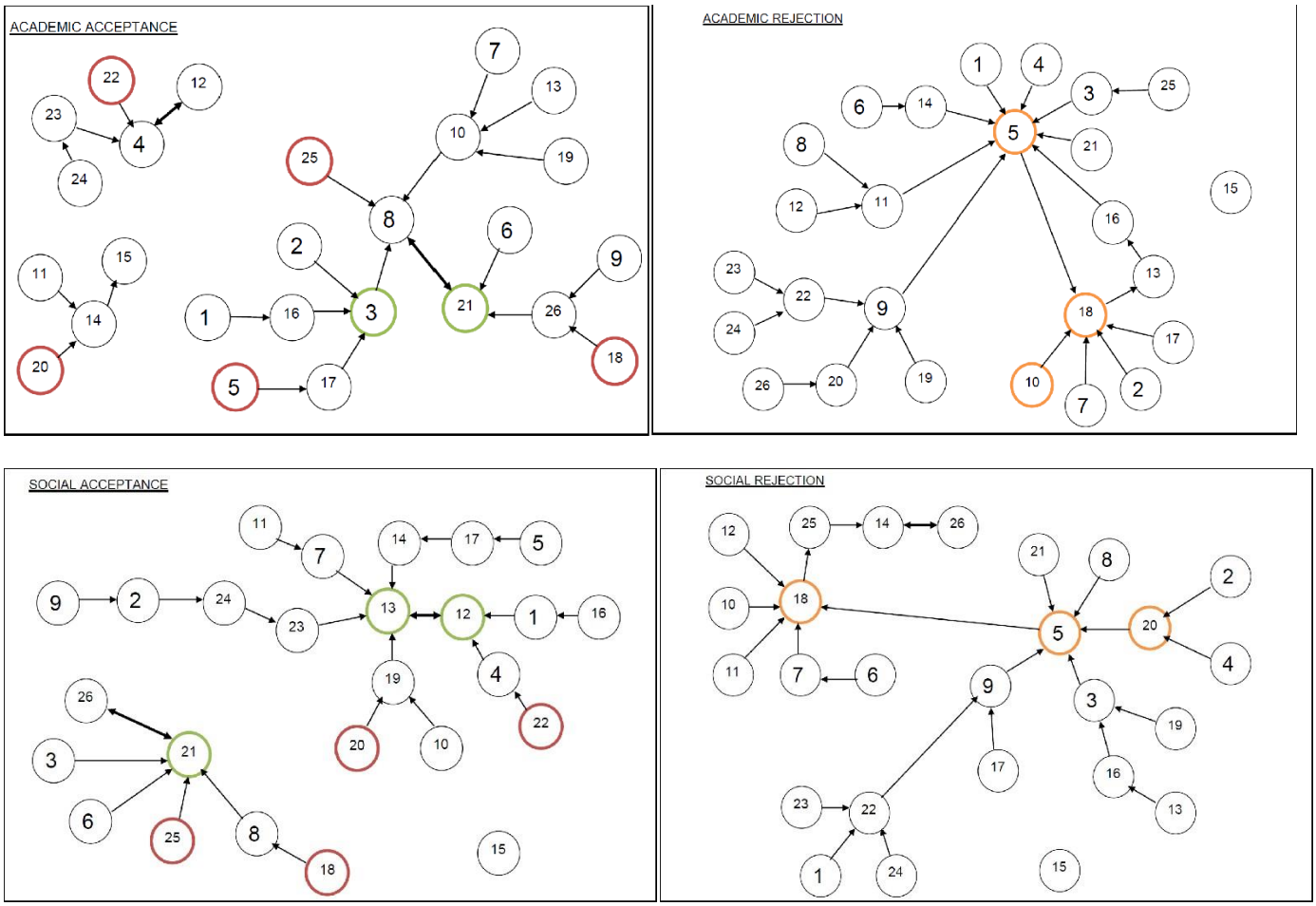
- **Interpersonal skills and handling small groups:** you should teach students to know and trust in others, to communicate clearly and precisely, to accept and support each other and to solve conflicts constructively. The last one is the social skill more important to work cooperatively. In these skills are implied very important values, as the disposition to dialogue, tolerance, empathy, honesty, equality sense and justice in the relationships with others.

- **Group processing:** group members need to reflect on and discuss if they are achieving set goals, maintaining effective and appropriate interpersonal relationships and work. This reflection process could occur at different times throughout the work and when the task is completed. It is a continuous and self-critical evaluation process. The teacher needs to guide the students to: identify actions and useful attitudes of members, appropriate and effective. The group must make decisions about which actions or attitudes should continue, increase or change.

How to create cooperative groups.

Before starting you might find useful to create this sociographs to clarify the relationships between the students. Here you can see in a graphic example the first elections they had made in academic and social areas, both acceptance and rejection.

Figure 35: Graphic representation of the sociogram.



Groups should be stable at least two or three months. In order to make cooperative groups in the first place you have to take into consideration the following:

- Groups will be formed by **4 or 5 students**. Less students would not favor integration or would not generate an intragroup dynamic. More students would make that some student would not actively participate, or even two subgroups would create.
- You have **to avoid as much as possible to put in the same group two students who have mutually accepted or rejected as first option.** In case of being unavoidable, it is preferable to put together students who have rejected each other, making notes in the document which cooperative groups are consigned, so you can have a special vigilance of that particular group. Also you have to assign tasks to those students to create a positive interdependence, meaning that one needs the abilities and knowledges of the other, and vice versa, in order to perform the task successfully.

- **In case you have to put two students that have mutually accepted each other as first option,** it has to be from the middle of the list (which is organized according to the total integration index). In any case you cannot do this with students in the category of leaders or with students that can cause disruption in the class.
- You have to take into consideration **which students are chosen by leaders**, in acceptance and rejection, so if they elected a rejected student as accepted, it is appropriate to put them together, but if a leader student chose another one as rejected, then it is unappropriated to put them in the same group.
- Also keep in mind to **whom the isolated students choose**, and pay special attention if they elect leaders, because these will be a key element in the integration of those isolated.
- It is recommended to **make all the groups from the same class at the same time.** This recommendation avoids that when creating a group it would be impossible to create another one with the methodology described below, in a way that you would have to undo the first one and start all over again. It is recommended to make all the groups at once, so everything fits in the best possible way.

You will form heterogeneous groups at different levels: integration, ethnic or cultural origin and level of competition. Heterogeneous contexts provide more complex and varied experiences than homogeneous contexts; not only there are more conflicts and difficulties in those, but also there are more opportunities to learn how to solve them. In order to create cooperative groups, besides taking into consideration what was just mentioned, you have to follow this, step by step.

1) Make a list according to the total integration level, taking into consideration the academic level of students.
2) Identify negative leaders, or students that tend to generate conflicts. These students will be “subject 1” of each subgroup. In case there is no negative leaders or students that generate conflicts, choose as “subject 1” students less integrated or with lower grades (those on the bottom of the list that was created in step 1).
3) Once you have assigned to the groups “subjects 1”, analyze them well. This consist in looking if they have mutually elected to other student as the first option, in acceptance and rejection in the academic and social area. If this has happened you have to try not to put those two students in the same group.
4) Choose carefully the “subject 2” of each group. They will be the ones who help integrate the “subject 1”, it is recommended that he/she is a leader who doesn’t reject the “subject 1”, or a student with high integration level who doesn’t reject him/her (from the top of the list).
5) Analyze “subject 2” of each subgroup. As before, you must see if he/she mutually chooses or rejects someone in the academic and social area.
6) Choose the rest of members of the subgroup by taking them from the middle of the list. Once again you have to look if they don’t have mutual elections of acceptance or rejection in the first place.
7) Observe if the students that form the groups generated have different levels of competence and try to do it this way.

Once you have created the groups, it is important to assign roles for each member of the group. These roles will be rotated so every student is able to experiment different roles and to assume different responsibilities and tasks.

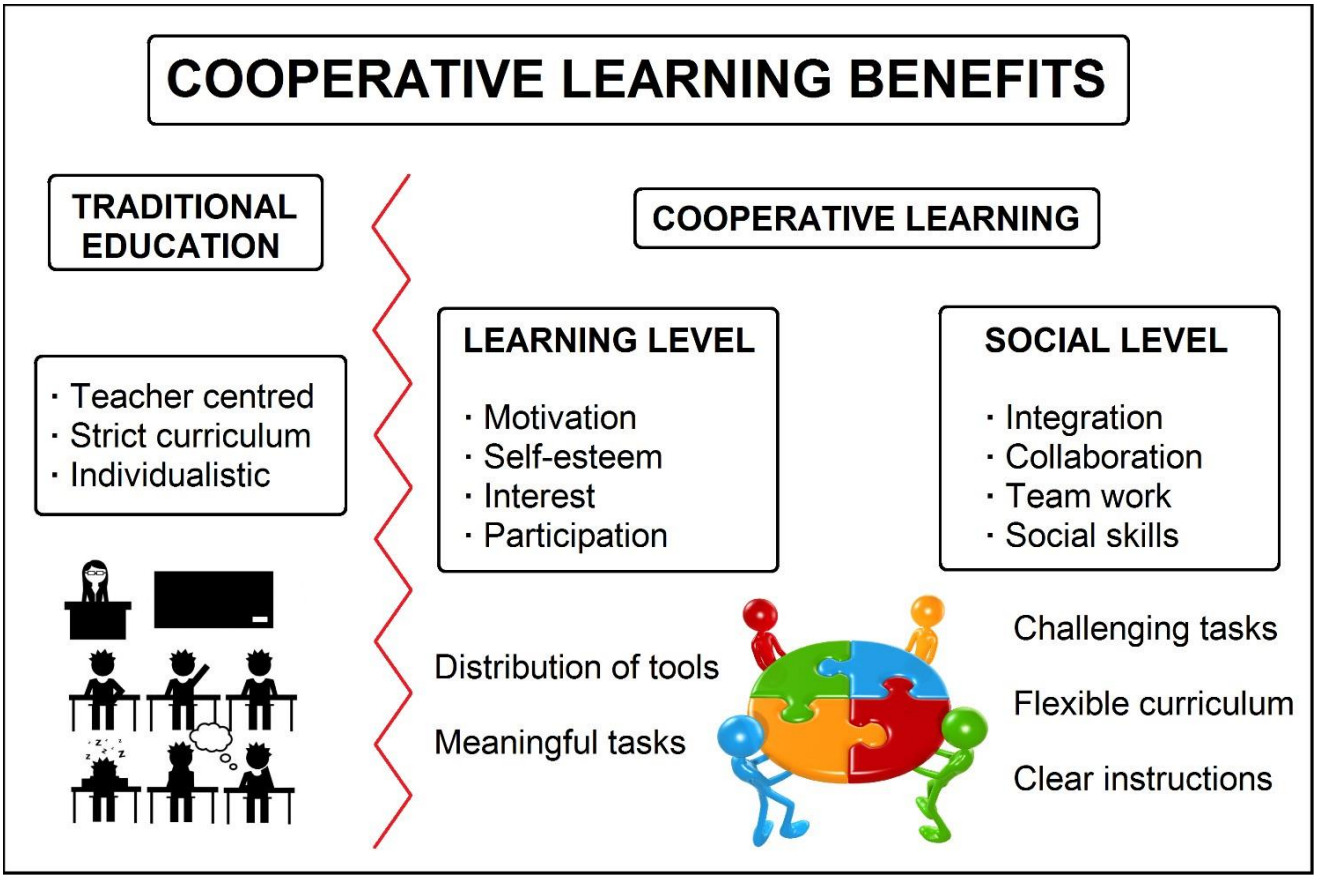
COOPERATIVE LEARNING

Basic fundamentals.

The traditional model of education has been based on a competitive and individualistic learning, based on following a strict curriculum, where the subjects taught by the teachers have been consistently emphasizing in achieving success in order to have a personal recognition, creating difficulties in the group cohesion in the classroom during school work.

Currently this model is being replaced by a more flexible and dynamic learning type, called cooperative learning, researches related to it has been carried out, showing clearly the effectiveness of these technics, not only to achieve learning goals, but also socialization goals.

Figure 36: Cooperative Learning benefits.



At the learning level, students learn more, they are more motivated, they increase their self-esteem, their interest and participation. This is because in this type of learning, a student achieves an objective if and only if the other participants also achieve theirs. So these people tend to collaborate with each other to achieve their respective goals.

At the socialization level, cooperative groups help them to solve social and educational problems generated by the cultural and ethnic plurality of modern society. Cooperative learning helps to improve students' integration and the relationships in the classroom and outside of it. It promotes collaboration and teamwork, establishing better relationships between students and learning social skills more effective when they are studying and learning.

The word "team work" has always been used when a teacher decides to organize activities in small teams, but not every team work in the class is cooperative learning. Just the physical integration doesn't take us automatically to social integration, because more elements are needed. We make reference to the previous section and this one to observe particularities of this methodology.

Implementation of cooperative learning

This methodology can be apply to any subject at any moment of the school year, but we recommend a continuous implementation throughout the school year, so you can observe the results. About the content there are some recommendations to choose from:

- Subjects that can be broken down into units, easy to handle by students and organized according to its complexity. This allows you to adjust to different levels of performance.

- Materials and situations have to provide practical experiences related to what to learn, so the team task is more attractive.

- Use cooperative learning in various subjects, so the students status get equalized between them, since some are better in some subjects and some in others.

Therefore, each teacher has to analyze well his/her subjects, materials and learning situations in order to adapt them later for cooperative learning techniques.

In order to start implementing cooperative learning, it is important to take into consideration some basic conditions, which are the following:

- Define specific objectives: they should be clear goals, describing precisely what results you expect from the students to achieve with the task.

- The students have to take on the objective of the task: they perceive the goals as their own and feeling that they can achieve them. Tasks are more significant and motivating when they are taken step by step.

- The teacher has to give precise instructions and guidelines: they have to be enough, so the group can complete the task (about what to do, in what order, with what materials, etc.).

- The groups have to be heterogeneous: in levels of academic performance, gender and level of integration in the class.

- You have to ensure equal opportunities for success: and the students have to perceive such equality, so the fact to they belong to a group doesn't imply an academic disadvantage regarding other groups. You have to guarantee this when forming groups, and designing evaluation strategies (compare individuals with others of their same level, or with themselves in previous evaluations).

- A positive interdependence has to occur: the students have to be clear that the only way to progress and achieve individual goals is by achieving group objectives. "One for all and all for one". The effort of a group member not only benefits him/her, but also the group. So they commit with their own success as well as with the others. This is the base of cooperative learning.

- Social interaction has to be stimulating: you have to distribute the classroom so the students of the same group can be face to face, so they can help each other, encourage and favor others learning through questions, explanations, joint analysis, etc.

- A positive learning of behaviors, attitudes and social interactions need to be provided: this not only happens when working as a team, you have to stimulate it. The skills that they must have are: sharing objectives, creating a positive ambiance, conflict resolution, expressing constructive critics, supporting and motivating each other, compromise, negotiation, etc. The teacher has to describe and teach expected behaviors and attitudes and assign roles to each member to enhance them.

- They must have access to the information they are going to learn: the task and objectives must have a clear and direct relation, explaining the elements which will be used for the performance evaluation.

- Every student must have opportunities to complete procedure tasks of required information: each student has to do tasks of comprehension, implementation, relation, organization of data, interpretation, analysis, etc.

- You have to provide enough time to learn: you have to give students and groups time to carry out expected tasks and skills, so cooperative learning and groups have to be maintained at least two or three month.

- You have to promote individual responsibility: each student has to be responsible for their work in the group, so you have to evaluate learning as part of the group as well as individually. The evaluation should be oriented to improve results (reinforce success and efforts and correct mistakes).

- You have to publicly recognize academic success of the group: you have to provide recognition to group performance in a way is valued by the students, and to be in consonance with advances and efforts carried out.

- You have to provide a reflection and evaluation about their own performance in each group: when they finish the task, each student and group have to systematically think about how the work has been done in aspects such as: how far the goals have been achieved, how they help each other to understand

content, resources and tasks procedures; how they have used positive behavior and attitudes to benefit performance; what do they need next time to make it work better.

Posteriorly you have to teach students to collaborate, so it is very important to understand that the groups are made to collaborate in the preparation of each member. Students will be informed on what the procedure will consist, what students and teachers are going to work differently in the class, and that the changes are going to be positive for everybody. Once you have done this you have to follow the next steps:

1) Form the heterogeneous teams of cooperative learning as the guidelines in section 6.1. You have to stimulate positive interdependence.

2) Divide the material in as many sections or specialties as members the team has.

3) Each student develops his/her section in expert groups with members of other teams that has the same specialty or section. The teacher uses different materials and resources of information, encouraging and advising different expert groups. These groups follow similar methodologies for some professional activities (sociology, journalism, etc.)

4) The experts return to their groups and the work gets integrated in the cooperative group, in a way that each member receives all the information elaborated by the expert group. Each expert explains to the rest of the team their specialty or section.

5) The results obtained are evaluated by the expert groups as well as by the cooperative learning teams. So each student is evaluated from a triple perspective:

    a. By the expert group in which he/she has participated: the quality of global product and the quality of collaboration are evaluated.
    b. By the cooperative learning team: which he/she has taught to and he/she has learnt from, related to the average score of individual performance and evaluating how the collaboration has been.
    c. Individual score: being 30% over the final score.

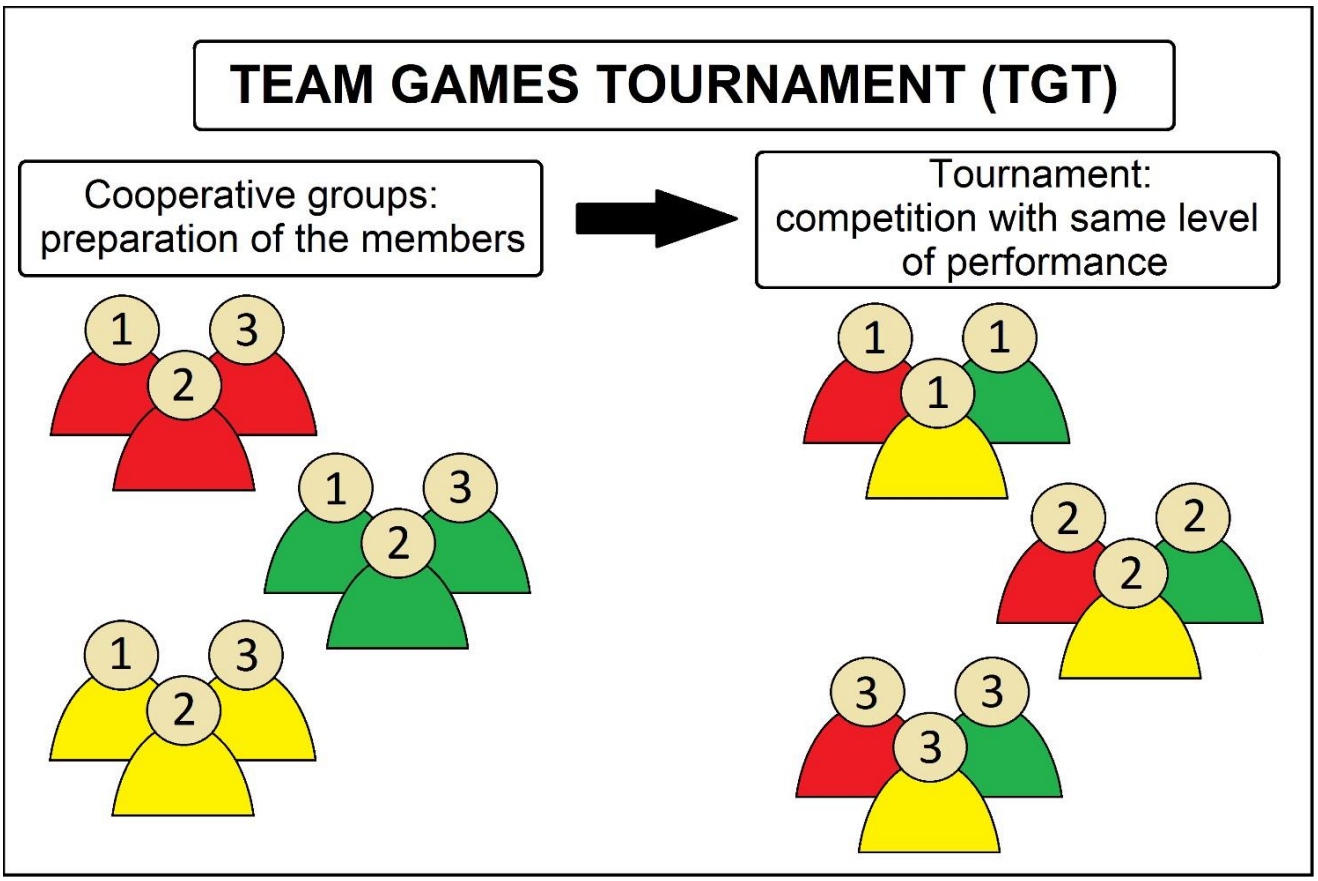
Cooperative learning techniques.

There are many techniques in cooperative learning that could be implemented, we are going to explain some of them, but we encourage teachers to investigate and get informed about other techniques in order to implement them in their classrooms. Each teacher has to adapt the materials and contents to each particular technique.

In first place we propose **team games tournament** (TGT). The function of the team is to achieve that all its members are ready for the tournament. In this tournament each student will compete with other team member from another group, but with the same level of performance and representing the team he/she has been trained in.

The scores obtained by the student are added to the scores obtained for the rest of his/her teammates, by averaging the scores afterwards. Immediately after the tournament the teacher writes down all the scores in a visible place, as a score board. The composition of the teams will vary according to the changes produce in the students' performance.

Figure 37: Team Games Tournament (TGT) technique.



In the tournaments is important that every group do the tests simultaneously. But you always have to give a ludic touch, emphasizing in the importance of collaboration and relativizing the importance of losing or wining. You can give points to students who have collaborated better. In order to make it work better you have to follow the next guidelines.

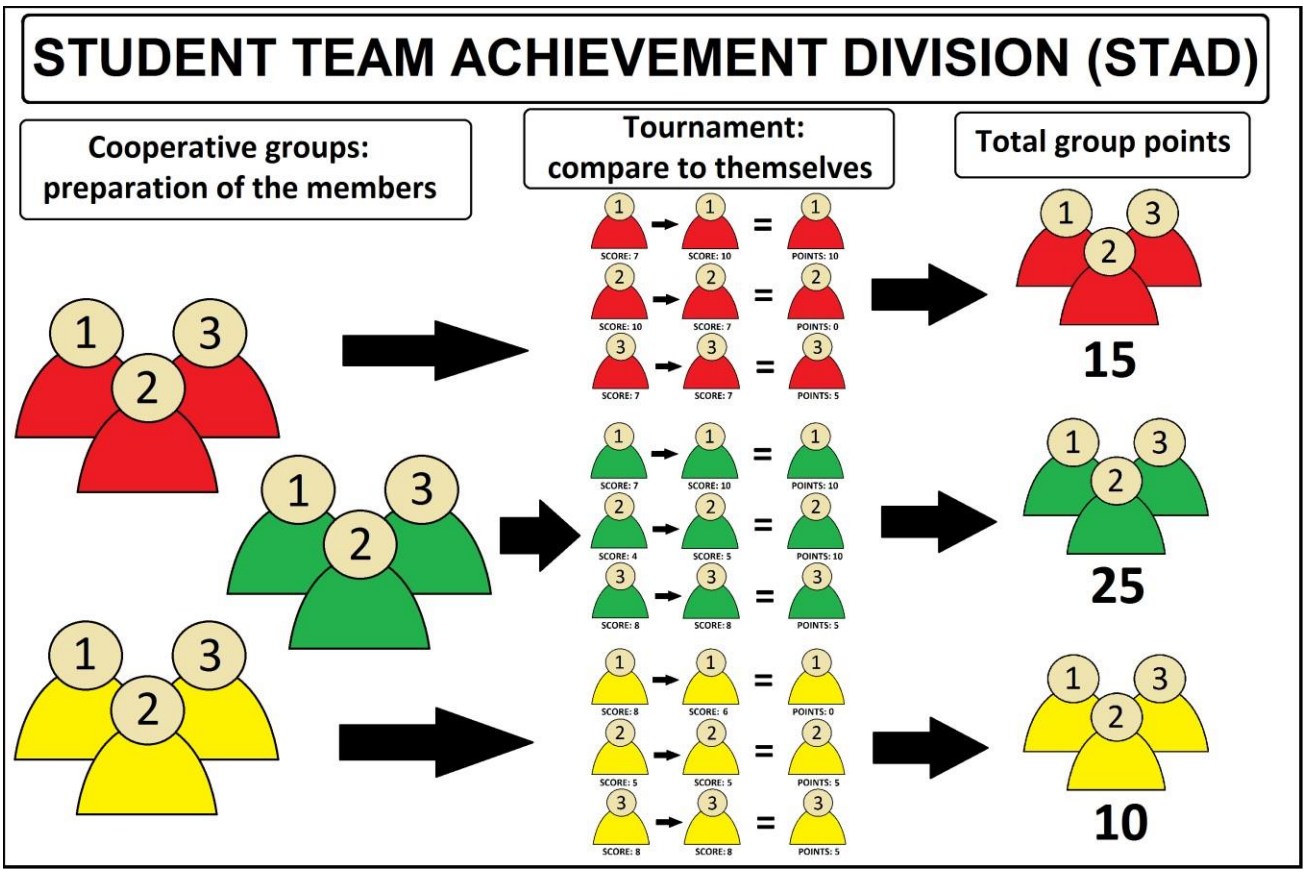
- The cooperative activity needs to be longer in time invested and greater in importance than the competitive activity. So the teacher has to relativize the importance of competition.
- Intergroup competition has to start from equal opportunities in order to obtain any kind of result (positive, negative or neutral), which favors motivation and the effort invested in the preparation.
- Give a ludic character, emphasizing the importance to participate and relativizing the importance of wining or loosing.

In second place we present the **students team achievement divisions** (STAD). It is similar to the previous technic, but in this case the tournaments are substituted by individual test that the teacher has to evaluate in relation to a group of students of the same level (not with the whole group). Other option is to compare the student with his/her own performance in the previous evaluation. In this way the student has to improve in relation to him/herself.

In this last case you will give students points for their team as follow: five points if his/her performance is equal than the previous evaluation/session, and 10 points if his/her performance is higher than the previous evaluation/session.

It is important that successes are distributed and that all students achieve it periodically. Therefore, it is recommended to mix both procedures: comparing with other classmates of same level (inter-personal) and comparing with themselves (intra-personal).

Figure 38: Student Team Achievement Division (STAD) technique.



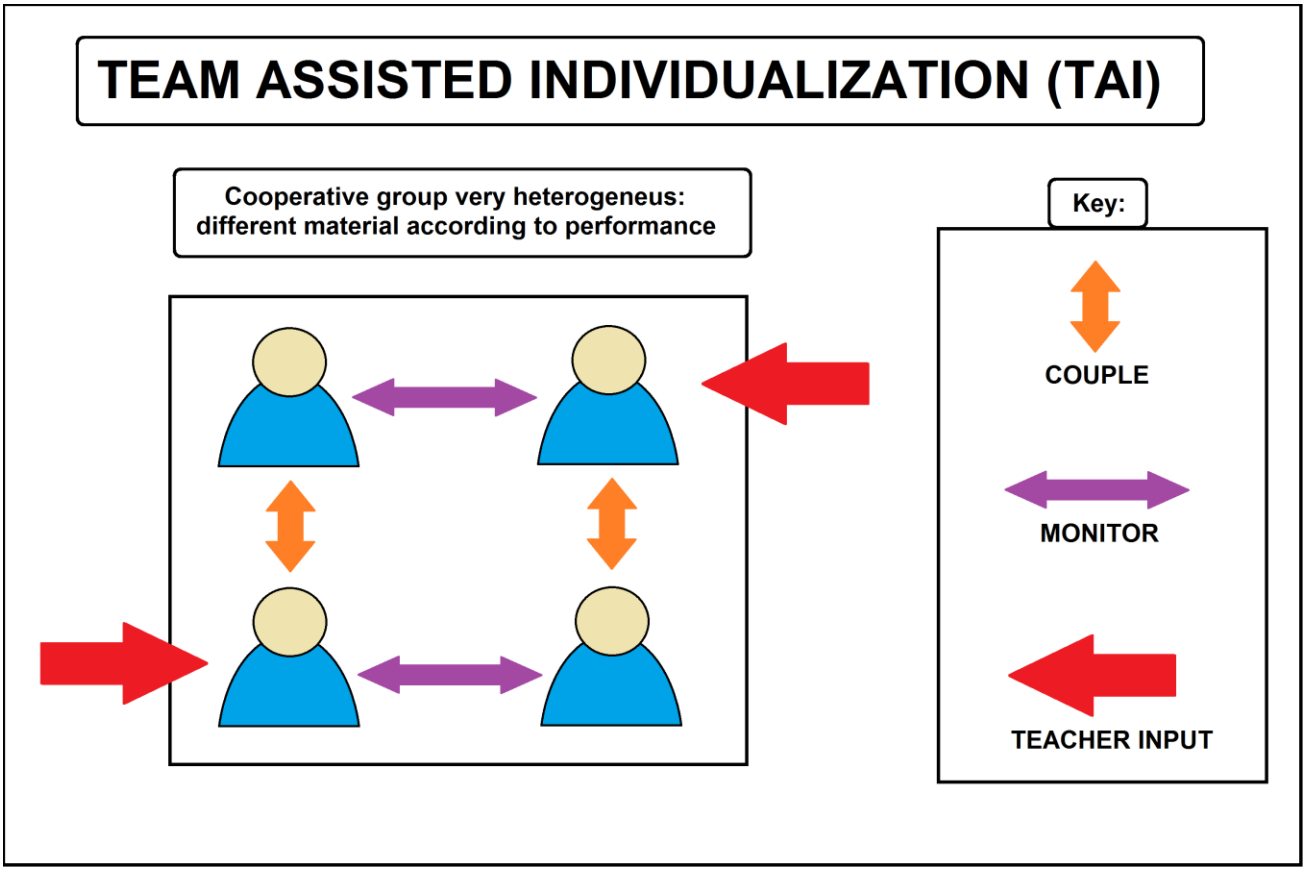
In third place there is the **team assisted individualization**, (TAI). When the learning level of students are extremely heterogeneous is appropriate to use this technique, because it mix cooperative learning with individualized learning.

Once the heterogeneous teams are formed each student works in his/her group, but with material programmed by units according to his/her performance. In each unit students regularly perform a set of activities.

The teammates of each group, work in couples chosen by them, exchanging the answer sheets and correcting the exercises of each other. When they answer correctly in an equal or higher percentage than 80% goes to the evaluation of the unit, which is corrected by other monitor-student.

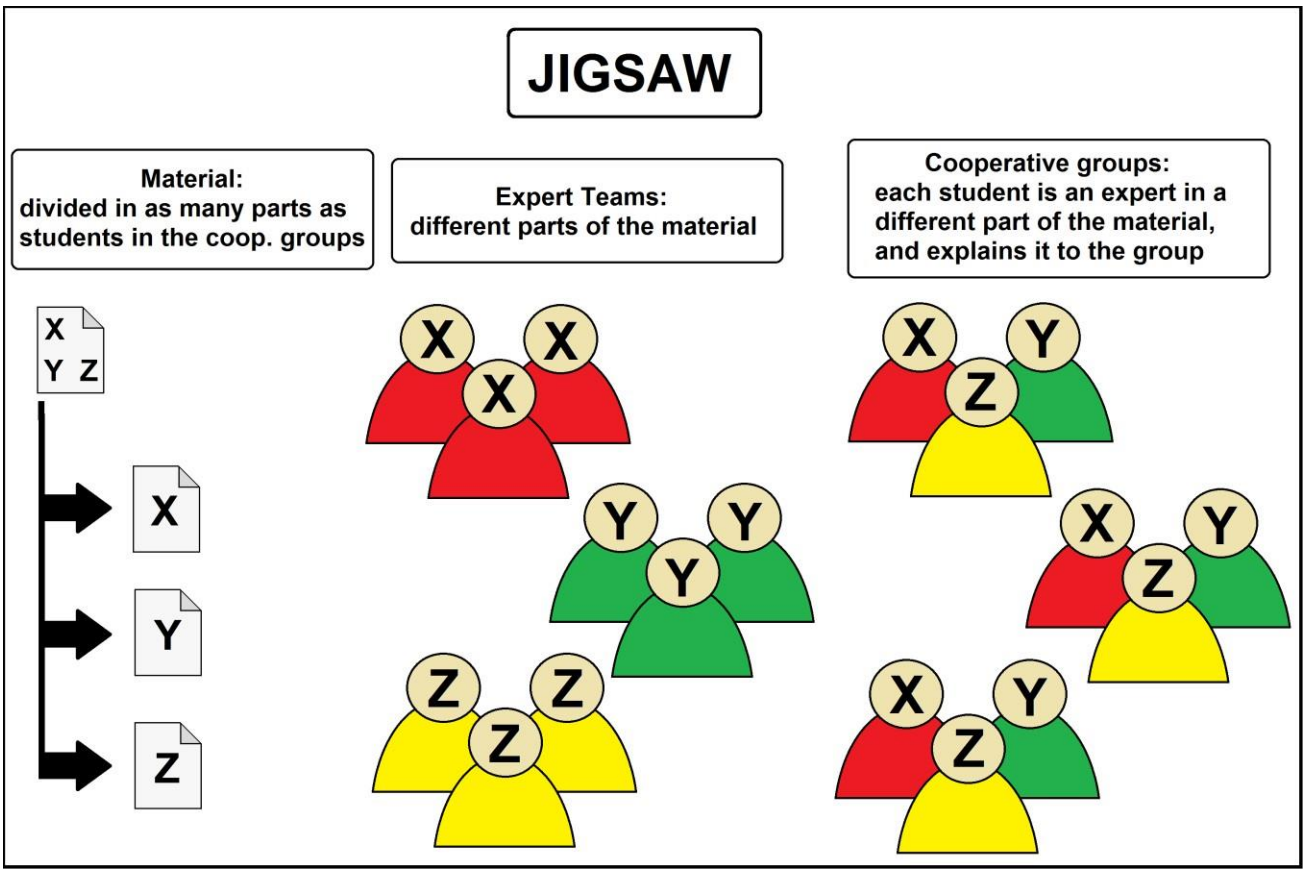
The score of each team comes from the sum of all scores obtained by every member and from the number of test performed.

Figure 39: Team Assisted Individualization (TAI) technique.



In fourth place we have the **jigsaw**. The academic material is divided in as many sections as members in the team. Each student study his/her part in expert teams with members from other groups who has the same sections. Later, each student returns to his/her team and provides to them the work completed. Finally you ask to each team member about the whole unit, and they are evaluated individually. A variation of this technique called Jigsaw II, is about adding all the scores of each member so you can obtain the total score of the team.

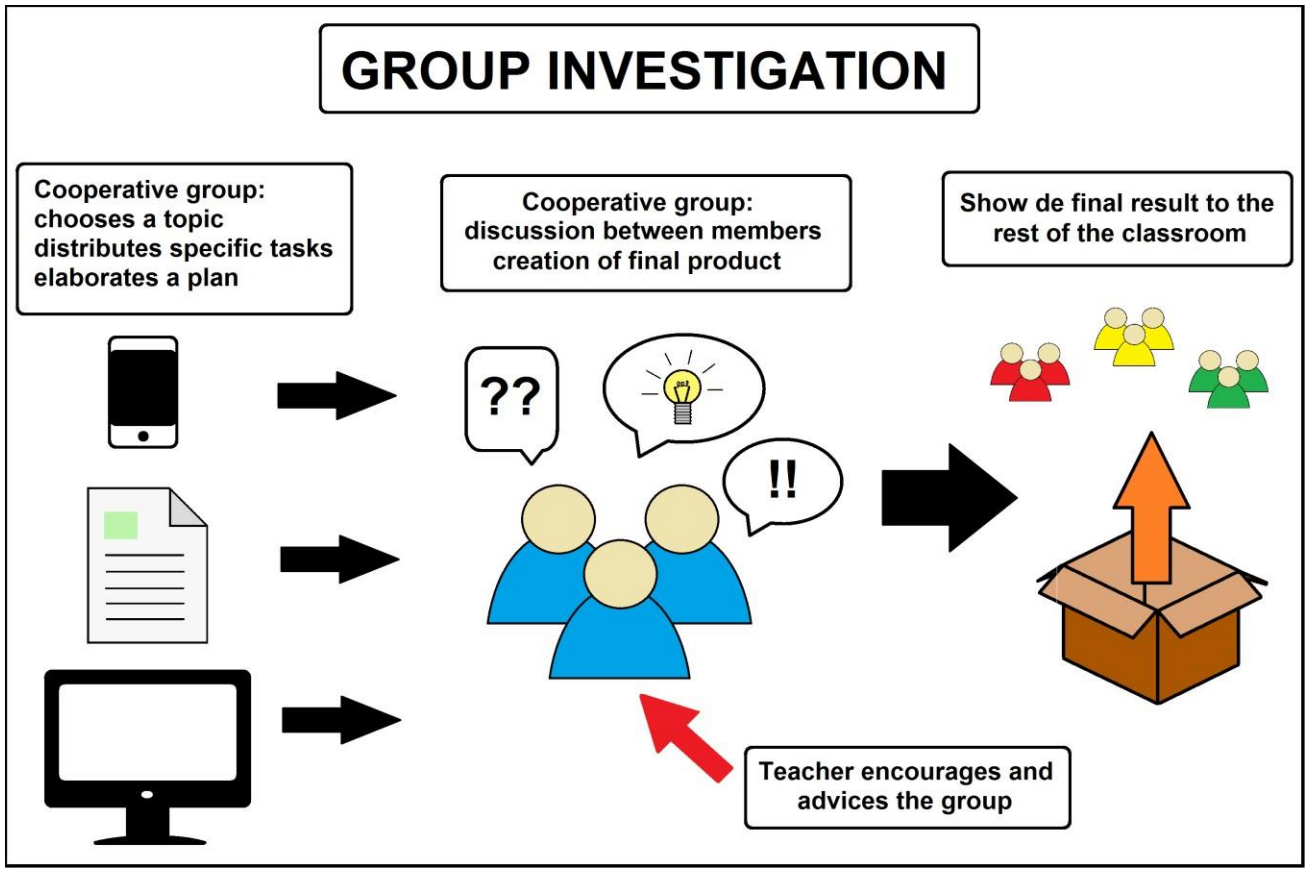
Figure 40: Jigsaw technique.



In fifth place is the **group investigation** (GI). Each team chooses a subject from the program and distribute specific tasks between its members in order to develop it and to elaborate a final report. The teacher encourages and advices the elaboration of a plan that allows them to develop well the task given, using various materials and information resources and discussing it between team members.

At the end each team shows in front of the class the final result of their work. The teacher as well as the students evaluate the product of each team.

Figure 41: Group Investigation technique.



Tasks and materials of cooperative learning.

In the techniques we have talked about tasks for the students to complete. In this section we are going to go over in detail in such tasks and materials, specifying characteristics and structures they must have.

In first place you have to take into consideration that the level of the task structure has to be high, especially at the beginning. And to avoid that the students work individually you can give them just one set of materials by team (a text, a microscope, a cardboard, etc), this way they are obligated to collaborate and work together, favoring positive interdependence. You can also give them just one text per student, but only one answer sheet for all of them.

It is important that the tasks are meaningful for the student, so it is applicable in his/her life, for example a trading situation. Also, some students should be able to complete the task based on the instructions given by the teacher (zone of current development, according to Vygotsky), while the rest of the group should be able to do it with some help (zone of proximal development). Therefore you favor that each team member actively participates in the activity they are sharing.

Each teacher has to analyze which curriculum has to provide and which contents he/she has to include (conceptual, procedural and attitudinal). With these he/she will be able to design tasks and to choose material adjustable to cooperative learning and its different techniques. It is not necessary to create new tasks or materials, just adapt them and rethink them a little bit.

Possible difficulties in the implementation

Since cooperative learning has a series of specific conditions and requirements in order to work and to obtain positive results, it is possible that the teacher finds some difficulties which could hinder the implementation of this methodology. Next there are some difficulties that may occur, as well as recommendations to solve them.

It may occur that the groups have a **negative interdependence**, meaning that the team members don't collaborate or are not interested in doing it. Each student perceives the rest of them as rivals who they have to defeat, hindering their work and distrusting each other. So the summed of the performance is lower than if it was done individually. In this case you have to explain the way you are going to evaluate them, remembering that the score is not individual and "his/her score" depends on that the others learn, and on the attitudes, skills and positive and collaborative behaviors they have.

It might happen that there is a **responsibility diffusion**, it means that they barely help each other and share between them. So some of them work a little, trusting in the ones that usually work more to do most of it. If this occurs, the students more responsible would feel exploited and probably they will work less than usual. So the total sum is higher than the potential of students that work less, but the students that work more would be better working alone. In order to avoid this you have to explain that the group evaluation will include individual performance of team members. Also you can palliate it by the way you define the task.

It is usual that also, initial resistance occurs when working in teams with classmates that students haven't chosen and are not their friends. In this case, first it's important that you have talked to them about the advantages it has to learn to work as a team that they have not chosen, looking towards their professional future, learning and acquiring skills that would be useful.

Also you can indicate that they would have the opportunity during the school year to collaborate with most of the classmates, when redoing the cooperative groups every 3 or 4 months. It is important in order to overcome these initial resistances, that the teacher has enough power, which can happen if these three conditions are met:

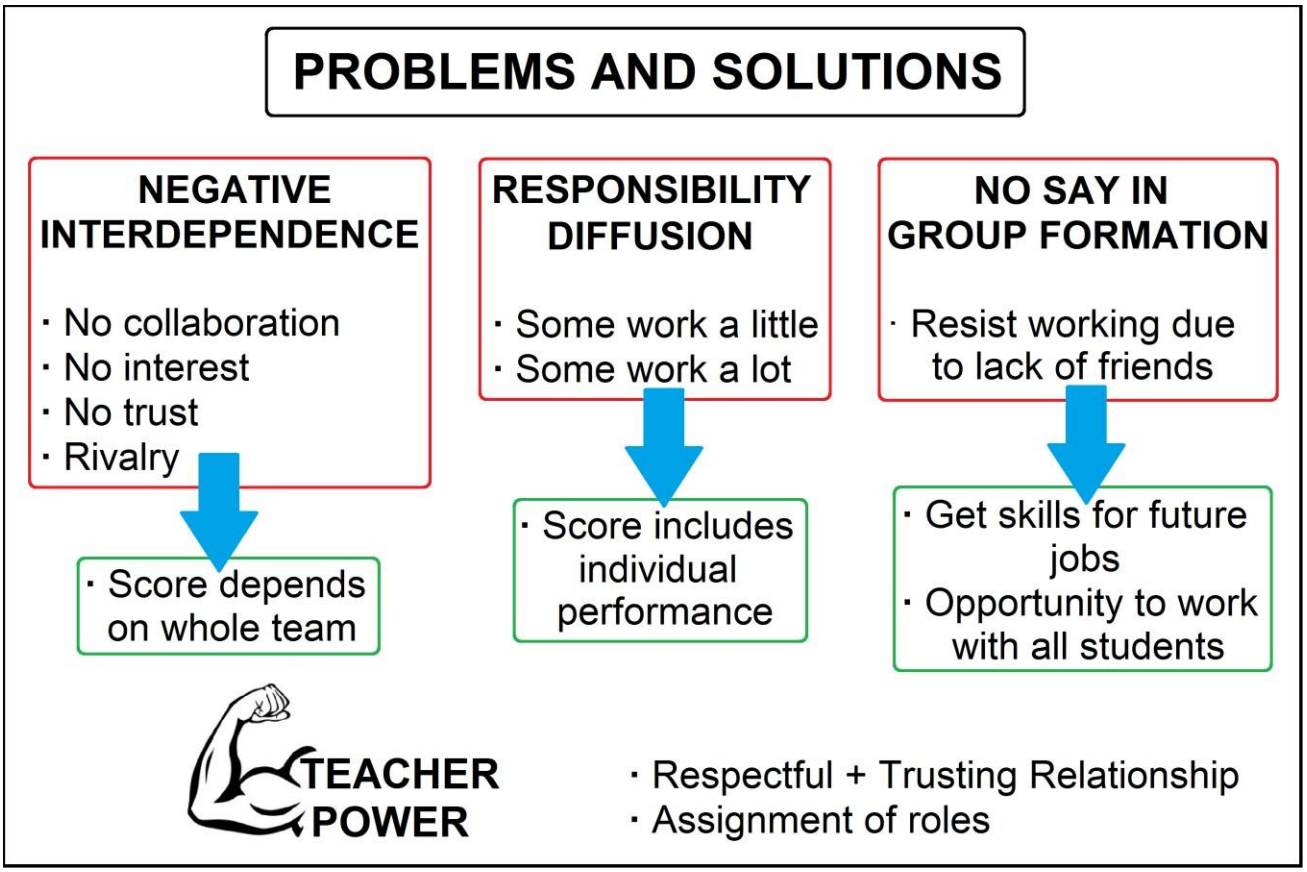
- If the teacher has developed a respectful and trusting relationship with the students, being a reference of power to them.
- If the methodology is applied to evaluable subjects, increases the relation between methodologies and activities with objectives valued by the student.
- If the teacher applies methodologies non evaluable, but he/she is also teacher of other evaluable subjects, he/she could transfer the power of influence to the situation where the methodology is applied.

It may occur the **lack of participation of some students, the tendency to assume a dominant role over others or a lack of skills to collaborate.** In order to prevent these, you have to assign roles to each team member. When you offer structured roles the incertitude reduces when each student knows what he/she has to do, also it favors the

acquisition of important social and academic skills and in this way, you will favor the participation.

Give to each student a card with a role name and a description of his/her functions and specific behaviors. It is possible that different activities require different functions and behaviors for each role; for example, is not the same the function of a spokesperson in a debate, than in a research.

Figure 42: Problems and solutions



Self-evaluation of cooperative team

It is important that after each task, each group and student systematically thinks about how his/her work performance has been. This way the students will acquire self-critic skills, so they can think how to improve and solve obstacles. It is an opportunity to self-regulate cognitive and social process. So the aspects to evaluate are, at least, the following:

- Objectives proposed for the task and work plan: the members of each team should evaluate if they have reached them or not and how much. They also have to evaluate the most significant successes in order to reinforce correct answers and the smaller advances to put them as priorities in the following sessions. Difficulties are not failures, they are problems to solve.
  Next we are going to give you some issues to evaluate in a scale of four degrees:

- We were clear about how to do the task and what the objectives were.
- When working on the task we were engaged.
- We have elaborated and applied a good plan to do the task.
- We have used the time well.
- We have analyzed each step of the task in order to correct it and improve it.
- Global evaluation of the task was completed.

Also they will have to answer to the following questions regarding proposed objectives:

- What have we learnt in this session?
- What remains to be learned for the next session?

- Skills of collaboration and team integration of all team members: you have to emphasize daily in these objectives, asking the following questions:

  - Have we succeeded in creating a good working atmosphere?
  - Have we worked together cooperatively?
  - Have we integrated the contributions of every member?
  - Have we achieved that every member worked?
  - Have you learned to observe others?
  - Questions and issues have been raised that have made us think

- Skills to discuss and solve conflicts: in the activities where relevant conflicts arise you should evaluate the advances asking the following questions:

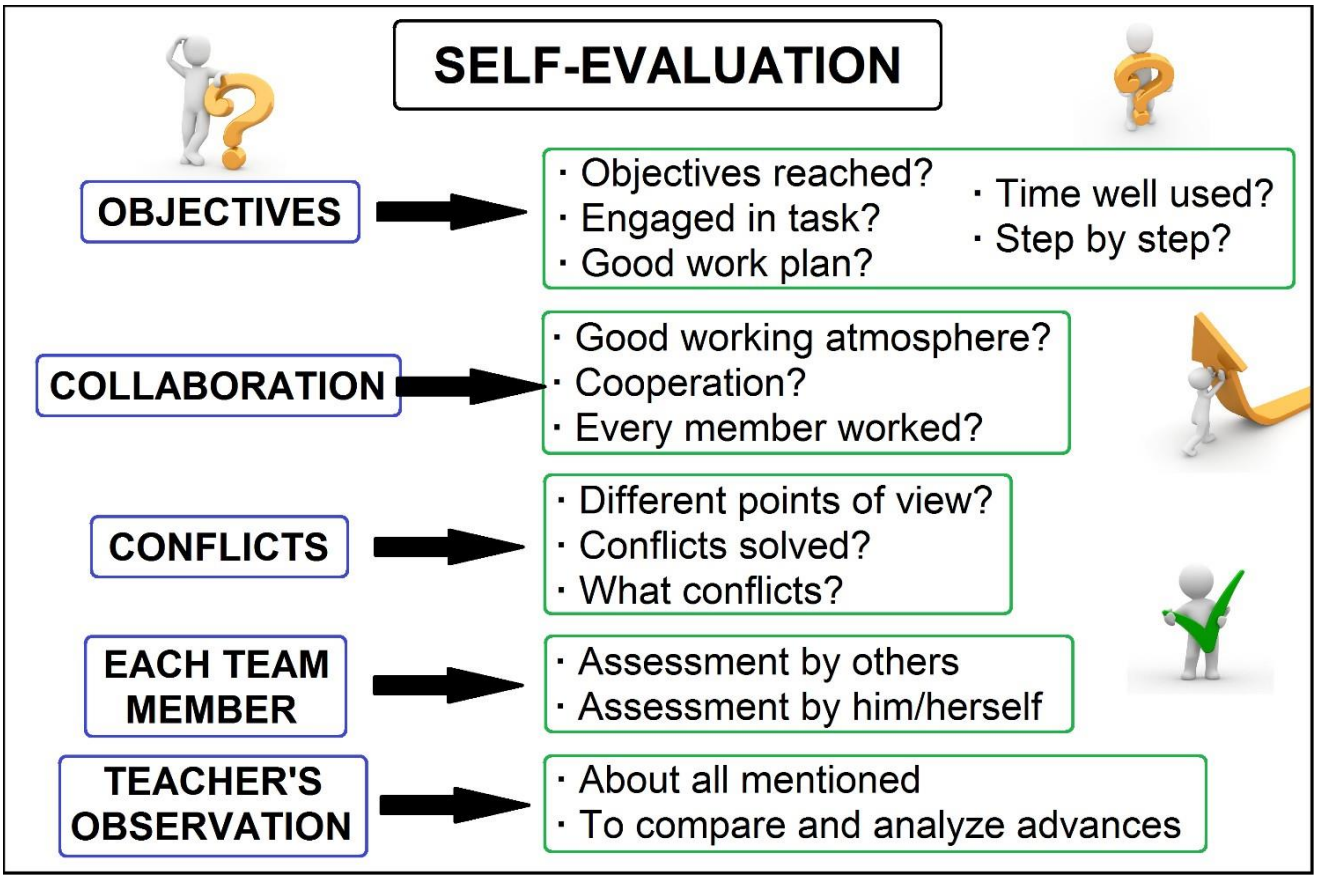
  - Different points of view have been raised and analyzed.
  - Have you solved conflicts that have emerged in the group?
  - What are the main conflicts?

- Evaluation of each team members: this assessment has to be carried out from a double perspective: other team members evaluate a student and each of them evaluate him/herself, his/her contribution and how to improve it.

It is also important for the teacher to observe all of these aspects. In this way you will obtain data and observations in order to compare and analyze advances during the school year. To simplify we present two questionnaires of evaluation, one for the students (self-evaluation) and another one for the teacher (observation).

With all this process it is expected that the students are aware of their own progress, so they are responsible for themselves, slowly improving and being able to generalize to other areas of their life and professional future.

Figure 43: Self-Evaluation.



MULTIPLE INTELLIGENCES

For the teacher, multiple intelligences open the door to other ways of giving lessons. You will find hereafter various activities, by intelligence, to realize with the students during the learning.

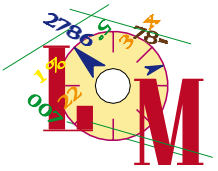
Activities per intelligence

Verbal-linguistic intelligence:

- Search for keywords and define them.
- Create slogans on the key-ideas of the topic.
- Create mnemonics to memorize a topic.
- Summarize with his own words.
- Paraphrase elements of the course, use other words.
- Create dialogs.
- Telling or writing a story.
- Write the continuation of a story related to the subject.
- Write a poem, rap or haiku on the subject.
- Imagine and write a questionnaire or test on a topic.
- Hold, create or publish a newspaper.
- Organize discussions or brainstorming.
- Animate a debate or a discussion on the subject.

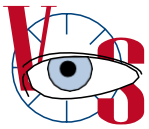
- Organize a press conference on a topic.
- Play specialists on the subject during a debate.
- Organize an interview on the subject.
- Make improvisation or a theater scene on the subject.
- Organize a court on the topic.
- Create a role play on the subject.
- Use a Dictaphone.
- Summarize in writing or orally the subject.
- Write a speech on the subject and present it.
- Find and analyze proverbs related to the topic.
- Find the etymology of words to better understand the subject.
- Follow a task sheet regarding the topic.
- Make a presentation on the subject.
- Read aloud a poem or a text about the subject.
- Conduct a research report on a topic.
- Write open and closed questions on the subject.
- Imagine vocabulary games on the subject.
- Invent puns on the subject.
- Compile books and manuals on the subject.

Logical-mathematical intelligence:



- Estimate.
- Balancing a budget or holding an account book.
- Compare the alternatives in the project.
- Design a problem related to the topic.
- Find the solution of a mathematical problem.
- Calculate and quantify.
- Issue and test hypotheses on the subject: and if ...?
- Plan a project.
- Structuring an idea of the subject.
- Design Venn diagrams on the subject.
- Make a histogram or a temporal frieze on the subject.
- Pose problems in mathematical form on the subject.
- Create a grid to study a topic.
- Prepare a list of questions on the topic and answer them.
- Find digital information on the subject.
- Determines the main thrust of the topic.
- Find the logic of the subject.
- Compare different elements of the topic.
- Prioritize the topic.
- Translate elements of the subject into symbolic formula.
- Play strategy games.
- Set priority orders in the subject.
- Create codes on the subject and decrypt them.
- Play and design a puzzle.
- Decipher a coded language on the subject.
- Recognize shapes.

Visual-spatial intelligence:



- Make a Mind Map on the subject.
- Put colors in its course, highlight, illuminate, etc.
- Make a sketch of an idea.
- Play Pictionary on themes of the topic.
- Make a quick sketch (The meaning takes precedence over the artistic).
- Draw symbols, icons or logos on the subject.
- Visualize the subject with mental images.
- Make free drawings on a sheet while listening to the course.
- Bring out a structure by highlighting in the course.
- Draw the boundaries of an object related to the subject.
- Design a poster on the subject.
- Make a map or graphic on the subject.
- Design a decor for the class on the subject.
- Make a model on the subject.
- Create collages on the subject.
- Take pictures on the subject.
- Imagine situations, to pretend.
- Make a 3D map on the subject.
- Imagine a puzzle on the subject.

Musical-rythmic intelligence:



- Translate into music or rhythm the important elements.
- Use sound backgrounds.
- Create symphonies of words.
- Learn a musical rhyme on the subject.
- Pace the important words of a subject.
- Transpose the subject into rap or opera.
- Use repetition, rhyming and expression in a presentation.
- Use drums to punctuate the subject.
- Find musical similarities on the subject.
- Write new lyrics on a known song, on the subject.
- Write a jingle on the elements that have been learned.
- Memorize a poem on the subject.
- Learn a definition in rhythmic form.
- Hum/Sing what you learn about the subject.
- Find music adapted to the staging of the subject.
- Create a choir and interpret a song on the subject.
- Adapt a sound background to the activity on the subject.
- Imagine a choreography on the subject.

Bodily-kinesthetic intelligence:



- Mimic a concept on the subject.
- Stage an idea on the subject.
- Manipulate useful objects to the subject.
- Model an element of the subject.
- Work wood, clay, or collage on the subject.

- Make a model related to the subject.
- Build a game on the subject.
- Use a machine used for the subject.
- Go on a study trip on the topic of the subject.
- Make the puppets talk about the subject.
- Practice a sport related to the subject.
- Use sign language to express yourself on the subject.
- Dismantle and reassemble an object related to the subject.
- Create with precise gestures an object for the subject.
- Practice self-observation during controlled physical activity.
- Make Brain Gym, yoga and relaxation exercises.

Interpersonal intelligence:



- Exchange with others on the subject.
- Play cooperative or competitive games.
- Interact with others on the subject.
- Work in group on the subject in a spirit of cooperation.
- Distribute responsibilities into an activity on the subject.
- Ask questions between pairs on the subject.
- Create simulations on the subject.
- Organize a tribunal to discuss the issue.
- Interview or play an interview on the subject.
- Put the subject on stage with classmates.
- Prepare an interview with a specialist on the subject.
- Conduct a brainstorming session on the subject.
- Compare his notes on the subject with others.
- Share ideas or reflections on the subject.
- Create links by letter or email on the subject.
- Attempt to guess what the other thinks about the subject.
- Work in pairs on a subject.
- Practice tutoring.
- Do homework and controls group.
- Express feelings during an activity on the subject.

Intrapersonal intelligence:



- Self-evaluate, in calm, on the subject.
- Express personal thoughts on the subject.
- Write a diary and talk about the subject.
- Encourage students to take more responsibility
- Offer a time for personal reflection on the subject.
- Let the choice of the subject.
- Think about the meaning of an exercise.
- Link the subject to personal skills.
- Do a personal search on the subject.
- Ask yourself open-ended questions on the subject.
- Give a personal opinion on the subject.



Naturalistic intelligence:

- Work on the subject outside, in nature.
- Look for ecological links with the topic.
- Work on the nature side of the project.
- Find the ecological impact of the topic.
- Developing careful observation.
- Look for the structures in the subject.
- Search and classify information on the subject.
- Find categories to organize the subject.
- Make analogies between the subject and natural processes.
- Collect, sort, and organize items for the topic.
- Gardening, raise or take care of animals.
- Experiment in nature.
- Go on an expedition or trip in nature.
- Determine the name and species of an animal or plant.
- Focus on natural phenomena.

Examples for teachers/facilitators

The following information will give you ideas to implement/develop educational activities using multiple intelligences.

During activities, several intelligences can be solicited in order to reach a larger number of students.

Verbal-linguistic intelligence:

- Write a scenario, create dialogues and play in front of the class.
- Write a poem (explicit or metaphorical) and then read it in front of the class.
- Make a written / oral summary on the subject and present it to the class from another situation (text of the adulterous woman, Mary Magdalene).

Logical-mathematical intelligence:

- Use graphic structures, diagrams to represent changing situations.
- Compare, in a double or triple entry table, situations of the subject.
- Transform the notions of subject into problem to be solved, bring out the logical relations, the similarities and the antagonisms in the elements of the operation of the subject.
- Transform the operation of the subject into "mathematical equation" or in consequence of syllogisms: if... then...

Visual-spatial intelligence:

- Create a poster explaining the subject (with colors, drawings, symbols...).
- Make a Mind map using the concepts of the subject.
- Tell a story with the subject using drawings or symbols, or a comic...
- Create puppets as characters explaining the subject.

Musical-rythmic intelligence:

- Create a song/rap/... (explicit or metaphorical) and present it to the class.
- Mimic a situation by replacing words by sounds/noises, music, haiku...
- Choose a music to represent the different moments, the different situations of the subject.

Bodily-kinesthetic intelligence:

- Create and play a scene, a role-play to show how the subject works.
- Create a mime with hands, a show of Chinese shadows to represent the subject.
- Show how the subject through dance works.

Interpersonal intelligence:

- Organize an exchange of ideas in group (in deciding rules to follow during the debate: objective, duration of speech, voice control, respect for others...) and then write together a summary of the exchanges, in the form of a Mind map or other.
- Observe and report the role and feelings of each person following this debate by two, think about questions to ask another group to make sure that they understand the functioning of the subject.
- Imagine a card game where players will have to implement the concepts and operation of the subject.
- Simulate in a group a current situation in which you can use the subject.

Intrapersonal intelligence:

- Read photocopies on the subject, flip through the book and think about moments when you have been confronted with similar situations. Explain then in your situation the operation of the subject.
- Write a report explaining the operation of the subject from a situation and express your personal opinion on the subject.
- Imagine how to explain and use the subject to others so that they can benefit from it.

Naturalistic intelligence:

- Explain the functioning of the subject with nature elements (animals, stars, gardening, plants...) or with nature noises.
- Search for the structure of the operation of the subject, and account it with drawings, painting, photographs...
- Draw up lists of situations, by genre, in which the subject takes place.

DIVERSITY MANAGEMENT

Diversity is the variety within a group, making it heterogeneous at different levels. This diversity could be caused by different motives, for example: gender, ethnicity or country of origin, functional diversity (deaf, blind, motor handicap, etc.), special educational needs (dyslexia, attention deficit hyperactivity disorder –ADHD-, etc.), socio-economical class, sexual identity, etc.

Basic fundamentals.

We live in a globalized world, in our societies there is plurality of cultures, and the schools are the reflection of the society. Also, men and women live together in all social environments, as well as people with functional diversity or handicap. That is why, we find in the classrooms high diversity.

Therefore it is necessary to work on the inclusion in the school, in a way that the students learn to live in a diverse world. The inclusion is a social phenomenon rather than educational, comes from the ethical principle of dignity equality of all human beings, so the inclusive orientation is a change of view that affects education, not just for students with special educational needs. It implies to consider diversity as an enrichment inside of every human being. It is a process, a perpetual movement toward a goal.

Differences have big learning opportunities, they are a free resource, vast and renewable. We will see how to make a conscious and deliberate use of differences of social class, gender, sexual identity, age, capacity and race as a learning resource. Therefore a series of objectives for an inclusive learning are presented:

- To understand, accept and respect yourself and others, valuing diversity and individual rights to their identity.
- To critically know and value the own cultural elements and others and its interactions.
- To acquire linguistic competences respecting linguistic diversity.
- To acquire skills for problems resolution from different areas of experience.
- To solve interpersonal conflicts with a deep knowledge and the reasons for them.
- To acquire skills, resources, tools and attitudes needed to get around a complex and heterogeneous society (to provide to minority team members, resources needed to be competent).
- To develop a personal identity and self-esteem, valuing and respecting the group which they belong to, overcoming their stigmatization.
- To actively participate against prejudice, discrimination and unfairness.
- To understand the world around them from different points of view, making their perspective wider.
- To act with flexibility with other people contributions, showing interest in knowing and discovering their values.
- To participate in group activities with solidarity and collaborating attitudes.

How to work with diversity in the classroom

In order to manage diversity you can opt for two nonexclusive views. On one side we have punctual actions or workshops, and on the other side the inclusion of diversity as part of daily routine in the classroom.

Regarding **punctual actions**, it's about specific workshops that delve into any specific aspect you want to treat. These actions vary from one group to the other depending on the type of the student diversity, the age, the problems encountered in the classroom, prejudice or preconceptions, etc. It is important that these activities are not left isolated, so you also have to work on the contents in a transversal manner, as indicated below. Here are some summarized examples of these possible actions:

- Gender workshop: to work on sexual diversity and gender stereotypes, you start explaining the difference between sex and gender. Then you continue with a practice where the students work in heterogeneous groups with materials (story, movie, etc.). They should identify gender roles and redo it by writing the story again.

- Functional diversity workshop: one by one, blindfolded and with help of a cane, they have to make an obstacle course (zebra crossing, sidewalks, rails, hills, etc. or around the educational center). If you have a wheel chair available you can encourage them to be in it for a whole day and another classmate has to push him/her.

- Intercultural workshop: students work in heterogeneous groups, where there are member from different countries of origin. They have to compare their different music, popular dances, traditional clothing, food or other differentiated element. Each group should have an element and at the end, each group show theirs, but the members have to explain other culture, not their own.

- Emotional intelligence workshop: the use of socio emotional and socio affective strategies. The first ones are used for the students to be aware of their own values, to reflect and delve on them (values clarification, moral dilemmas, conflict resolution, image reading, etc). The second ones are used to provoke a change of attitudes, which is necessary that they "live and feel" situations of discrimination, standing in the place of others to work empathy (for example, through role-play).

- Memorial days: there are plenty of activities to do in commemoration of important days like: Peace day – September 21st - (conflict resolution, countries in war and how they live, peace culture, etc); Child day – November 20th- (children and teenager's rights and how children live in different countries, etc.), Women day – March 8th- (gender perspective, role differences, how women live in different countries, etc.), Day for Eliminating Racial Discrimination –March 21st-; Day of Handicap People – December 3rd- (spend time with a blind person, to manage a cane or a wheel chair, to analyze accessibility, etc); Human Rights Day – December 10th -; Immigrant Day – December 18th (difficulty of leaving your home, change of culture, etc.), etc. We also encourage you to design your own activities adapted to your center and students.

- Center activities with parents: activities where all the educational center participate with parents, to work on values of inclusion, acceptance of differences, mutual knowledge, disassemble stereotypes, etc. Involving parents is essential to be able to generalize and achieve greater impact.

Regarding **including diversity on daily basis,** is about respecting differences and the right to get educated in the difference itself, combining with equal opportunities. In this way, rejection toward minorities is prevented. It is about potentiating exchange so there is an enrichment through dialogue. The knowledge of the other, more personal and deep, facilitates the elimination of stereotypes. So some guidelines to handle diversity in the classroom are offered next.

Cooperative work in mixed and heterogeneous groups provides the possibility to interact with different classmates and to know them better, so in this regard we refer to the cooperative learning methodology already explained.

The introduction of diverse and intercultural contents in didactic units and adapted to different curricular areas it is also very important. For example you can introduce:

- People's name, cities and countries from different cultures and origins. You can do this in any kind of content that implies to give examples, like math problems, study of cases, etc. For example names as: "Ahmed", "María", Christian", "Karima", "Natasha", "Mijaíl", "José", "Joao", "Mirari", etc. Or city names as "Oporto", "Lisboa", "Moscú", "Túnez", "Trípoli", etc.

- History and geography of countries of origin or students which are native from other country different than the one they reside in, given them the opportunity to share their customs, culture, religion, etc. You can propose to do a comparative analysis, or to indicate the role a country played in a period of time they are studying, etc.

- When talking about theories, discoveries, history, influent people, etc., add more important women and relevant characters from cultural minorities.

- Use inclusive language.

As a teacher, provoke situations where the student is able to:

- Propose and analyze problems or happenings involving value conflicts.

- Debate freely and rationally about them, manifesting their own opinions and respecting people who has other opinions.

- Discussing their own principles with those of classmates', their culture with others, different historical times, our religions with others, diverse philosophical and scientific concepts.

- Know how to defend an opinion considered fairer, even if is not comfortable.

Also the fact that the teacher has a positive attitude toward diversity is essential. As main reference of the classroom is important that he/she has the following qualities:

- Authenticity, coinciding what he/she says with what he/she does, coherence is essential. It is a model of behavior and attitude model and they have to be aware of it.

- Competence to face conflictive situations in the classroom, knowing and managing conflict resolution: negotiation, active listening, empathy and mediation.

- Unconditional acceptance of their own students, considering them from the beginning as people worthy of all respect. Do not ridicule or embarrass any student, but support them and help them so they have a positive self-esteem.

- Understanding and trusting, giving them the opportunity to be responsible for their own attitudes and learning, accepting and understanding their differences and getting adapted to them.

- Reciprocal stimulus between students and teachers, being open to listen, to get adapted and to be accessible to students.

Group dynamics to work diversity

Next we are going to suggest a couple of dynamics that are useful to work with diversity. Each teacher has to value if these dynamics fit the group, need to be adapted or if others are more appropriate.

MORE EQUAL THAN DIFFERENT

Goal: Analyze how stereotypes or prejudice may change our way to understand and interact with things and people.

Time: Between 40 and 55 minutes.

Resources: Roll of paper, scissors, cardboard and glue.

Procedure: You provide cardboards and paper to every group. They draw on the paper a silhouette of a team member and on this drawing they have to open windows. Below each window, placed in different body parts, like the heart, the brain, the eyes, etc., they will write feelings and attitudes that they would have if they immigrate to other country. For example, in the heart window, when open it you may find the word “hope”.

Share the reasons that they would have to immigrate and the consequences of immigration.

Examples of questions that you can make are: What would you take with you if you were to emigrate? what are the causes of immigration?; what happens to you when you are starting over in another country?, How would you feel?; What would you miss?

DO WE SEE OR LOOK AT THE IMAGES?

Goal: It is an activity that attempts to make us more aware and sensitive when we are making value judgements about differences. It favors to get closer in opinions about multiculturalism.

Time: Between 40 and 50 minutes.

Resources: You need as many pictures as participants. You will have pictures with full images and pictures that only show a section of it.

Procedure: You divide the activity in three parts.

FIRST PART: You give each participant an uncomplete picture and you will put it face down on the table, so they can't see the image. When everybody has a picture, turn it up and ask them to write a caption in the bottom of the picture. Then each participant shows the picture and read the caption of it. We attach an example of a "complete" and "uncomplete" picture.





SECOND PART: After sharing the captions of “uncomplete” images, we repeat the procedure with the “complete” images. Make sure you give each participant the corresponding “complete” picture to the “uncomplete” one, given before. They should write a comment about the perception they have about the “complete picture”.

THIRD PART: The teacher encourage dialogue through questions which will guide them to reflect:

What did you feel when you saw the “uncomplete” picture included in the “complete” picture?

Do we use this vision of the reality? Do we see it uncomplete?

Have you felt the same emotional impact observing the uncomplete picture than observing the complete one?

Recognizing the existence of other perspectives and interpretations; how can we advance in the mutual knowledge to achieve equality?

CONFLICT MANAGEMENT

Conflicts are inherent to human being and society, and they are not bad themselves. Every conflict represents an opportunity to improve personal and social skills, relationships and coexistence environment. But also it could be a problem if they are not managed correctly, if they are taken as direct conflicts, if they are taken personally or if they are ignored.

So it is very important than the teachers have tools to detect and manage conflicts that can arise in their classrooms and school centers, between students, students and teachers, or between teachers. In this section we are going to focus on the first ones, but taking into consideration that the skills can also be applied in the other type of conflicts.

Also we are going to talk about how to work on disruptive behaviors, which are always negative, those are behaviors that interfere and difficult the normal development of the class. Some examples are: talking when is inappropriate, standing up when it is not the right moment, insulting, confronting and threatening the teacher, disrespecting classmates and teachers, etc.

Basic fundamentals

The education that students bring from home is as important as the one they receive from the school in reference to values, principles, social skills, respect, etc. So it is important that teachers revise themselves and widen his/her skills and attitudes. For managing conflicts and controlling disruptive behavior, it is essential that there is a positive bond between teacher and students.

According with Diaz-Aguado and Martinez studies (2008), the memory of adults about their teachers indicates that:

- The worst teachers stand out for humiliating, ridiculing and being boring.
- The best teachers stand out for their enthusiasm, they transmit what they teach and they trust in student's possibilities and transmit the desire to continue learning for the rest of their lives and their willingness to help solve conflicts fairly.

This also relates with different forms to understand education:

- Authoritarian perspective: the imposition of rules to the students by the social system, duties without rights.
- Permissive perspective: It arises as a reactive negation to the previous one, it suppresses norms, freedom without limits and rights without responsibilities.
- Democratic perspective: the construction of norms is produced to improve life in common with individual participation, responsibilities with rights.

It is recommended to dedicate time in the beginning of the school year with all the group. It is very important that students feel part of the class dynamic, because in this way they will feel responsible of what happens and they would be more interested in solving any conflict by themselves. In order to set up rules, you have to follow the next steps:

- The teacher should have a previous work about desirable coexistence rules, as well as a recompilation of problems that have been arisen and possible punishments and rewards.
- You will dedicate one hour in the classroom for the students to write norms that will be followed in the class.
- You will explain them that during that hour they will exclusively talk about problems that have been arisen in class and how to solve them.
- First you will ask them to list coexistent problems that have been arisen during the school year. The teacher will take notes in the black board so everybody can see it. If there is an important problem that has not been mentioned, the teacher will suggest them to write it down.
- Then you will ask them to propose rules that they think would prevent these problems from happening again. The teacher will write them on the black board, but formulated in positive. For example: "don't take things that belong to a classmate without permission" instead, it would be "ask for permission when you need something from a classmate". Similarly, if the teacher detects that there is an important rule that has not been mentioned he/she will suggest them to write it down. You have to take into consideration that rules are a media for a healthy coexistence, and not a goal itself.

- Next you will ask them to list positive consequences for each norm. These consequences must be made into groups, so the cooperation is fostered.

- Then you will ask them to make a list of negative consequences for each norm, these ones have to be discussed in group as well. If you detect a student who doesn´t respect the rules with the intention to make his/her peers to get punished, you can make an exception and the consequences will be apply only for that student.

- To finish, the students will make a mural with the three lists: norms, rewards and punishments and they will be located in a visible place in the classroom. All student and the teacher, have to sign the rules, compromising to accomplish them and accepting the rewards and punishments.

- They will feel the norms as their own, so they would be the ones who self-regulate and self-govern; and the teacher will have the role of mediator and responsible for the coexistence.

In order to complement this initial task, we recommend to do a “Class Conference”. We need to have a space and time to work on subjects related to daily coexistence, problems that have implied trespassing established rules. The “Class Conference” is a space where students and teachers can express themselves freely, based on mutual respect. In case there is a tutorial or library hour, it could be used for this objective.

Managment of disruptive behaviors

Sometimes the teacher thinks that being authoritarian he/she will control better disruptive behaviors and will solve conflicts, but this produces a rebellious reaction in the students making problems worst. In order to exert power in the classroom you have to know the different kinds of power which are listed below:

- **Coercive power**: The teacher is a punishment mediator. Their power depends on the magnitude of the punishment and on the subjective perception of the student on how to avoid it, behaving as expected. The behavior changes depend on the physical presence of the teacher in the classroom. The attraction of the students toward the teacher decreases and they will tend to avoid him/her.

- **Reward power**: The teacher is a reward mediator. His/her power depends on the magnitude of the reward and the subjective possibility of being rewarded. The behavior changes also depend on the physical presence of the teacher and only the behaviors that are going to be rewarded will change. The attraction toward the teacher may increase if the rewards are perceived as legitimate.

- **Legitimate power**: It is based on the perception of the students that the teacher has the right to have influence over them. It implies the acceptance of specific set of norms and the corresponding responsibility. The inappropriate use of this power (trying to influence beyond the appropriate or in an unacceptable way) the legitimate and referent power decreases. The originated change depends

on the teacher´s presence, but activating accepted values by the student, they could become independent of his/her intervention and presence.

- **Expertise power**: It is based on the students' perception of the special knowledge that the teacher has in a specific field. If he/she tries to exert power beyond the field he/she is recognized for, the trust decreases as well as his/her expertise power. Behavioral changes do not depend on the presence of the teacher; it is highly related to the subject he/she teaches.

- **Reference power**: It is based on the identification of the student with the teacher, on their perception of the attributes or values the teacher has and the students would be interested to have. The changes in their behavior could be independent of the teacher's presence and many behaviors of the students could be influenced by him/her. The efficiency of teaching values increases and the need for punishing decreases, improving the atmosphere in the classroom.

Therefore, there are a number of conditions to improve the school discipline:

- One of the discipline objectives is to teach respect for certain limits. In order to do this, it is necessary to have clear, coherent and elaborated rules for all.

- The impunity of transgressions increases the tendency to relapse, because the efficiency of the limits and the social contract reduces in the context established.

- The punishment has to contribute to re-establish the broken balance because of the transgression, by overcoming distortions.

- The discipline benefits cognitive, emotional and behavioral changes toward educational objectives.

- The respect of limits improves when conflict resolution skills are learned. For that, you always have to analyze what function the limits accomplish and to develop alternatives for the student and for the context.

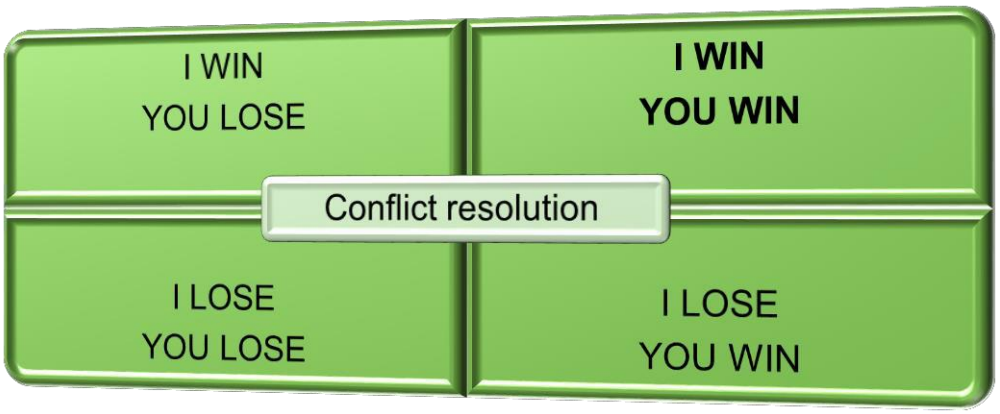
We can summarize all this in a Decalogue to prevent and face disruption in the classroom:

1) Accept that there is not a simple recipe that works automatically. It depends on the context, the students' characteristics, the personality and the style of the teacher.
2) Improve students' attention by the way you design and develop the class. The difficulty for maintaining the attention could be reduced by giving the student a more active role in their own learning process, incorporating contents and resources more attractive and impacting. These will decrease tiredness and the monotony of the teaching-learning activities.
3) Develop positive alternative behaviors in the school context to get what they want to achieve with their disruptive behavior. The student instrumental type, pursue to obtain leadership or confront the teachers. You have to give them alternatives with integral programs based on mutual respect.

4) Develop alternative skills in the students which will allow them to take advantage of positive opportunities of the school context. In order to prevent disruption, it is convenient to take into consideration that students that use disruption in a severe way, they usually have difficulties to understand and solve conflicts, and as a consequence they tend to behave in a way that hinder everybody's wellness and their own. Help them by teaching them systematic procedures to regulate their emotions and to solve conflicts wisely and fairly, these could be very efficient.
5) Involving students in the creation and application of rules, usually reduces disruptive behavior. They change the perception, considering it not only as a disobedience to the authority, but as a lack of loyalty to the group they feel part of and want to belong to.
6) Be careful with nonverbal communication, it is very important in disruptive behavior, because through this language you express emotions which may increase it or reduce it. In order to achieve this, sometimes you will have to change the emotions expressed with such language.
7) Avoid increasing coercive reactions after disruptive behavior occurs; you have to stop them as soon as possible. Sometimes it works answering with a surprising behavior that contradicts what he/she expects or looks for with his/her disruptive behavior. The way you solve this challenge will help you define the kind of bond established.
8) Use conflict as an opportunity to teach how to solve conflicts. The application of this principle could be carried out as a preventive form with the whole group, before the disruption has occurred, or to prevent it from happening again. For example, when it is not possible to stop the increasing confrontation (disruption-coercion), it is convenient to talk about the problem that was provoked at a calmer time, trying to develop skills for conflict resolution which you will see in the next section.
9) Improve educational efficiency of punishment, including it in a conflict resolution scheme. In order to achieve this, such measures should promote cognitive, emotional and behavioral changes within a global process; helping the transgressor to put himself/herself in other people's place, to understand how inappropriate the disruptive behavior was, to regret for acting that way and to repair the damage caused. He/she needs to develop constructive alternatives, so he/she doesn't have to use them again in similar situations in the future.
10) Develop a scheme of cooperation between teachers, which will help to spread good practices and to reduce the stress that disruptive behavior can generate on the teachers.

Conflict management

We understand conflicts as a situation where two or more parties have objectives or interests which interfere, it means that for a party to fully achieve their goal, the other party will not be able to do the same with theirs. So it is expectable that each party fights for their goal, despites the other party; this is the perspective "I win, you lose". But this is not the only way they can face or decrease conflict; there are other formulas that we'll see next.



When one of the parties decide not to fight to achieve their objectives, or one of them is weaker, you have a “win – lose” situation. When both parties don’t want to give up nothing or ignore the conflict, you have a “lose – lose” situation, because the conflict doesn’t get solved and no one achieves their goals and generates more problems and conflicts, even to third parties. So the ideal is to have a situation where the conflict gets solved and the involved parties win.

In order to accomplish this, it is essential that both parties have an attitude toward conflict with the following characteristics:

- Being able to listen to the other party with open mind. It doesn’t consist just on listening, also understanding what it has been said and putting themselves on other’s place; understanding why they think or have a specific opinion about something and how the conflict makes them feel. It means, they have to be willing to empathize and listening comprehensively.

- Be willing to talk and try to make the other party to understand the own personal point of view and explaining how the conflict and the different points of view makes them feel.

- Explaining their point of view about how they perceive the conflict, focusing on the behavior and the problem. In any case they have to focus on the other party, personalizing it.

- Talking with an assertive communication style.

- The respect is basic, you have to respect speaking time, without monopolizing the conversation.

- Being able to give up some, having clear what other points you are not willing to give up.

- Being able to reach an agreement and respect it.

If the parties involved have this attitude, then you can solve conflicts, in order to do that you have to follow the next steps:

- Identify the conflict. It is necessary that the parties involved recognize the existence of such conflict and be willing to do something to solve it.

- Dialogue. The parties get together and talk about the problem, in order to define how is the conflict perceived by each of them, to give their points of view, to express how they feel about it (emotions and feelings), and their interest and needs.

- Solutions proposal. The parties propose solutions for the conflict. It is important that in these proposals each party give up something and at the same time, they win something else.

- Commitment. Weight the proposed solutions that you think are appropriate, reaching an agreement. This agreement have to finish with a commitment of all parties involved.

- Practice. Once you have acquired a commitment you have to put the solution in practice.

- If that solution doesn't have positive results, you will go back to the third step and they will choose another solution or a mediator will help to solve the conflict.

You have to teach and train students in skills, techniques and procedures described above, as well as in assertive communication and emotional intelligence. Then, the teacher will have the role of mediator when students don't solve conflicts by themselves.

An option that works great is the creation of a Mediation Committee formed exclusively by students. The students that voluntarily decide to be part of such committee, will be trained in the skills and techniques described above. All the students will be informed of such committee, so they will be able to go to mediator students to solve conflicts. Even though it seems that the Mediation Committee takes a lot of effort, the results are very positive.

Regarding the teacher, he/she has to keep in mind some guidelines:

- Maintain a calm attitude, avoiding direct confrontation with the student, indicating him/her that at the end of the class, he/she needs to talk to him/her. Somehow, teenagers look for confrontation in public with the teacher, as a way to make fun of him/her.

- Avoid ridiculing the student in public, because you will reinforce negative attitude or disruptive behavior.

- Maintain control over the situation, avoiding giving more importance than it really is, by showing signs of serenity and calm, but at the same time being energetic and firm.

- The comments have to be short and direct, avoiding criticism or threating. Give positive direction and focus on desired behavior, not on the one you are trying to avoid. So, instead saying “please could you stop doing…?”, say “please, start working”.

- You have to correct the behavior which caused the conflict, not the person and avoid comparing with other classmates.

- Dedicate to the student who caused the conflict, five minutes at the end of the class. Avoid sermons and try to negotiate, explaining him/her which are the interest and expectations regarding his/her behavior, trying to reach an agreement.

- When the problematic behavior has stopped and the student accomplished the agreement, you have to reinforce him/her, by valuing positive behavior.

Group dynamics to work conflict.

Next we will suggest couple of dynamics which can be useful to work conflicts in class. Each teacher has to value if these dynamics fit their group, to adapt them or if he/she has to think about others.

APPROACHING POSITIONS

Objective: To develop flexibility on the criteria, learning to approach positions.

Time: Between 30 and 45 minutes.

Resources: A classroom and two cardboards.

Procedure: On a class wall, you write on a paper the word “YES” with big letters and on the wall in front of it, you write the word “NO” in the same way.

The group stands in the middle of the class and you tell them a phrase, for example “If I take a pencil case from a classmate without permission it is normal that he/she gets upset?”, or “If a classmate makes fun of me I feel bad”… look for phrases that reflect a recent conflict lived in the classroom.

If you agree with the phrase you move toward the wall “YES” if you disagree you move to the wall “NO”. Nobody can stay in the middle, even though they don’t completely agree or disagree with the phrase, everybody has to choose.

Ask the members of each group about the reasons for their election. You have to do it without debating and listening carefully the arguments of everyone. List them on the blackboard. Ask the members of the group “NO” to step forward toward the middle of the class for each reason they agree with the other group. Continue in the same way with the members of the group “YES”. Each group try to show the other, new reasons and each time a member is convinced, they step forward toward the middle. The dynamic is over when there are no more reasons.

Evaluation: You can assess as evaluation criteria aspects such as: grade of flexibility of students, capacity of dialogue and listening, conciliation of positions, etc.

MAKING A COMMON FRAME

Objective: Overcome the own point of view and learn to build a common base with other people.

Time: From 20 to 30 minutes.

Resources: Classroom with chairs and blackboard.

Procedure: Divide the group into two subgroups “A” and “B”, placed one in front of the other. The subject to be negotiated could be varied, for example an afterschool activity in a weekend outing. When conflict appears, one of the parties affected can require the intervention of a mediator (it is recommended that the mediator students work in couples). If the other party accepts, you call a meeting where each of them give their point of view about the problem. Mediators try not to look for a guilty person, neither they try to solve the problem, they intend to approach positions of the parties in order to reach an agreement or a satisfactory solution for both of them. If finally, the conflict gets solved favorably, the parties can sign a written agreement or do it verbally.

You write both proposals on the blackboard and ask each group to indicate what each activity offers, with questions like: What is the propose for you to go to…?; What do you get doing this activity?; What do we get if we accept your proposal?

You list and summarize each answer obtained and based on the conclusion you make this question again, “Why it is important for you this aspect?”, so you accomplish both groups to agree on a common base, they will easily come to the conclusion that what both wants is to have fun; then they have to determine how.

It is important to differentiate between a common frame and an agreement; for the first one is necessary to reach the second one, demonstrating to the parties that they have an important base in common, which calm them down and generate a favorable atmosphere to negotiate.

It is a useful dynamic to address disagreements as base of conflicts, the way to overcome them and the advantages of approaching attitudes and consensus with the others.

Evaluation: It can be useful as evaluation criteria, the capacity of the students to obtain a consensus, the grade of listening, the attitude to get a common frame, etc.

7. TANGIBLE USERS INTERFACE

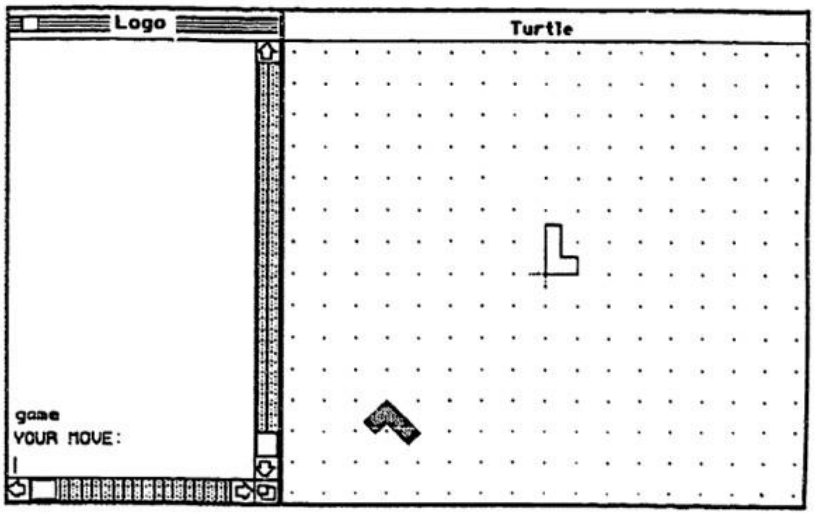
This section provides information on the Tangible Microworlds approach. It describes the background of this approach, gives an example of a Microworld modelled for the tangible table, and explains how it can be used in a classroom.

WHAT ARE TUIs? WHAT ARE MICROWORLDS?

Microworls

The notion of “Computer Microworld” was first used by Seymour Papert in 1980 in his book “Mindstorms”. He describes how a computer based environment (Logo) has been used to create the Dynaturtle: a digital turtle programmed to behave according to Newton’s law of motion in a frictionless universe. This environment allowed children to explore and understand Newton’s law without dealing with a written or verbal description of the concept. They can simply apply the same habits of exploration they use in their daily personal lives.

Figure 45: Logo is consider as one of the first Microworlds



A Microworld is generally understood as a computational environment that embodied or instantiates a mathematical or scientific subdomain (Edwards 1998). It instantiates the central objects and relations of this subdomain and provides them as an interactive representation that is accessible to new learners.

Typically, computer microworlds are used to offer access to phenomena that are difficult or impossible to encounter in the real world, as for example, the frictionless universe provided by the Dynaturtle. An important characteristic of the microworld is the non-explicitness (Edwards 1998): the learner is not informed about the underlying laws and scientific principles. The learner must discover it while solving a problem or playing a game.

Learners can do one of two basic operations in a Microworld (Edwards 1998): manipulate objects and interpret feedback. By undertaking these actions, learners are able to formulate and test hypotheses with the goal of understanding the Microworld and, thereby, solve a specific problem or challenge.

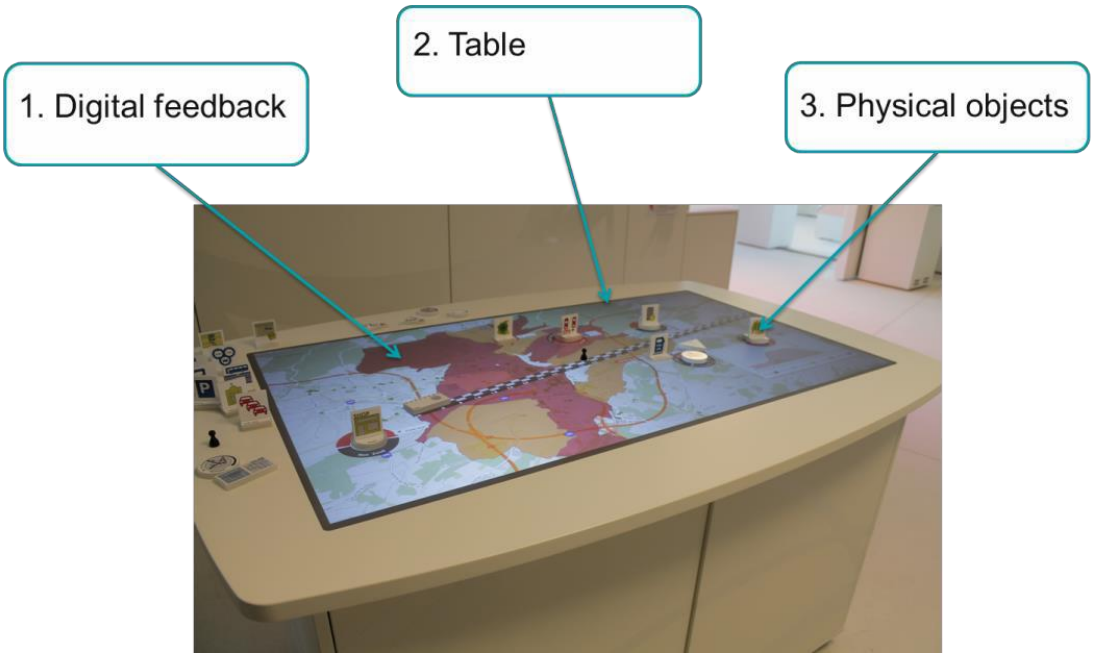
As microworlds can instantiate objects and relations of very different nature, the modelling process can be, depending on the mathematical subdomain, inherently complex, requiring multiple modelling sessions with several domain experts (e.g. Morecroft, 1992).

TUI-based microworlds

The idea of Tangible user interfaces (TUIs) is to make computer bits tangible and to allow users to grasp and manipulate them with their hands (Ishii, 1997). TUIs build upon physical metaphors to create new types of interactions combining physical artefacts with digital visualisations in a common interactive space.

A particular setup of a TUI is the Tangible Tabletop. It provides digital feedback integrated into a table. Users interact with this digital feedback by positioning and rotating physical objects (see Figure 37).

Figure 46: a tangible tabletop combines digital feedback, a table, and physical objects to provide a computer based environment.



Microworlds can be implemented on a tangible user interface (TUI) with the aim to create a collaborative problem solving setting (Ras et al., 2014). Tangible Microworlds provide the input and output variables as physical objects on an interactive tabletop. They can be physically manipulated and organised. The entire group can follow and discuss the observed actions and reactions of the system.

Example: the windmill

The tabletop shows a windmill. Using physical objects, users can change parameters such as wind speed, number of blades and height of the windmill. Each of the objects represents one of the parameters; the value is increased or decreased by rotation. The effects on the rotor speed and energy produced are shown in real time on the tabletop.

The windmill Microworld provides four input variables: wind speed, air temperature, number of blades, and height of the windmill (figure 38). Each of these variables is represented by a physical object that can be rotated to the left or the right in order to increase or decrease the value. The two output variables (i.e. rotor speed and energy produced) are represented through additional physical objects. The current value is visualized as corona around the physical handle.

In addition, an animated windmill is displayed at the centre of the tabletop. Both output parameters and the look of the windmill (height or number of blades) changed real-time according to the manipulations of the input variables.

Figure 47: a windmill microworld implemented on a tangible tabletop (left); variables are represented by physical objects (right).





TUIs AND PROBLEM-BASED LEARNING

Problem-based learning (PBL) is a pedagogical approach in which students learn by solving complex and ill-structured problems (Hmelo-Silver and DeSimone, 2013). In PBL, students learn in a self-directed way, and apply their gained knowledge in order to solve a provided problem. This process also includes a reflection on the learning of the content as well as the strategies employed.

PBL supports students in developing:

- Flexible knowledge
- Effective problem-solving skills
- Self-directed learning skills
- Effective collaboration skills

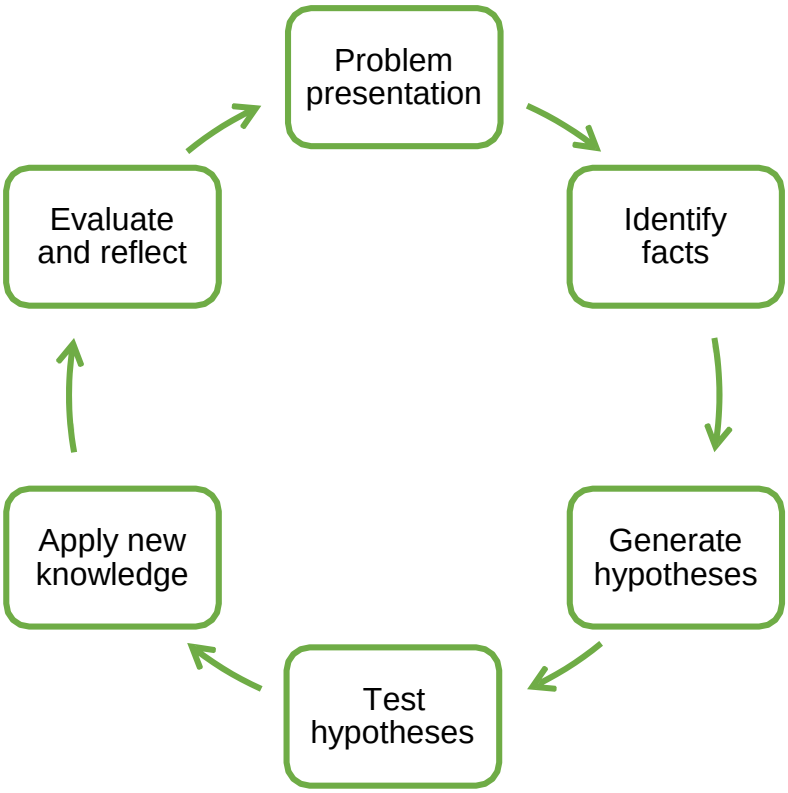
PBL follows a student-centered tutorial process, which starts by presenting a group of students with minimal information about a problem, hence, in our case a Tangible Microworld. Students then need to obtain additional problem information by collecting data, reflecting on that data and generating hypotheses about the underlying mechanisms. The students then identify knowledge gaps, i.e. concepts they need to understand in order to solve the problem.

Next, they research the learning issues they have identified and reconsider their hypotheses or generate new hypotheses. When completing the task, the students reflect on the problem in order to abstract the lessons learned as well as how well they performed.

The role of the teacher changes from one of telling to one of facilitating the learning process (Hmelo-Silver and DeSimone, 2013). S/he becomes a facilitator providing good strategies for learning and thinking, guiding the students through the PBL process and assuring that all students are involved. Facilitators guide the development of higher order thinking skills. They encourage students (and the group) to justify and externalising their thinking by asking appropriate questions. As the students better manage their collaborative learning, the facilitators progressively fade their support.

To work with Tangible Microworlds in a PBL based approach, the following iterative process can be used:

Figure 48: tangible microworld process



Each iteration starts with the presentation of a problem or task. Simple tasks could be, for instance:

- To understand the underlying links between parameters (and note it down on a separate sheet of paper).
- To maximise a certain value.
- To reach a certain value.

Depending on the Microworld design, tasks might have different levels of complexity and requiring a different amount of time to be solved.

The students then start to work on this problem in groups of 4-6. Using the TUI, they explore the impact of different parameters, first freely, then by generating and testing specific hypotheses.

Next the students make use of this knowledge in order to solve the provided problem. When reflecting on how well they did, they might identify new knowledge gaps and re-iterate through the process.

DESIGNING A TANGIBLE MICROWORLD SCENARIO

Stepwise process

In order to create Tangible Microworlds, similar to the windmill, we propose to follow 6 steps. Note that, while advancing in the process, you probably will revise the first steps. The process can thus be considered as iterative.

Each Microworld consists of the following:

- **Widgets** and **coronas**: they define the names of the tangible objects, their marker IDs, as well as all the localized feedback (coronas) provided by them. Conceptually, we currently support two types of widgets: those that modify variables on placement (on/off behaviour), and those that modify their variables on rotations (dial behaviour). The coronas can be images (evt tied to variables), gauges, or text boxes.

- **Equations** define the links between the widgets.

- **Scenes** are the background image and sound material. They can be tied to one or more variables that are used to decide at what moment a scene should be played.

Step 1: Identify a phenomenon.

Designing a tangible microworld scenario starts with selecting a phenomenon to be modelled. In the above example this is the functioning of a windmill to generate energy.

To be adequate for being modelled on a TUI, a phenomenon should be observable and embody a number of central objects and relations following a deterministic set of rules.

This step also includes gathering information about the selected phenomenon (books, internet, etc.).

In this step, t might also help to define learning objectives.

Step 2: Identify inputs and outputs variables.

As a next step, input variables need to be identified. These can be any aspect of the phenomenon that might change, for instance, naturally (e.g. weather), or based on human intervention (e.g. lifestyle), or based on design decisions (e.g. used material).

Input variables need to be numerical, i.e. a discrete or continuous set of numbers. They are usually described by a name and a domain (e.g. minimum value, maximum value and interval). Alternatively you might want to define only a small number of possible input values to select from, each of them to be described by its numerical value (as for instance the height of the windmill).

In the case of the windmill, the input variables are:

WIND FORCE	TEMPERATURE	Nr OF BLADES	HEIGH
Min: 0 km/h	Min: -50º	Min: 2	Value 1: 80m (Low)
Max: 45 km/h	Max: 50º	Max: 4	Value 2: 125m (High)
Interval: 1	Interval: 1	Interval: 1	

The main essence of the **output variables** are usually already defined as part of the selected phenomenon. In the case of the windmill this is the generated energy. However it might be interesting to specify several output variables that are impacted differently by the input variables.

An output variable is numerical, and is described using a name and their unit.

This are the output variables of the windmill microworld.

ENERGY	ROTOR SPEED
KWh	Rtm

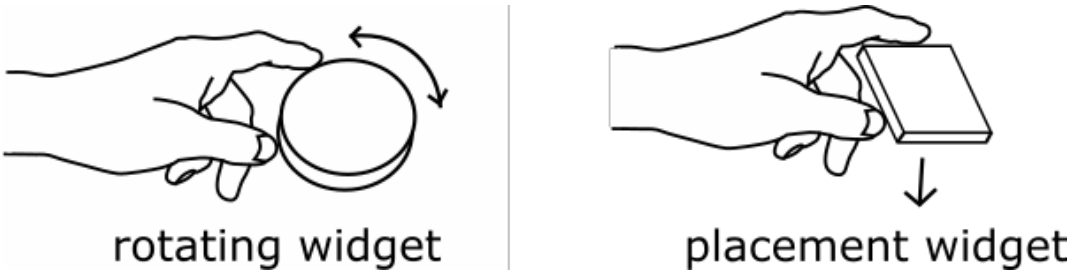
Step 3: Define the Widgets

Each variable is connected and represented by a widget. Therefore, as a next step, you need to define widgets and coronas, i.e. what visual and textual information should be displayed around the tangibles.

With the tool, you can define 2 types of widgets:

- Rotational widgets change their value when the user rotates them on the table. For instance, the wind force which increases with the user rotating the widget.
- Placement widgets have only 2 states: they can be on or off the table. This is not used in the windmill scenario, but could, for instance, be an electrical device you can add to the circuit by placing it to the table. When off the table, its value is 0, when on the table it is e.g. 300 Watts. Rotating this widget has no effect.

Figure 49: two types of widgets you can select from.



Furthermore, each widget has a marker ID (the ID of the tag you will stick underneath it), as well as a name (name of the variable).

For the coronas of the widget, you have three options, which can be combined as you like: Textboxes, Images and Gauges. The coronas will move along with the tangibles. You can define initial translations and rotations to specify where it should be displayed with regard to the object.

Figure 50: example of a Gauge and a Textbox Corona.

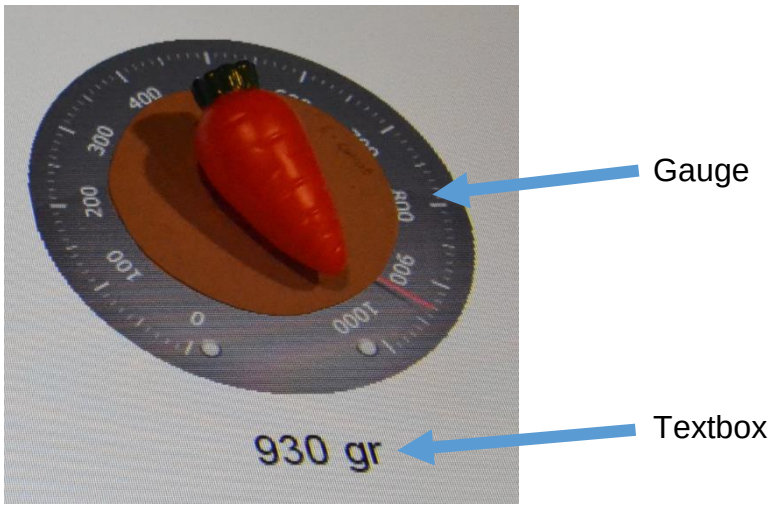


Image coronas can also have a trigger condition where you can define when the image is to be shown.

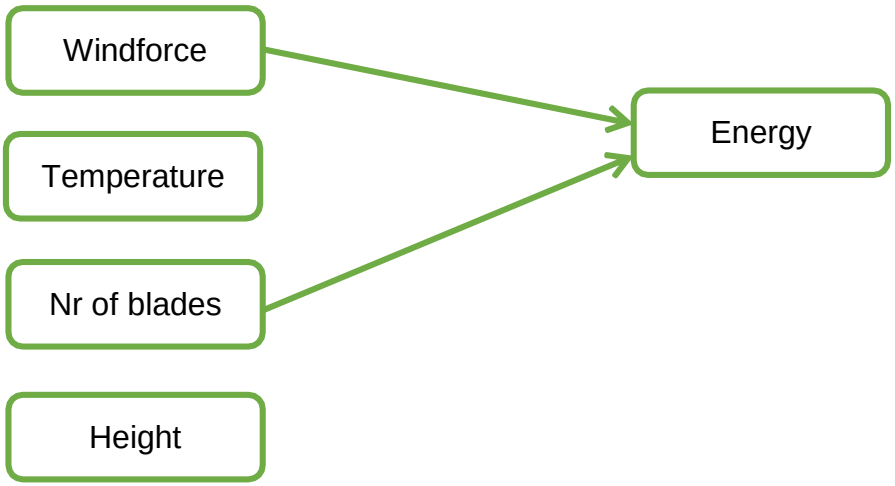
Step 4: Define the equations.

To have a better overview of the input and output parameters, we recommend creating a diagram with the relations, such as shown in Figure 38.

In our case, the energy is calculated based on the windforce and the number of blades. The rotor speed depends upon the windforce: in case there is no wind, or too much wind, the blades will stop rotating. In that case, the amount of energy generated will drop to 0 too.

The number of parameters, as well as the number of links between them will indicate the level of complexity of the problem.

Figure 51: model showing the relations between input and output parameters.



Equations:

energy = pow(windforce/3.6, 3) * blades/3
if (windforce < 14.4) energy = 0;
if (windforce >= 39) energy = 0;

Step 5: Define the scenes.

Scenes are images that are displayed at the background. They fill the whole tabletop. You can use them to show the context of the Microworld, or to visualise the impact of the manipulations. For instance, you can prepare multiple images and then show a windmill with the right amount of rotor blades based on what was selected by the user.

Using the trigger condition, you can define when a scene is to be shown.

Optionally, you can also add a sound file to a scene.

Step 6: Define the Tasks.

As part of the Microworld you can also define tasks, as well as feedback when the task is solved correctly or not.

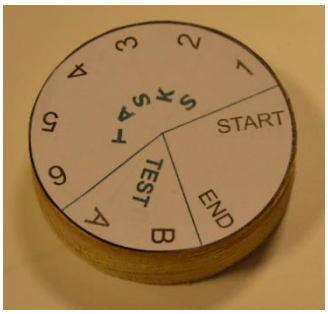
To add a task, you have to prepare an image with:

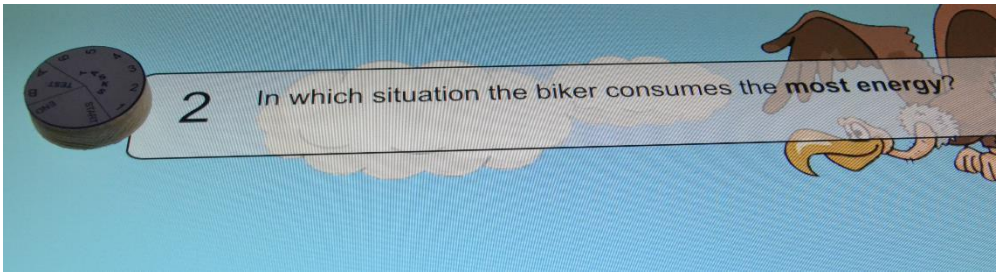
- The task description.
- The feedback to be provided when the task was solved correctly.
- The feedback to be provided when the task was not solved correctly.

You can add these images as scenes, or as image coronas and add the respective conditions to check if the task was solved correctly.

If you want to add multiple tasks, you can use a task-widget, allowing the user to iterate between the tasks. Such a task widget can also include a welcome message and end message.

Figure 52: Example of a task widget (left); Task widget with an image corona providing the text of the task (right).





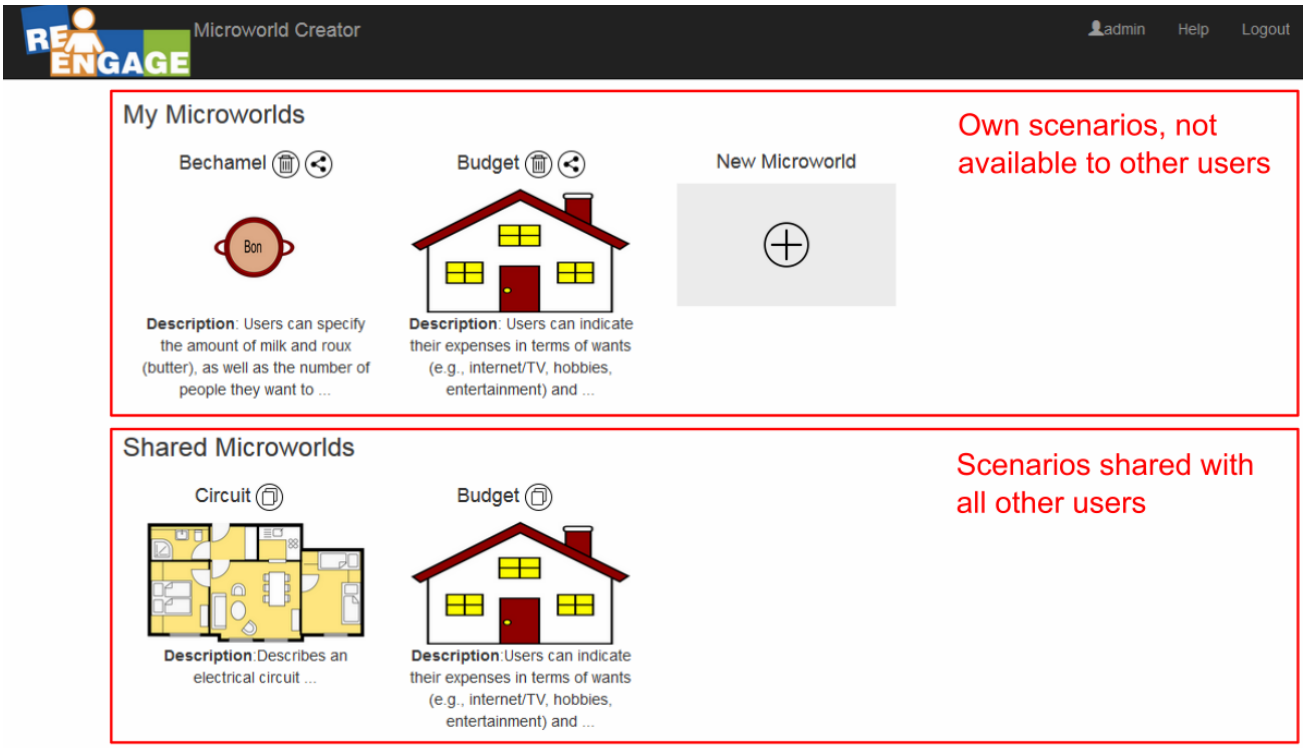
THE MICROWORLD CREATOR

The Microworld Creator is a web-based interface which you have to use to input all the above information about your Microworld, and then generate the XML configuration file for the TUI. It's main functionailities are explained in the following.

Main screen

After having logged in, you see all the Microworlds currently available in the system. Microworlds listed under "My Microworlds" are your own Microworlds, which are not available to any other user. Microworlds listed under "Shared Microworlds" are Microworlds which you, or another user shares with everybody.

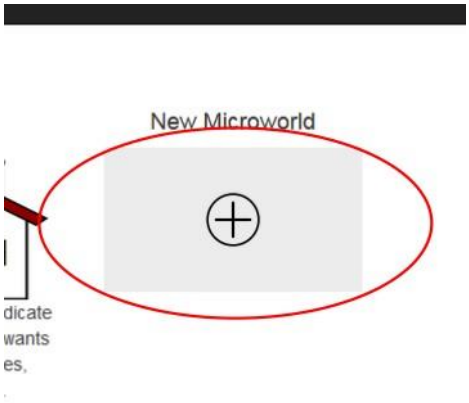
Figure 53: Main screen.



Create a new scenario

To create a new scenario, click on the grey area underneath “New Microworld” on the main screen:

Figure 54: Create a new scenario.

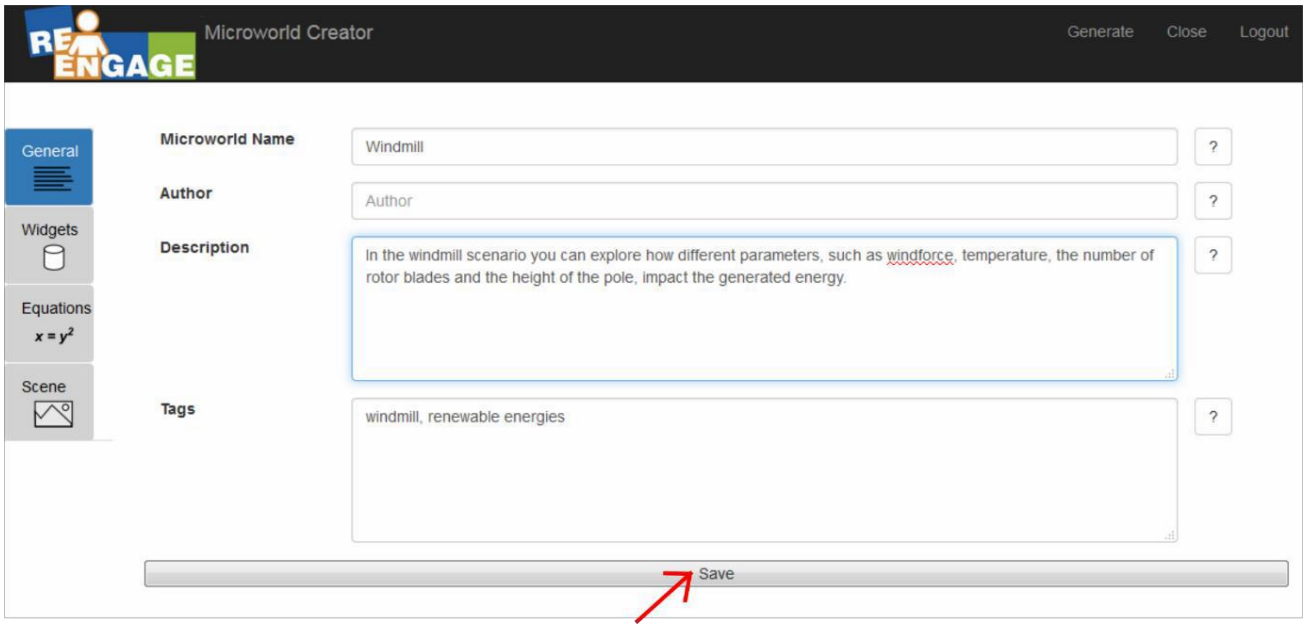


A page will open with four tabs: “General”, “Widgets”, “Equations”, and “Scene”. You can switch between tabs by clicking onto them.

General.

In the “General” tab, you can provide general information about the Microworld: its name, its authors, its description and tags.

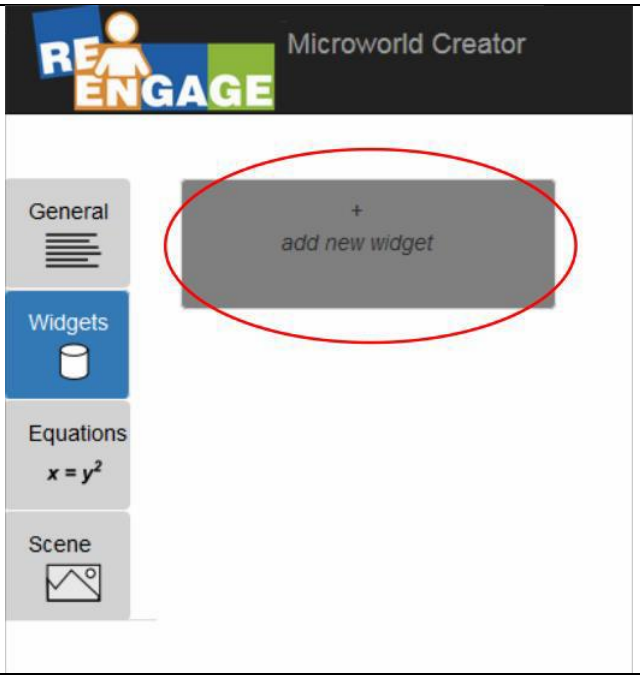
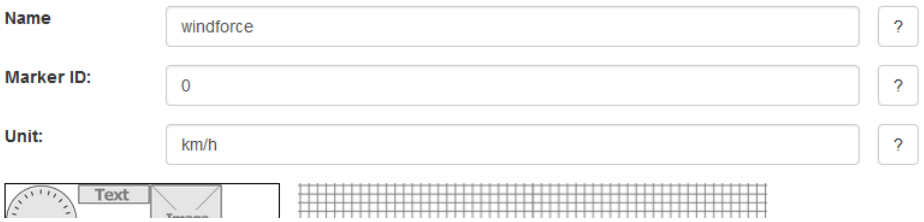
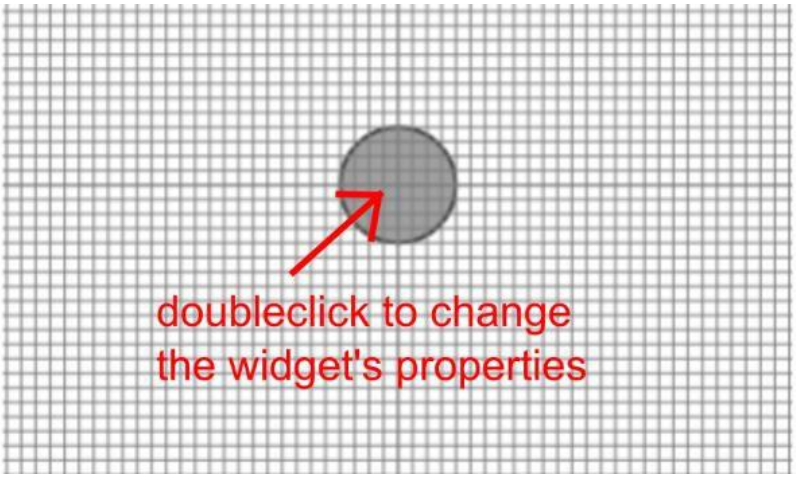
Figure 55: General tab.

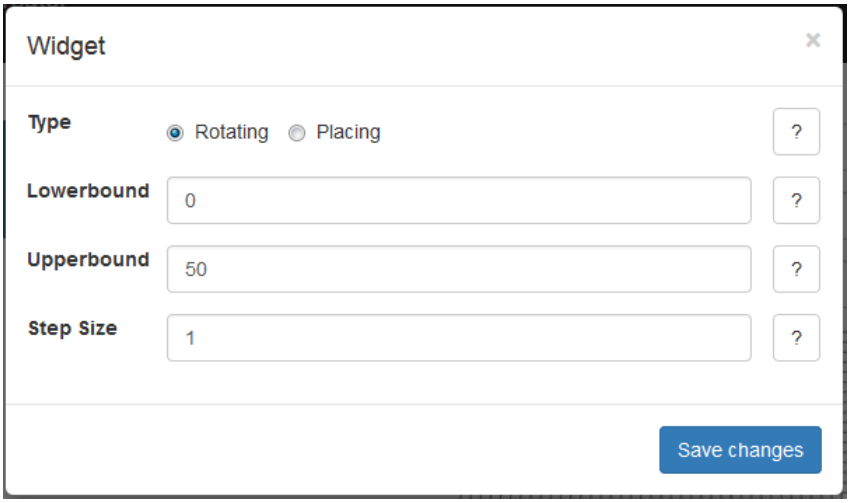
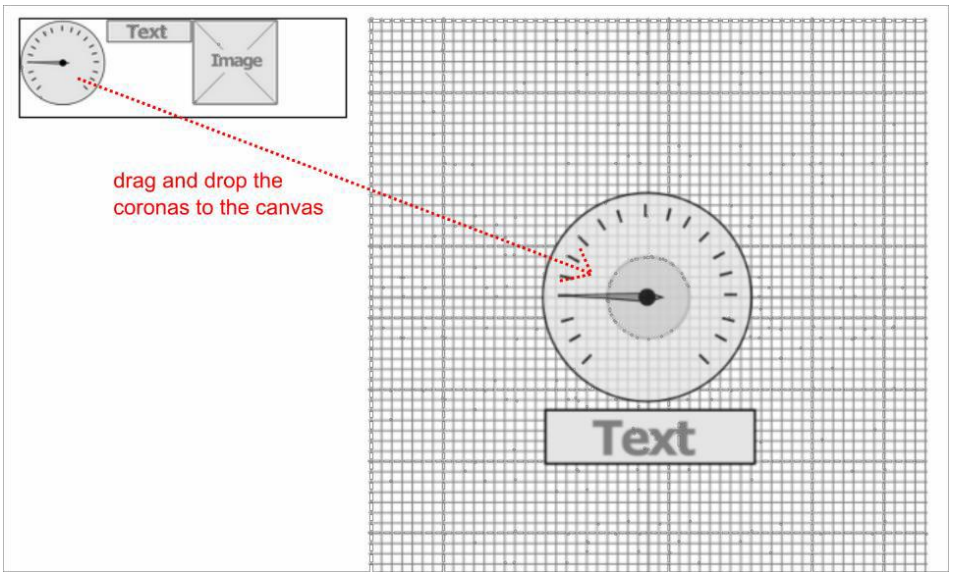
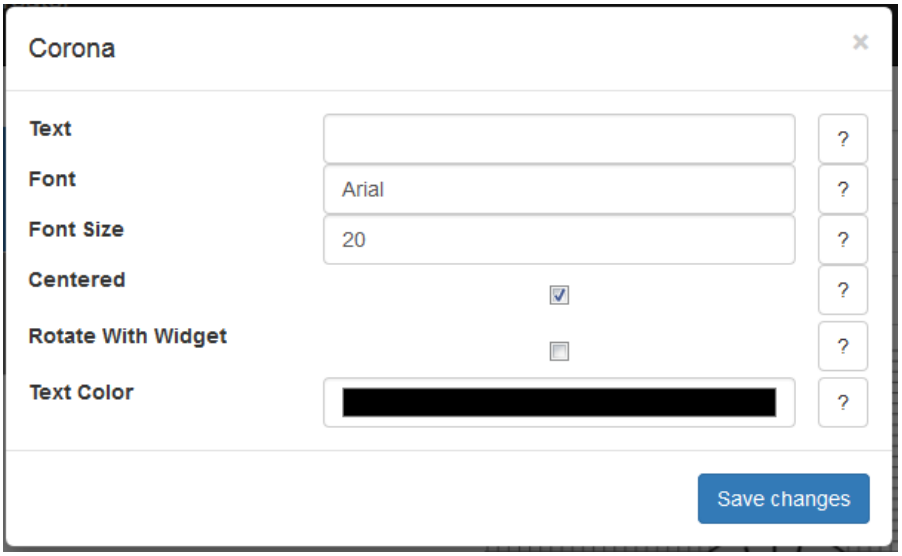


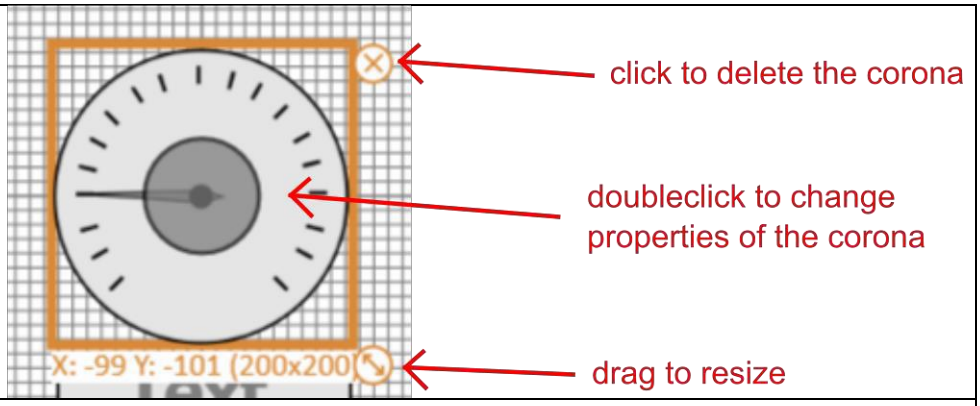
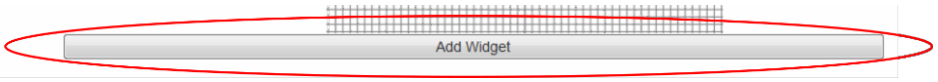
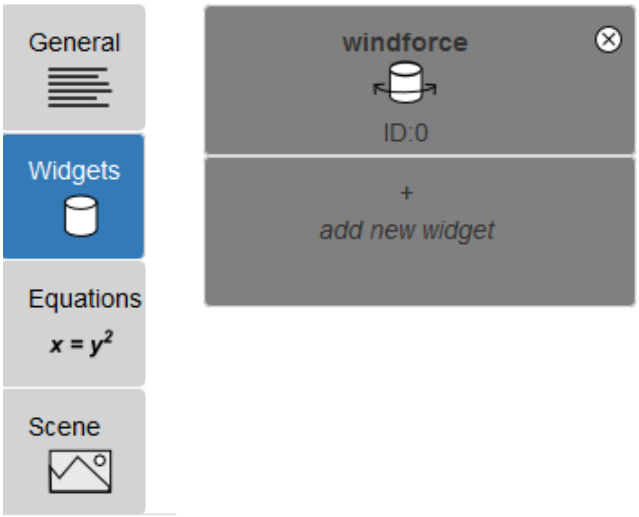
When finished, don’t forget to click the save button, at the bottom of the page.

Add Widgets.

In the “widgets” tab, you can define the widgets and their coronas.

To define your first widget, click on “add new widget”.	
You have to add the name and optionally, a unit. The Marker ID (the ID of the tag you will stick to the physical object) is generated automatically. You can change it if you want, but make sure each widget has a different Marker ID.	
In the canvas, you can define the values and behaviour of the widget, as well as its coronas. Doubleclick on the grey circle to define the widget’s properties:	

A new dialog will open. You can select between type “Rotating” and type “Placing” and specify the related parameters (see also previous section). Click “Save changes” when you are done.	
To add coronas, drag and drop the respective items to the canvas:	
You can change the parameters of this corona by doubleclicking it; a new dialog will open as for the widget. Here the example of the text box corona.	

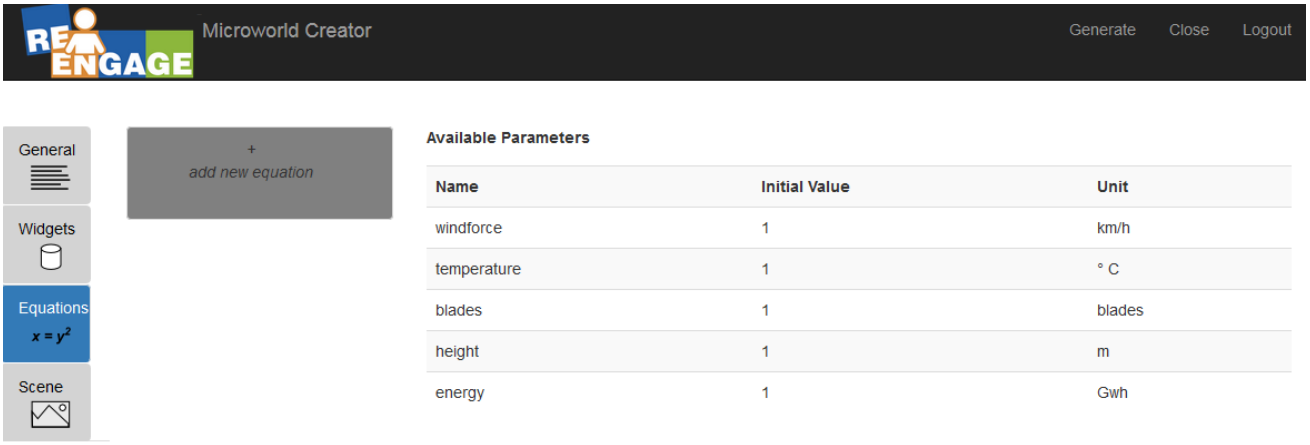
<table>
<tr><td>In addition, you can change the corona's size or position, or delete it:</td><td>
</td></tr>
<tr><td>To save, click the button at the bottom of the page.</td><td>
</td></tr>
<tr><td>The widget will then be added to the list of widgets, shown on the left side.</td><td>
</td></tr>
</table>

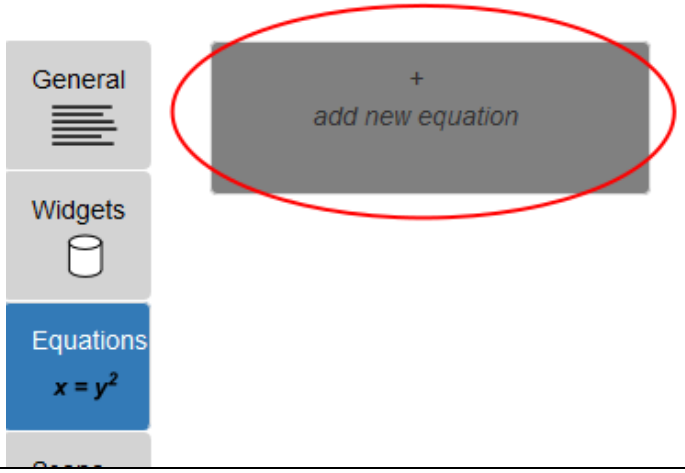
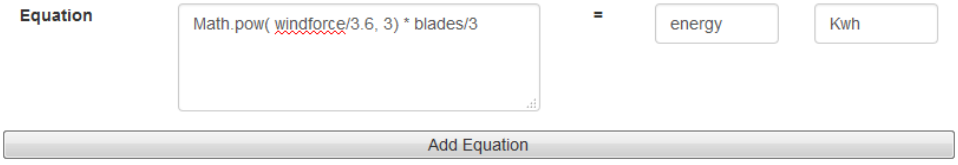
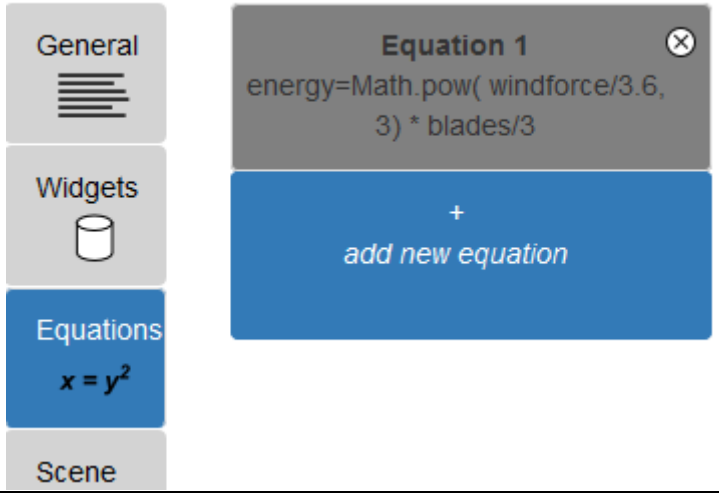
Repeat this process for every widget you want to add.

Add Equations.

In the "equation" tab, you can define the links between the input and output parameters. First, you see a list of all the available parameters. Those are the ones you have defined previously in the widget tab (names of all widgets defined).

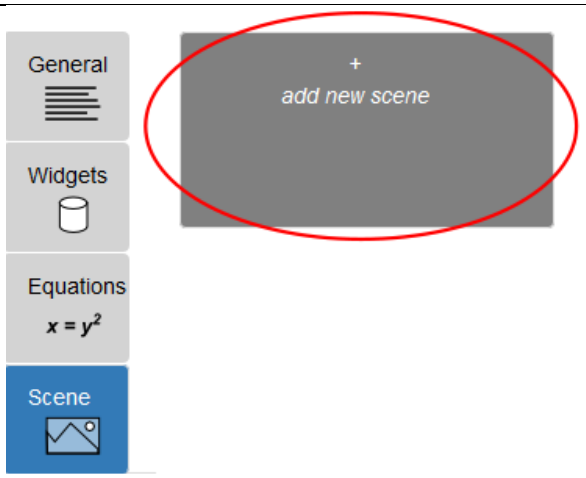
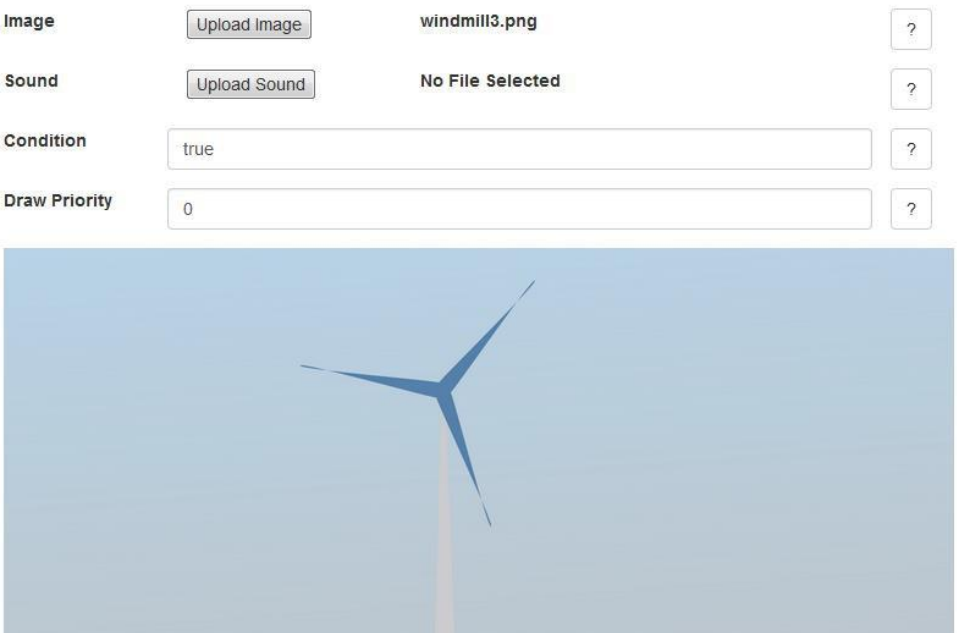
Figure 56: Equation tab.

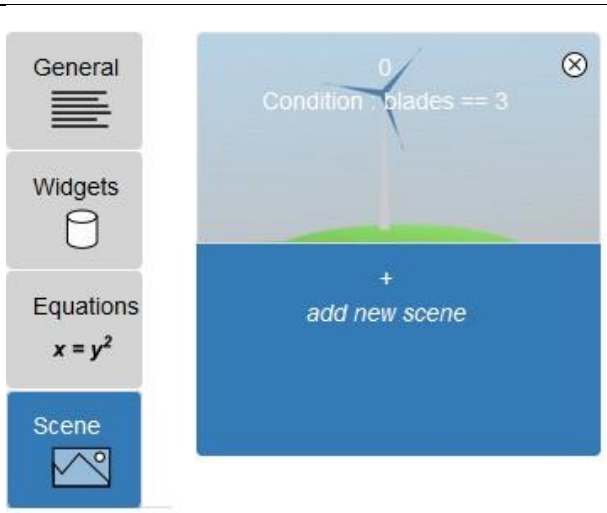
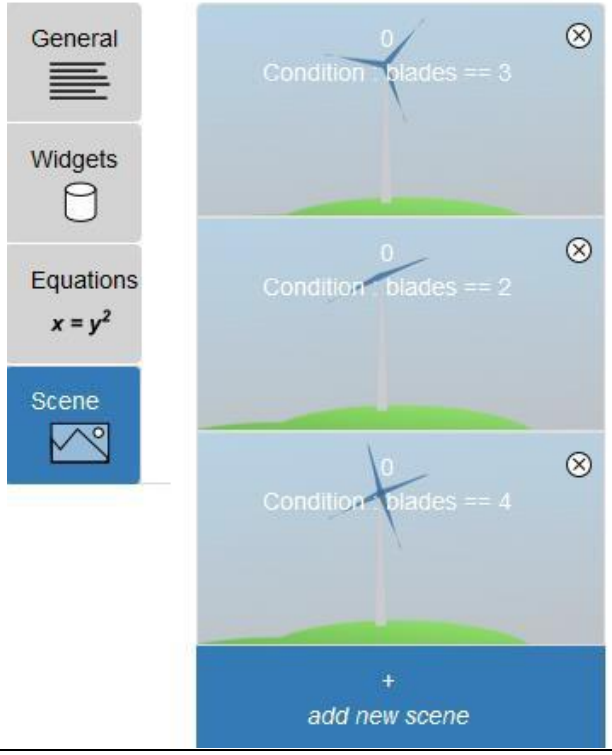


To add a new equation, click on the area “add new equation”.	
Type the equation in the respective fields and click on the button “add equations”.	
The equation shows up on the list of equations.	

Add Scenes.

In the “scenes” tab, you can add the background images as well as their conditions.

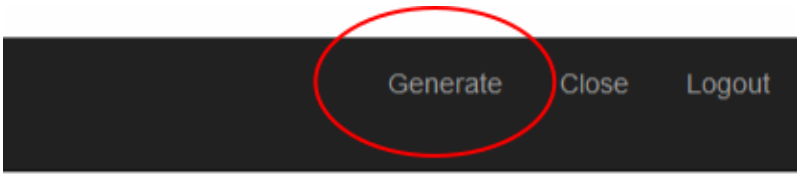
Click on the area “add new scene” to start defining the first scene.	
Click “Upload image” to select an image to be uploaded. The image is then shown.	
In the field “condition”, you can type when the image is to be shown. Here we have a windmill with three blades, so we want to show it when the blade widget is set to 3.	

<table>
<tr>
<td>Click “add scene” and the scene is added to the list of scenes.</td>
<td>
</td>
</tr>
<tr>
<td>We repeat the same for other conditions; i.e. when the blade widget is set to 2 and 4.</td>
<td>
</td>
</tr>
</table>

Generating XML file

To generate the XML file of the scenario, click on the field “Generate” at the top right of the screen. A window will open where you can select the location for saving the file.

Figure 57: Generate XML file.



Open, edit, share or delete a scenario

When you close the scenario, you come back to the main screen. The new windmill scenario is now listed under “My Microworlds”.

Figure 58: My Microworlds.



To open and edit an existing scenario, click on the image of the respective scenario.

To delete a scenario, click on . Be careful, this action cannot be undone.

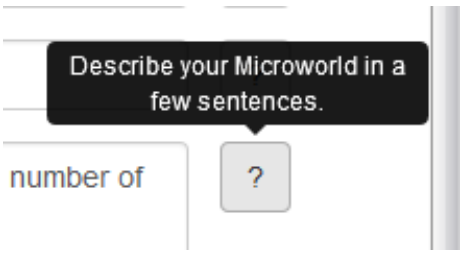
To share a scenario, click on . A copy of the scenario will then be shown under the section “Shared Microworlds”. This action can also not be undone. However, if you share again the same scenario, the shared version will be overwritten.

If you want to use and/or edit a shared scenario, you have to first copy it to your own Microworlds. For this purpose use the button next to shared scenarios.

Getting help

To guide you in filling in the form, you can make use of the button ?. It will give you more hints regarding the respective fields.

Figure 59: Help button.



8. INTEGRATION OF METHODOLOGIES AND TOOLS

In this section we are proposing some ways to make the most out of the methodologies. The best way to do so is mixing the cooperative learning with multiple intelligences and apply both to TUI. But here you can find also how to mix TUI and cooperative learning, cooperative learning and multiple intelligences, and multiple intelligences and TUI.

It's very important that the teacher has interiorized the methodologies he/she is going to use. He/she has to know very well how to apply each methodology separately and how to use TUI.

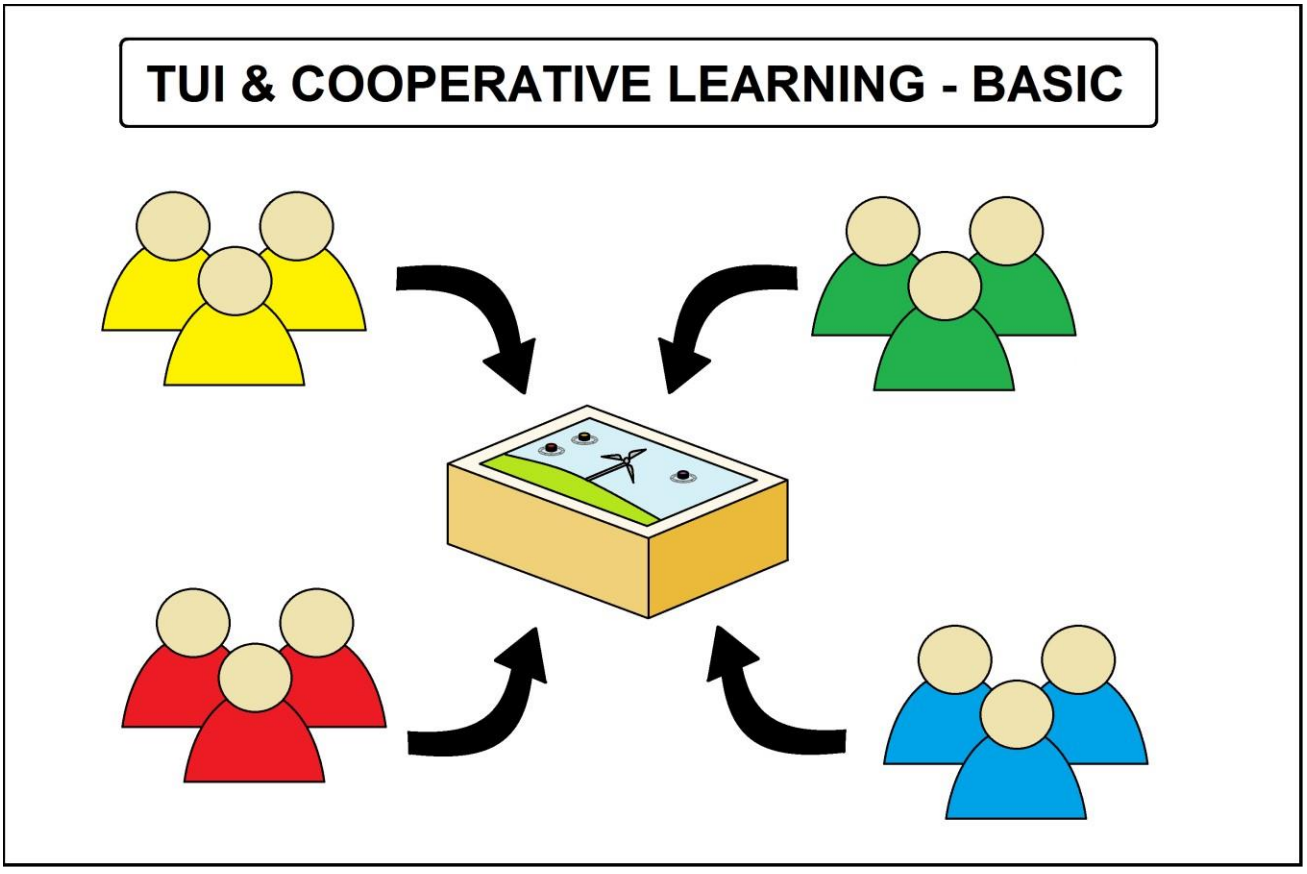
TUI AND COOPERATIVE LEARNING

The students have to work in cooperative groups the whole time. This means they have to follow the rules of the cooperative groups: roles, responsibilities, tasks, assessment and evaluation.

The teacher have to prepare a TUI scenario related to a topic. The scenario can also be used to verify the students have internalize the topic.

Basic

Figure 60: TUI and Cooperative Learning – Basic.

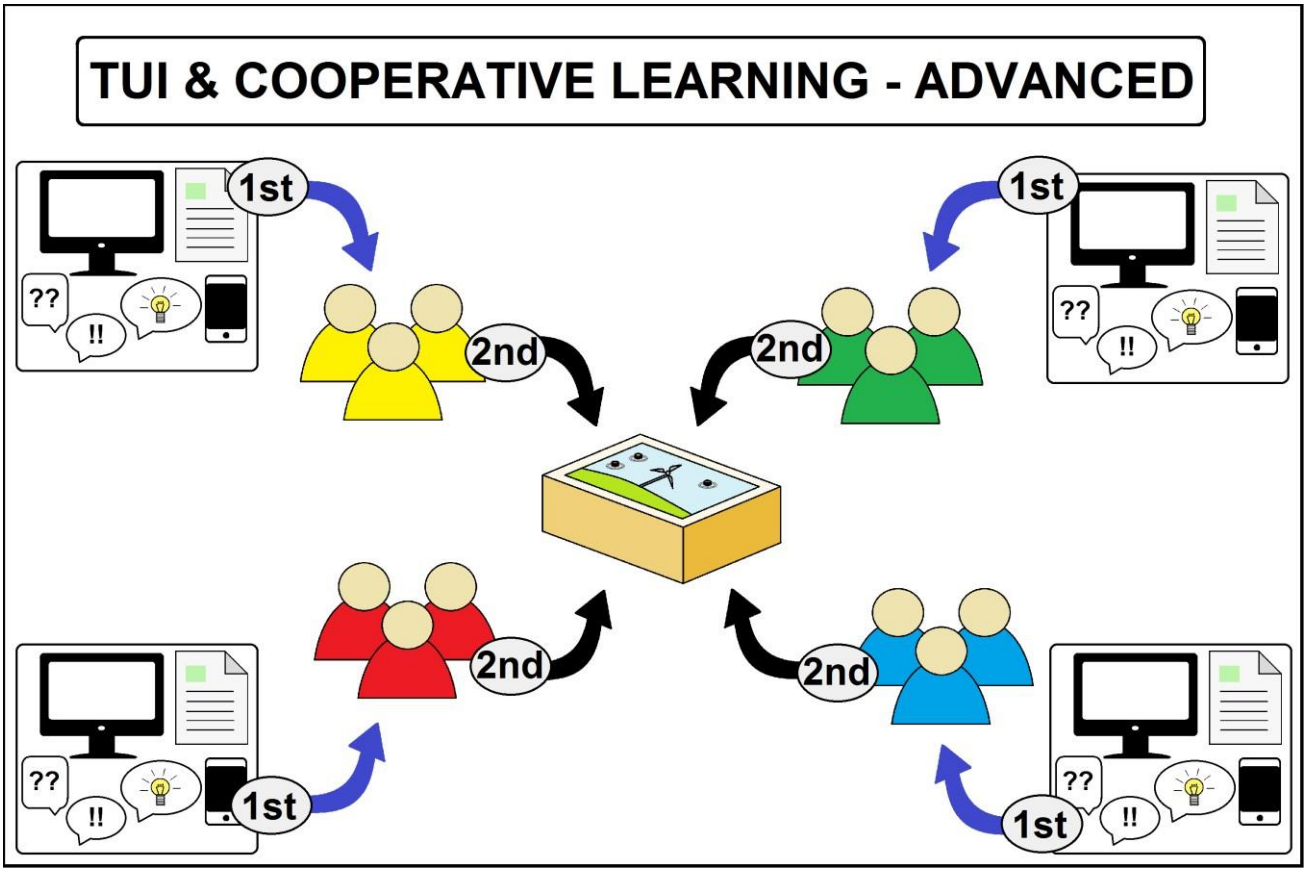


1. The teacher creates the scenario in TUI. It's important take into account all the variables and rules explained about TUI.
2. The teacher makes cooperative groups according to the guidelines explained.
3. The teacher presents a TUI scenario to the whole class.
4. Each group has to solve the scenario.
5. Each group writes down the solution they have found.
6. Each group explains the solution to the class and how they have reach it.
7. The groups and the teacher make the evaluation as explained in cooperative learning.

Advanced

1. The teacher creates the scenario in TUI. It's important take into account all the variables and rules explained about TUI.
2. The teacher makes cooperative groups according to the guidelines explained.
3. The teacher presents a topic to the class, but he doesn't explain it. He can give some guidelines to guide the students.
4. The groups have to research the topic on the internet, books, real world, asking people, on the lab, etc.
5. The teacher presents a TUI scenario related to the topic.
6. Each group has to solve the scenario.
7. Each group explains the solution to the class and how they have reach it.
8. The groups and the teacher make the evaluation as explained in cooperative learning.

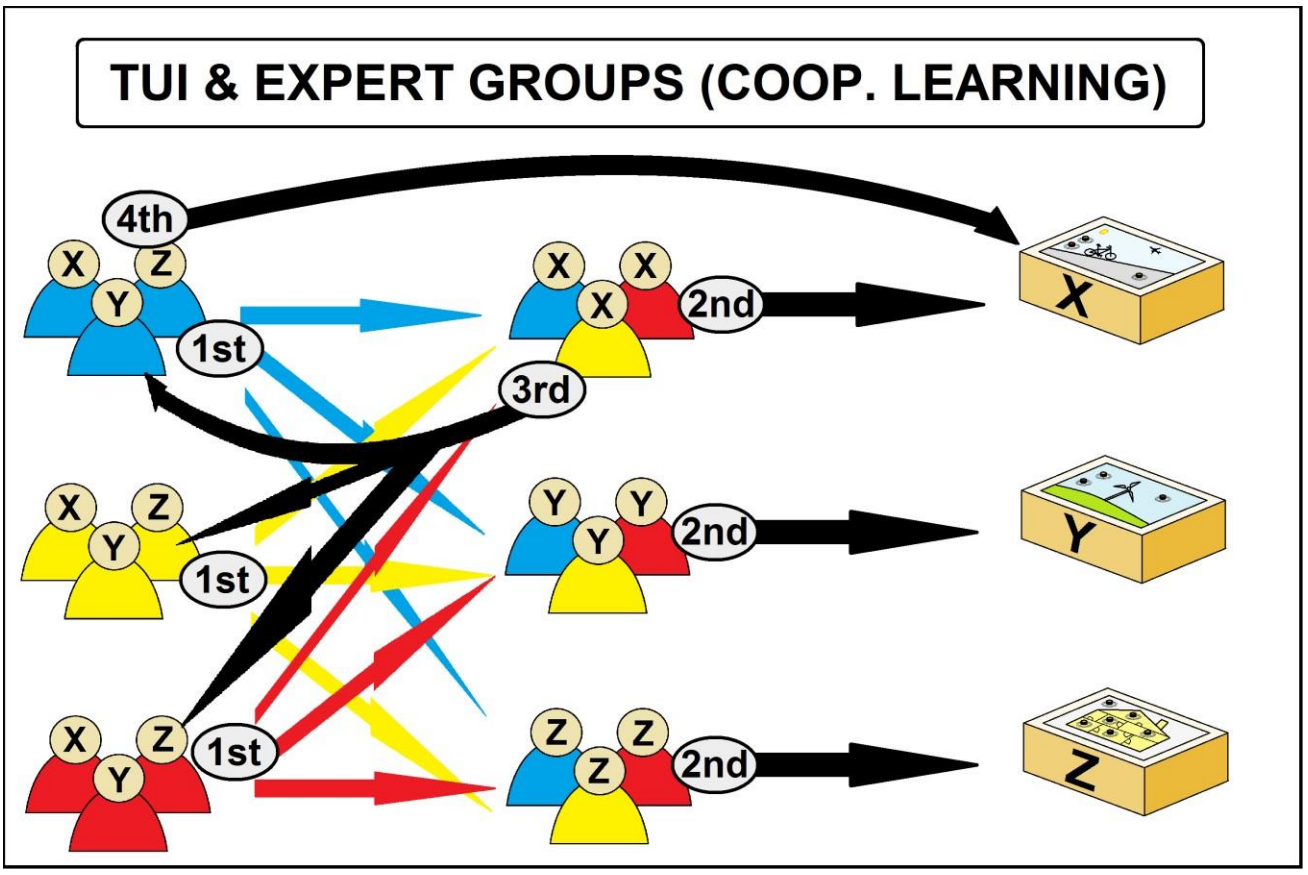
Figure 61: TUI and Cooperative Learning – Advanced.



Experts Groups in TUI

1. The teacher makes cooperative groups according to the guidelines explained.
2. The teacher presents a topic to the whole class.
3. Each cooperative group is divided in experts.
4. Experts groups are made. They research the topic using TUI: they have to solve a scenario related to their expertise field.
5. The experts come back to their cooperative group and explain their part to the rest of the group.
6. The teacher evaluates how each student solve every scenario.
7. The teacher evaluates the learning in one of the different ways offered by the cooperative learning.
8. The groups make self-evaluation according to the cooperative learning.

Figure 62: Expert Groups in TUI.



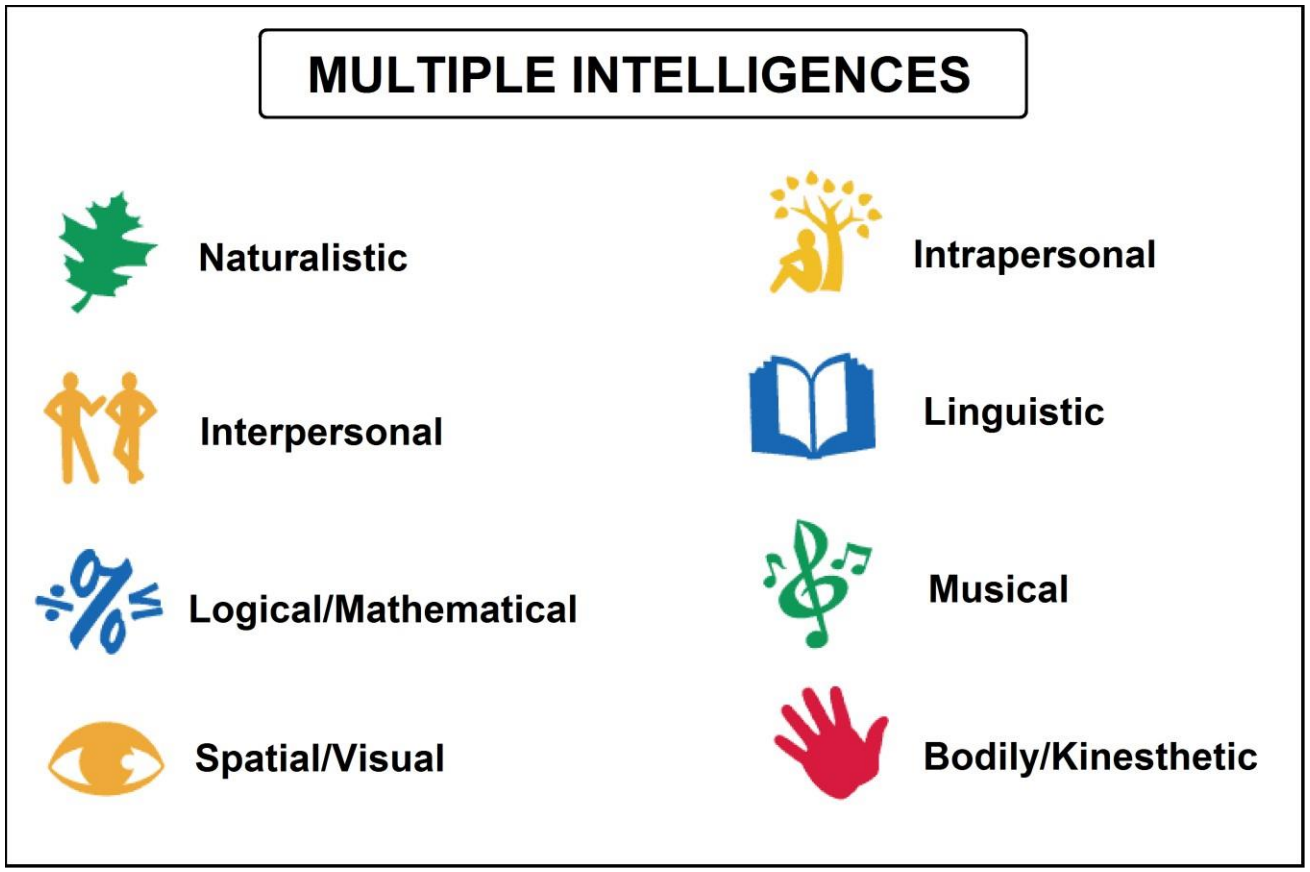
COOPERATIVE LEARNING AND MULTIPLE INTELLIGENCES

The teacher have to know what intelligences are present among the students in the class, and which ones are preferred. He/she has to know also what intelligence is the preferred of each student.

The teacher has to prepare a topic/task. Then he/she has to prepare materials related to the topic/task. These materials have to fit each preferred intelligence: either because they're acquired by the use of one intelligence (experts groups and jigsaw) or because the task requires a specific intelligence to be solved (jigsaw).

The students have to work in cooperative groups the whole time. This means they have to follow the rules of the cooperative groups: roles, responsibilities, tasks, assessment and evaluation.

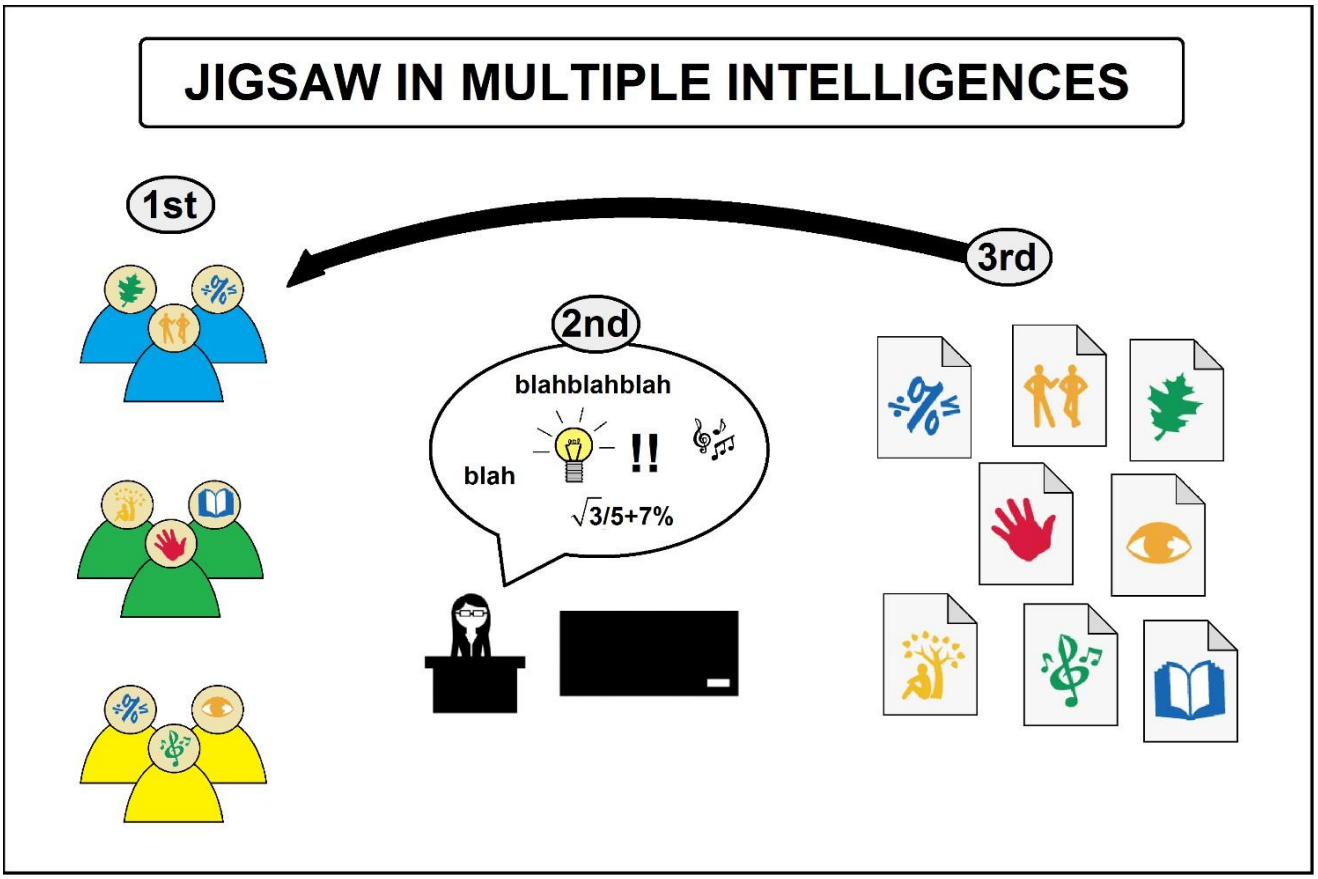
Figure 63: Multiple Intelligences.



Jigsaw in Multiple Intelligences

1. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with different preferred intelligences.
2. The teacher presents a topic/task to the whole class.
3. The teacher gives the materials to each group. These materials have to correspond with the preferred intelligences present in each group.
4. The groups solve the task according to the jigsaw technique. In the groups each student works with the materials related to his/her preferred intelligence.
5. The teacher evaluates the learning in one of the different ways offered by the cooperative learning.
6. The groups make self-evaluation according to the cooperative learning.

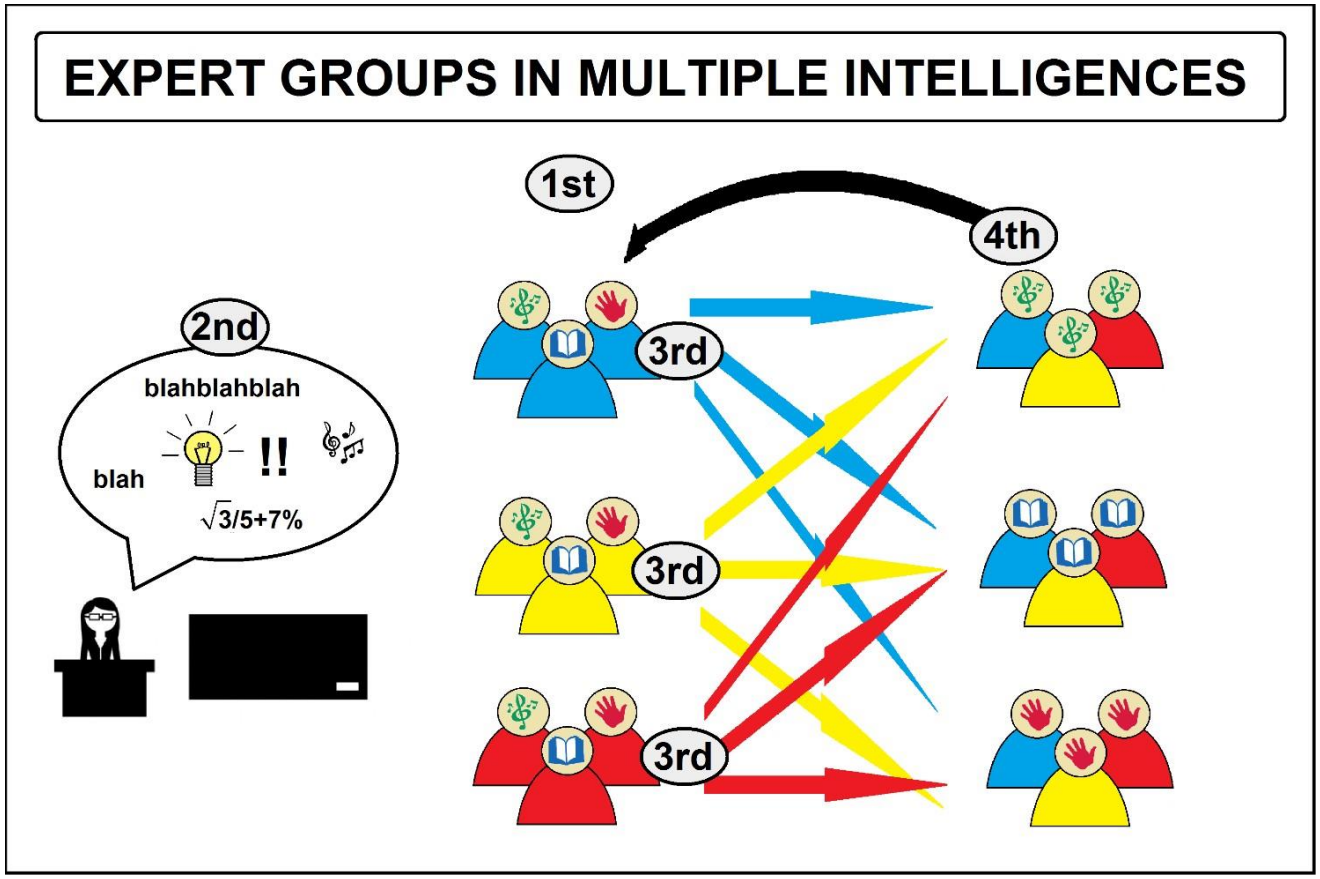
Figure 64: Jigsaw in Multiple Intelligences.



Experts Groups in Multiple Intelligences

1. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with different preferred intelligences.
2. The teacher presents a topic to the whole class.
3. Each cooperative group is divided in experts. Each expert has one preferred intelligence.
4. Experts groups are made: each experts group is based in one preferred intelligence. They research the topic using it.
5. The experts come back to their cooperative group and explain their part to the rest of the group.
6. The teacher evaluates the learning in one of the different ways offered by the cooperative learning.
7. The groups make self-evaluation according to the cooperative learning.

Figure 65: Expert Groups in Multiple Intelligences.

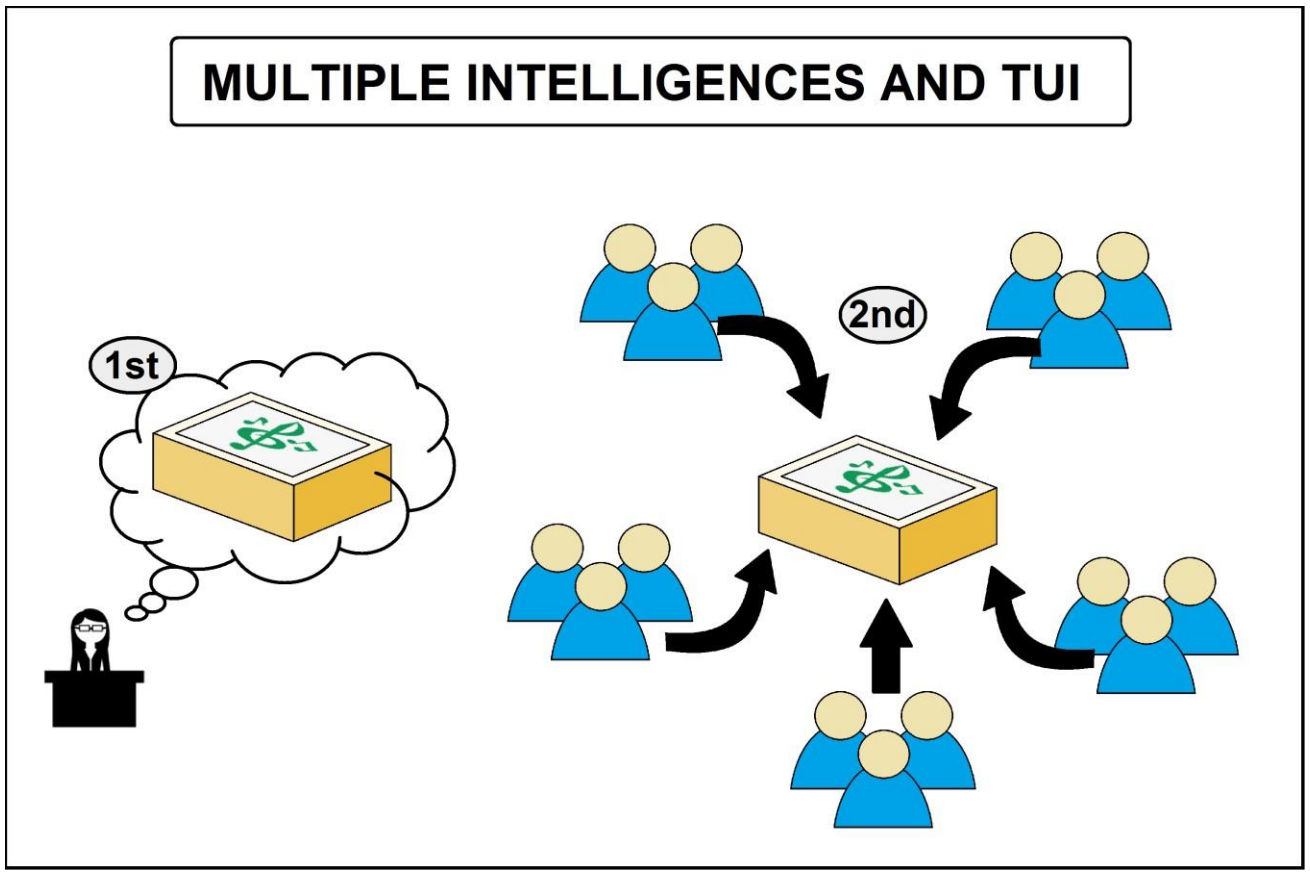


MULTIPLE INTELLIGENCES AND TUI

The goal is to create different scenarios according to different intelligences.

1. The teacher imagine an activity related to one intelligence. For instance he/she can ask the pupils to reorganize some pictures (visual intelligence), or identify emotions and how to react to those emotions (interpersonal intelligence), etc.
2. The teacher creates the scenario in TUI. It's important take into account all the variables and rules explained about TUI.
3. The students have to solve the scenario in groups.

Figure 66: Multiple Intelligences and TUI.



TOTAL INTEGRATION: COOPERATIVE LEARNING, MULTIPLE INTELLIGENCES AND TUI

Mixing the three methodologies is the best way to obtain better results. For all the next proposals you have to keep in mind:

- The students have to work in cooperative groups the whole time. This means they have to follow the rules of the cooperative groups: roles, responsibilities, tasks, assessment and evaluation.

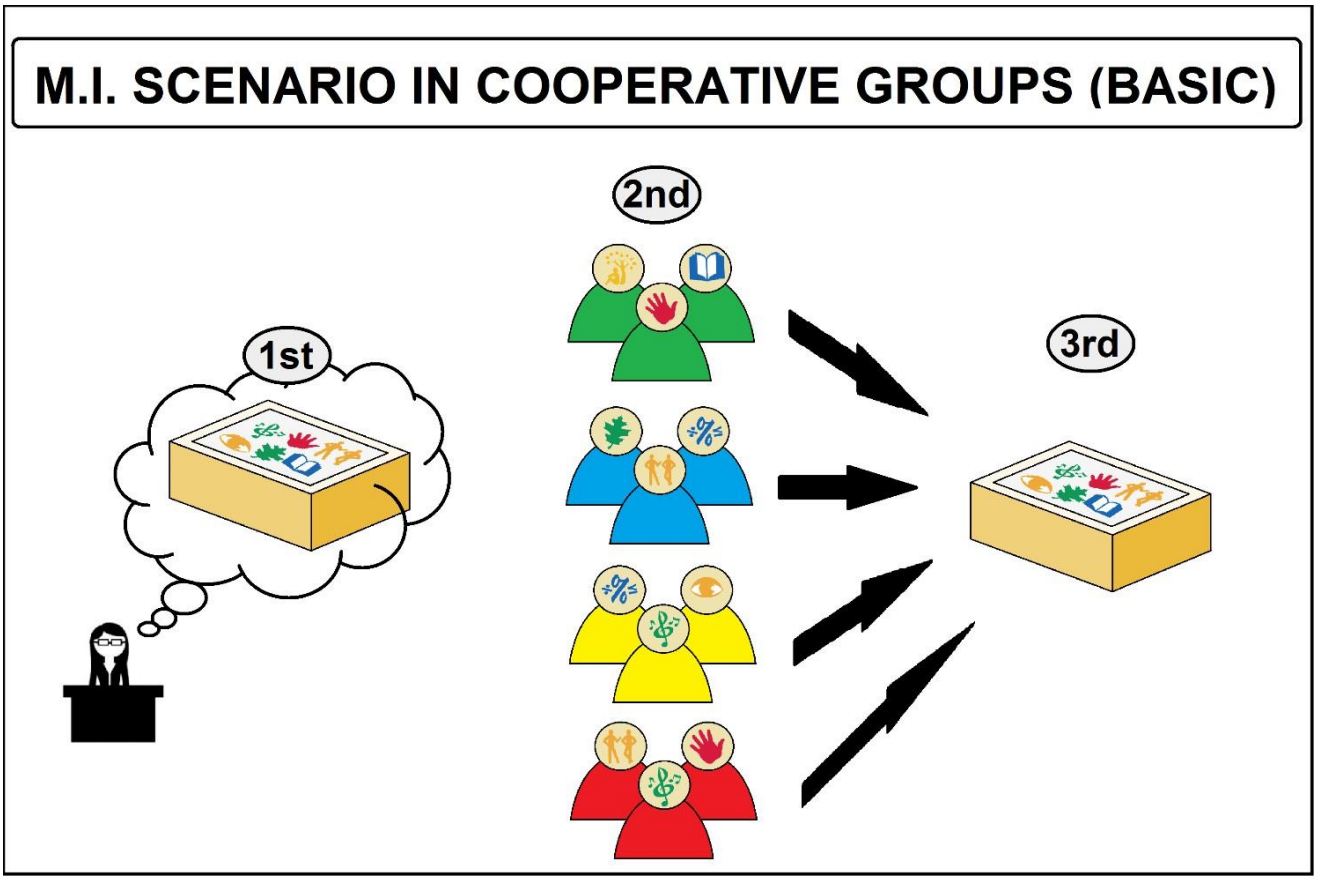
- The teacher have to know what intelligences are present among the students in the class, and which ones are preferred. He/she has to know also what intelligence is the preferred of each student.

Multiple Intelligences Scenario in **Cooperative Groups (Basic)**

1. The teacher imagine an activity/task related to different preferred intelligences.
2. The teacher creates the scenario in TUI. It's important take into account all the variables and rules explained about TUI.
3. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with different preferred intelligences.
4. The teacher presents a TUI scenario to the whole class.

5. Each group has to solve the scenario. To solve this scenario the students have to use different intelligences.
6. Each group explains the solution to the class and how they have reach it.
7. The groups and the teacher make the evaluation as explained in cooperative learning.

Figure 67: Multiple Intelligences Scenario in Cooperative Groups (Basic).

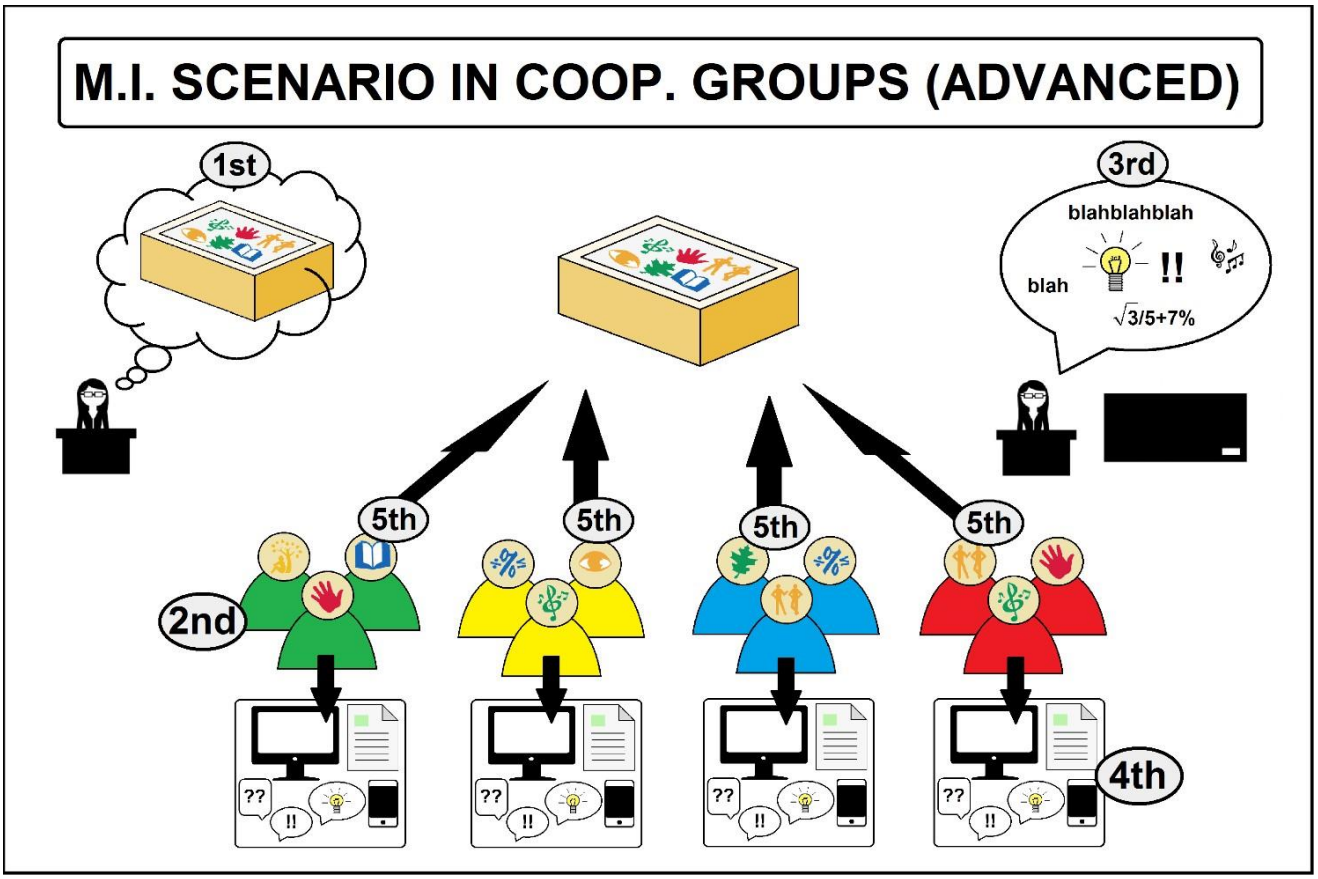


Multiple Intelligences Scenario in Cooperative Groups (Advanced)

1. The teacher imagine an activity/task related to different preferred intelligences.
2. The teacher creates the scenario in TUI. It's important take into account all the variables and rules explained about TUI.
3. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with different preferred intelligences.
4. The teacher presents a topic to the class, but he doesn't explain it. He can give some guidelines to guide the students.
5. The groups have to research the topic on the internet, books, real world, asking people, on the lab, etc.
6. The teacher presents a TUI scenario to the whole class.
7. Each group has to solve the scenario. To solve this scenario the students have to use different intelligences.
8. Each group explains the solution to the class and how they have reach it.

9. The groups and the teacher make the evaluation as explained in cooperative learning.

Figure 68: Multiple Intelligences Scenario in Cooperative Groups (Advanced).

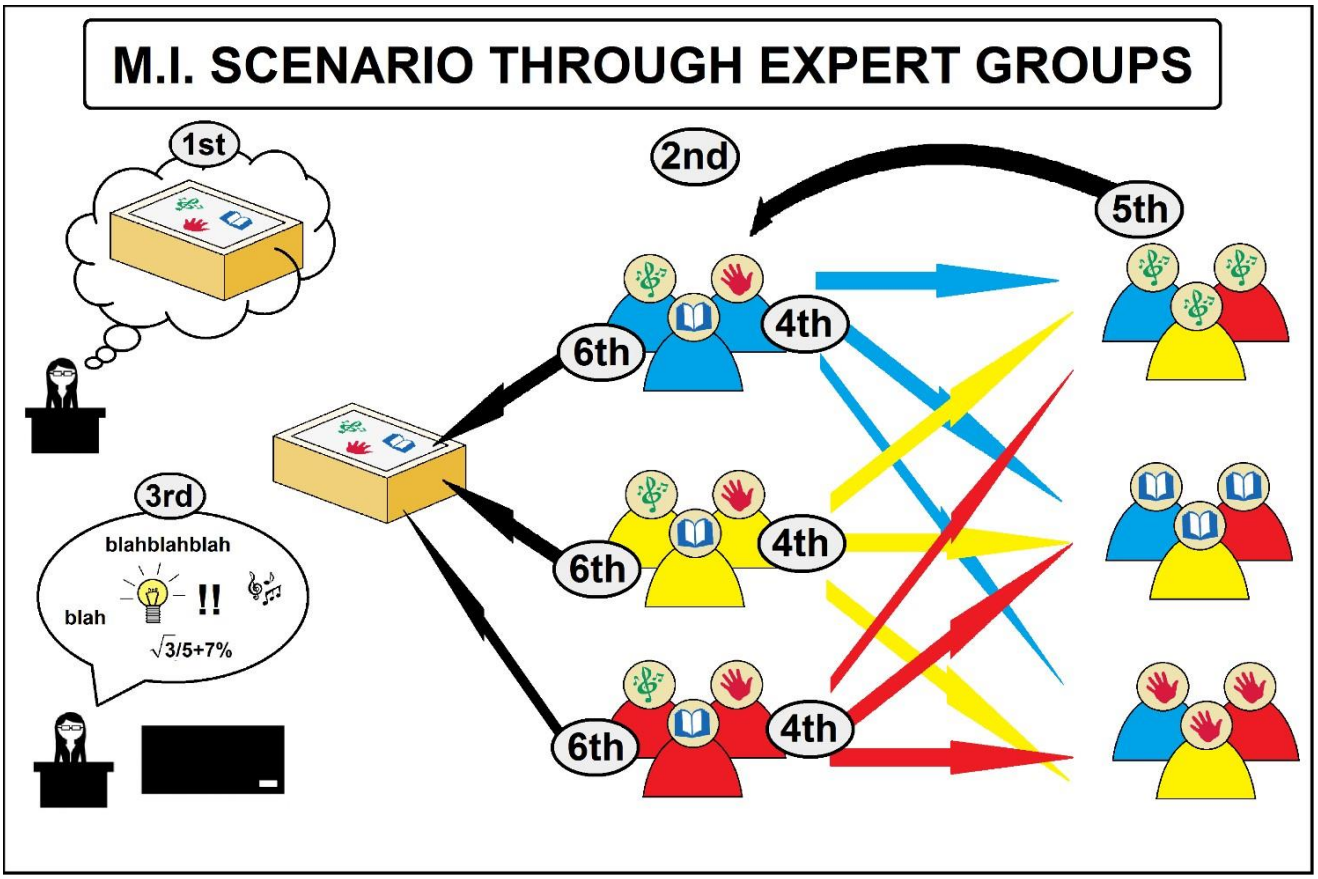


Multiple Intelligences Scenario through Expert Groups

1. The teacher imagine an activity/task related to different preferred intelligences.
2. The teacher creates the scenario in TUI. It's important take into account all the variables and rules explained about TUI.
3. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with different preferred intelligences.
4. The teacher presents a topic to the whole class.
5. Each cooperative group is divided in experts. Each expert has one preferred intelligence.
6. Experts groups are made: each experts group is based in one preferred intelligence. They research the topic using it.
7. The experts come back to their cooperative group and explain their part to the rest of the group.
8. The teacher presents a TUI scenario to the whole class.
9. Each group has to solve the scenario. To solve this scenario the students have to use different intelligences.
10. Each group explains the solution to the class and how they have reach it.

11. The groups and the teacher make the evaluation as explained in cooperative learning.

Figure 69: Multiple Intelligences Scenario through Expert Groups.



Creation of a Whole Scenario (single intelligence)

The students' overall task is to create a scenario on TUI.

1. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with the same preferred intelligence. For instance one group with students whose preferred intelligence is the visual, another group with students whose preferred intelligence is the kinesthetic, etc.
2. The teacher presents a topic to the whole class.
3. Each group has to create a scenario related to the topic and to their preferred intelligence.
4. Each group presents its scenario to the other groups, but not how to solve it.
5. Each group tries to understand what the others have created. They have to solve the scenarios.
6. The groups and the teacher make the evaluation as explained in cooperative learning, taking into account:
    a. How each group has created its own scenario (individual and group evaluation).
    b. How they work together as a group.

7. How each group has solve the scenarios from the other groups.

Creation of a Whole Scenario (different intelligences)

The overall task is to create a scenario on TUI. This mixing method is similar to the previous one, but the cooperative groups have a mix of the preferred intelligences.

1. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with different preferred intelligences.
2. The teacher presents a topic to the whole class.
3. Each group has to create a scenario related to the topic and including in it different intelligences.
4. Each group presents its scenario to the other groups, but not how to solve it.
5. Each group tries to understand what the others have created. They have to solve the scenarios using different intelligences.
6. The groups and the teacher make the evaluation as explained in cooperative learning, taking into account:
    a. How each group has created its own scenario (individual and group evaluation).
    b. How they work together as a group.
    c. How each group has solved the scenarios from the other groups.

Creation of a Partial Scenario (single intelligence)

The overall task is to create a scenario on TUI. This mixing method is similar to the previous one. But in this case each cooperative groups creates only a part of the scenario.

1. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with the same preferred intelligence. For instance one group with students whose preferred intelligence is the visual, another group with students whose preferred intelligence is the kinesthetic, etc.
2. The teacher presents a topic to the whole class and distributes the tasks between the groups.
3. Each group works in a different part of the scenario: investigation of the topic, creation of the tokens, designing the images, thinking the relations between the variables, joining all together, etc. The part each group is working on is related to its preferred intelligence. It's important the groups are coordinated between them.
4. Each group presents the results and products to the whole class.
5. The teacher solves the scenario.
6. The groups and the teacher make the evaluation as explained in cooperative learning, taking into account:
    a. How each group has created its product or done its task (individual and group evaluation).
    b. How they work together as a group.
    c. How each group has coordinated with the other groups.
7. The final result: the scenario.

Preparation of a Topic (single intelligence)

The main goal is the students to research and prepare a topic, and finally present it to the whole class.

1. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with the same preferred intelligence. For instance one group with students whose preferred intelligence is the visual, another group with students whose preferred intelligence is the kinesthetic, etc.
2. The teacher presents a topic to the whole class, but he doesn't explain it. He can give some guidelines to guide the students.
3. The groups have to research the topic on the internet, books, real world, asking people, on the lab, etc.
4. Each group has to prepare a presentation related to the preferred intelligence within each group: TUI scenario, video, role playing, dance, song, poster, art piece, text, etc.
5. Each group present the result to the whole class.
6. The teacher helps the students to compare the different presentations. As they are all related to the same topic, they should be able to compare how to approach the same topic under different ways.

Preparation of a Topic (different intelligences)

The main goal is the students to research and prepare a topic, and finally present it to the whole class, as in the previous way of mixing. But in this case the cooperative groups have a mix of the preferred intelligences.

1. The teacher makes cooperative groups according to the guidelines explained. It's very important to take into account that each group has students with different preferred intelligences.
2. The teacher presents a topic to the whole class, but he doesn't explain it. He can give some guidelines to guide the students.
3. The groups have to research the topic on the internet, books, real world, asking people, on the lab, etc.
4. Each group has to prepare a presentation making use of different intelligences: TUI scenario, video, role playing, dance, song, poster, art piece, text, etc.
5. Each group present the result to the whole class.

Observation and Tips

Regarding these two last ways of mixing there is a variation.

- It's possible to give different topics to each cooperative group. Then each one has to explain it to the rest of the class.

- The evaluation could be divided in parts:
  - How each group has work together.

- How good is the final result: TUI scenario, roleplaying, text, poster, etc.).
- How they teach to the rest of the class and if the others learn.
- How much each student learns from the rest of the classmates explanations.
- Always with positive interdependence.

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10. ANNEX

1. Sociogram Questionnaire Page
2. Ranking Questionnaire Page
3. Intergroup Attitudes Questionnaire Page
4. Educational Interaction Questionnaire Page
5. Multiple Intelligences Questionnaire for Teachers Page
6. Multiple Intelligences Results Table for Teacher Page
7. Multiple Intelligences Questionnaire for Students Page
8. Multiple Intelligences Results Table for Students Page
9. Multiple Intelligences in the Classroom Results Table Page

Nº_____Name and initial of last name: _____

Age:_____Grade:_____Gender (Male/Female): _____

Country of birth: _____

Country of origin of parents: _____

How long have you lived in this country?: _____

1. Who would you choose to be your team mate?

    1) _____

    2) _____

    3) _____

Why did you choose the first option?

g) He/she is very smart.
h) She/he is a good student.
i) He/she is responsible.
j) He/she does it all.
k) She/he is my friend.
l) Other reasons (explain) _____

2. Who would you **NOT** choose to be your team mate?

    1) _____

    2) _____

    3) _____

Why did you choose the first option?

g) He/she is not very smart.
h) She/he is not a good student.
i) He/she is irresponsible.
j) He/she doesn't do anything.
k) She/he is not my friend.
l) Other reasons (explain) _____

3. Who would you like to be with during play time/break?

1) _____

2) _____

3) _____

Why did you choose the first option?

g) He/she is my best friend.
h) She/he is very funny and nice.
i) I want to be his/her friend.
j) He/she is the most popular in class.
k) She/he is a good student.
l) Other reasons (explain) _____

4. Who would you **NOT** like to be with during play time/break?

1) _____

2) _____

3) _____

Why did you choose the first option?

g) He/she is not my friend.
h) She/he is boring.
i) I don't want to be his/her friend.
j) Nobody likes him/her in class.
k) She/he is a bad student.
l) Other reasons (explain) _____

Nº_____Name and initial of last name: _____

Age:_____Grade:_____Gender (Male/Female): _____

1 DISLIKE A LOT	2 DISLIKE	3 NORMAL	4 LIKE	5 LIKE A LOT

1.- **1 2 3 4 5**	**2.-** **1 2 3 4 5**
3.- **1 2 3 4 5**	**4.-** **1 2 3 4 5**
5.- **1 2 3 4 5**	**6.-** **1 2 3 4 5**
7.- **1 2 3 4 5**	**8.-** **1 2 3 4 5**
9.- **1 2 3 4 5**	**10.-** **1 2 3 4 5**
11.- **1 2 3 4 5**	**12.-** **1 2 3 4 5**
13.- **1 2 3 4 5**	**14.-** **1 2 3 4 5**
15.- **1 2 3 4 5**	**16.-** **1 2 3 4 5**

17.- 1 2 3 4 5	18.- 1 2 3 4 5
19.- 1 2 3 4 5	20.- 1 2 3 4 5
21.- 1 2 3 4 5	22.- 1 2 3 4 5
23.- 1 2 3 4 5	24.- 1 2 3 4 5
25.- 1 2 3 4 5	26.- 1 2 3 4 5
27.- 1 2 3 4 5	28.- 1 2 3 4 5
29.- 1 2 3 4 5	30.- 1 2 3 4 5
31.- 1 2 3 4 5	32.- 1 2 3 4 5
33.- 1 2 3 4 5	34.- 1 2 3 4 5
35.- 1 2 3 4 5	

Nº_____Name and initial of last name: _____

Age:_____Grade:_____Gender (Male/Female): _____

Country of birth: _____

The following you will find a series of questions. Read them and circle the corresponding word according to how much you like to do what the question ask; a lot, quite a bit, not much or not at all.

ANSWER BY CIRCLING A WORD

1	Would you like to invite to your home a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
2	Would you like to be with a non gypsy person during playtime/break?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
3	Would you prefer to go to a school just for gypsies?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
4	Would you like to go to a field trip with non gypsy people?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
5	Would you like to tell a secret to a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
6	Would you like to work in teams with a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
7	Would you like to sit next to a non gypsy person in the cafeteria?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
8	Would you like to go to a birthday party for a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
9	Would you like to sit next to a non gypsy person in class?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL
10	Would you like to be best friends with a non gypsy person?	A LOT	QUITE A BIT	NOT MUCH	NOT AT ALL

Nº_____Name and initial of last name: _____

Age:_____Grade:_____Gender (Male/Female): _____

16. Do you like high school?

YES NO

Why?

_____

17. What do you like about high school the most?

_____

Why?

_____

18. What do you like the least about high school?

_____

Why?

_____

19. What do you like the most: being on break or in class?

_____

Why?

_____

20. What subject do you like the most?

_____

Why?

_____

21. What subject do you like the least?

_____

Why?

_____

22. What is the most important thing you do in high school?

Why it is important?

23. What does the teacher do?

24. If the teacher is not there, who would teach you?

25. In your family, who can teach you?

26. Why it is important to learn?

27. Can any boy/girl from your class teach you?

YES	NO

Who?

28. What can she/he teach you?

29. Can you teach a classmate?

YES	NO

Who?

30. What can you teach him/her?

Read every sentence and colour the smiley which corresponds with your character.

Answer in a spontaneous way.

1. I do myself a lot of questions about how many objects work.
2. I offer my help without anybody ask me for it when my friends need it.
3. I like to tell stories and funny tales.
4. I am sensitive to some noises or sounds.
5. I usually practise some physical activities.
6. I spend a lot of my free time drawing.
7. I imagine mental images when thinking of something.
8. I am independent and loyal to my ideas.
9. I believe I am a popular person.
10. I am interested in maintaining my own vegetable garden.

11. I like reading in my free time.
12. I spot quickly mistakes in other's reasoning.
13. Taking notes helps me to understand and memorize.
14. I calculate easily.
15. I remember easily melodies I heard.
16. I like playing cards or other games with more people.
17. I keep my house or my desk in order: each thing in a place and a place for each thing.
18. I am very encouraged by working only in some projects.
19. I find easy to move or dance following the music rhythm.
20. Contact with nature calms me, reassure me.

21. I like identifying birds, plants or trees.
22. I pay attention when listening a lecture or exposition.
23. I need to know why should I do something before taking a decision.
24. I have pretty good memory when it is about something I read or listen.
25. Being organized contributes in success what I develop.
26. I need to touch people when speaking with them.
27. I decide by myself which are my ideas or what I do, as well as to take independently my own decisions.
28. I can follow a song rhythm.
29. When I was a child/teenager, I had a chemical or scientific kit which I loved to make experiments.
30. I read cards, blackboards or diagrams easily.

31. I am worried about the ecology of my daily actions (recycling, use of resources).
32. I am good at handcrafts; I like to work with tools or instruments.
33. I am good at strategy games and I usually win.
34. I talk with a rich vocabulary.
35. I draw objects and people in detail.
36. Before deciding, I weight the advantages and disadvantages of the decision.
37. I identify wrong played notes in the performance of a song.
38. I am good at various sports.
39. I am that person who people consult when there is a conflict in the group.
40. I like to talk of everything and nothing.

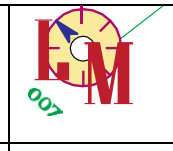
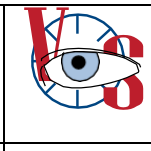
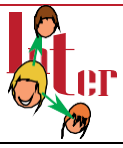
41. I like to be in contact with animals and see them in their environment.
42. I can spend hours trying to solve math problems.
43. I am interested in all kind of music; I usually listen music on the radio or discs.
44. When a book has illustrations, what is first and more interesting for me are the pictures.
45. I like to classify and establish categories.
46. I touch the objects when I go for a walk or I move at home.
47. I like to go out to see my friends.
48. I listen the other's feelings and I do take them into account.
49. I overreact to controversial points of view.

50. I find hard to focus on a work when listening to the radio or TV.
51. I learn thanks to the experience.
52. I love to solve conundrum or do jigsaw puzzle that require logics.
53. I usually plan activities with my friends.
54. I like to collect objects and classify them after.
55. I like concerts, recitals, musical comedies or operas.
56. I trust myself.
57. I am entrepreneurial.
58. I am good at plants.
59. I orientate easily in an unknown town.
60. I like to watch films, slides or photographs.

61. I find easy to write.
62. I think it is important to preserve national parks. I usually go to this kind of parks.
63. I like to give my opinion in family issues.
64. I like to think about my life, in what I want and what I believe.
65. I like exercises which involve visualization of some element. When thinking in relocate the furniture of a room, I imagine easily.
66. I recognize without difficulties rotation in the space of a geometric figure.
67. Alone, I do a good work.
68. I like to solve crosswords or play Scrabble.
69. I sing pretty well or I play a musical instrument.

70. I like films that transmit very intense feelings.
71. I like to do hiking, hunting or fishing.
72. I like to mount and dismount objects.
73. I like to pursue my personal interests alone.
74. I am member of social or sports club.
75. I have good memory for people names, places, dates or details.
76. I like word plays.
77. I can mimic gestures, character o behaviour of other people.
78. Musicality of poems, texts or words excite me.
79. I have a telescopy, binoculars or microscope.
80. I find easy to keep me sit down for a long time, I need move.

Colour the smileys appeared below whose numbers correspond with test sentences of the previous page which you feel identified. After, add up the number of coloured smileys of each column and write down total number below them.

							
76	52	66	78	80	74	73	79
75	45	65	69	77	63	67	71
68	42	60	55	72	53	64	62
61	36	59	50	70	48	57	58
34	33	44	43	46	47	56	54
24	29	35	37	51	40	49	41
22	25	30	28	38	39	27	31
13	14	17	19	32	16	23	21
11	12	7	15	26	9	18	20
3	1	6	4	5	2	8	10
Total:	Total:	Total:	Total:	Total:	Total:	Total:	Total:

Read each of the sentences and colour the smiley of those which corresponds with your character.

Answer in a spontaneous way.

1. I read a lot.
2. I like to use calculator, tech templates or software related to data bases on the computer.
3. I play or I would like to a musical instrument.
4. When I read, I prefer pictures and I do remember them better.
5. I like work team and being with people.
6. I need to move.
7. Alone, I work in a better way rather than in accompany.
8. I like to learn new things about nature.
9. I am independent and I have willpower.
10. I can recreate rhythm with my hand or foot when listening a song.

11. I easily realized people's feelings.
12. I see mental images when thinking about something.
13. I usually hum some songs (or whistle) mentally or loudly.
14. I like my things be in order.
15. I like crosswords and play Scrabble.
16. I like animals (dogs, cats, hamsters, squirrels, birds, etc.).
17. I calculate easily.
18. I find easy to remember the ryhthm or melodie of an add slogan.
19. I read cards, blackboards or diagrams easily.
20. I have many friends. I am popular.

21. I move or knock on the floor with my foot when I stay a long time sit down.
22. I am able to have my own ideas.
23. I am worried about the ecology of my daily actions (recycling, use of resources).
24. I like to tell stories and do words plays.
25. I spend a lot of time out of my home, I like to be outdoors.
26. I write and compose better than most of my classmates.
27. I like to make scientific experiments.
28. I can feel deeply my feelings.
29. I am good at handcrafts, I like to work with my hands.
30. I often like to listen to music.

31. I am good at observing.
32. I share, I help other easily.
33. I find easy to listen to explanations or read informative texts.
34. I find hard to focus on a work when listening to the radio or TV.
35. I love to draw or scribble.
36. I do gesticulate when talking.
37. I like to recognise or classify plants, animals, insects, shellfish or rocks.
38. I do myself a lot of questions about how various objects work or about what causes a phenomenon or fact.
39. I can mimic gestures, character or behaviour of other people.
40. I am aware of my weaknesses and my strengths.

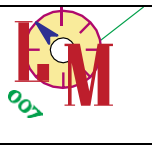
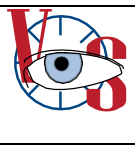
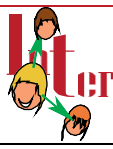
41. I talk with a rich vocabulary.
42. I am good at strategy games (chess, etc.).
43. I organise activities with my friends.
44. I love to solve jigsaw, mazes or play with construction games.
45. I can listen music in my head.
46. I have a pretty good coordination (for example, in sports, dances, theatre, etc.).
47. I need my own space.
48. I feel good surrounded by nature.
49. I like to go haunting or fishing, along with walking in the forest.
50. I like to write my diary, express my feelings in poems or spend some time alone.

51. I am good at a very number of sports or physical activities.
52. I am good at talking with strangers.
53. I listen many kinds of music.
54. I find easy to solve math problems.
55. I like to invent and write stories.
56. I orientate without difficulties in a new neighbourhood.
57. I am member of a social or sports club.
58. I like to watch films, slides or photographs.
59. I pay attention to different noises or sounds.
60. I like to touch things.

61. I have personal projects.
62. Starting step by step is helpful when doing anything.
63. I like to collect colour prints related to sport, identify car models or clothes brands.
64. I learn in a better way when person who shows me a new elements describes also with words.

Colour the smileys appeared below whose numbers correspond with test sentences of the previous page which you feel identified.

After, add up the number of coloured smileys of each column and write down total number below them.

							
 64	 62	 58	 59	 60	 57	 61	 63
 55	 54	 56	 53	 51	 52	 50	 49
 41	 42	 44	 45	 46	 43	 47	 48
 33	 38	 35	 34	 36	 39	 40	 37
26	27	31	30	29	32	28	25
24	17	19	18	21	20	22	23
15	14	12	13	10	11	9	16
1	2	4	3	6	5	7	8
Total:	Total:	Total:	Total:	Total:	Total:	Total:	Total:

Thanks to this test, now you are aware of which are your more developed intelligences. But what does it mean in your life?

My learning model

Next to each item, write your results and reflection for your learning. For Example: *I can learn well by reading, I can learn well with a mind map, etc.*



1. Verbal-Linguistic : _____
Reflection**:** _____
_____
Student **:** _____



2. Logical -Mathematical: _____
Reflection **:** _____
_____
Student**:** _____



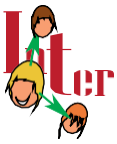
3. Visual-Spatial : _____
Reflection**:** _____
_____
Student**:** _____



4. Musical: _____
Reflection**:** _____
_____
Student**:** _____



5. Bodily-kinesthetic: _____
Reflection**:** _____
_____
Student**:** _____



6. Interpersonnal: _____
Reflection**:** _____
_____
Student**:** _____



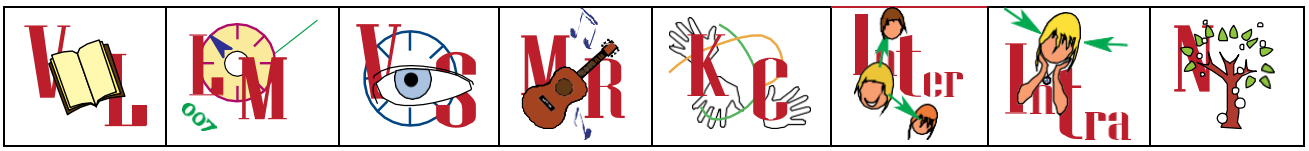
7. Intrapersonneal: _____
Reflection**:** _____
_____
Student**:** _____



8. Naturalistic : _____
Reflection**:** _____
_____
Student**:** _____

And the other students in your class, what forms of intelligences have they developed? Indicating their names next to their first intelligent.

Cut and glue the logos corresponding to your type of intelligence on the sheet with your name.



Write down the name of your student along with their results of MI test. Do similar with the teacher of that classroom. Circle 3 highest results both of students and teachers.

Student Name								
Teacher Name								