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PROJECT BASED LEARNING (PBL) ACTIVITIES USING THE "LEPIDA SCUOLA" METHOD

Essential Handbook

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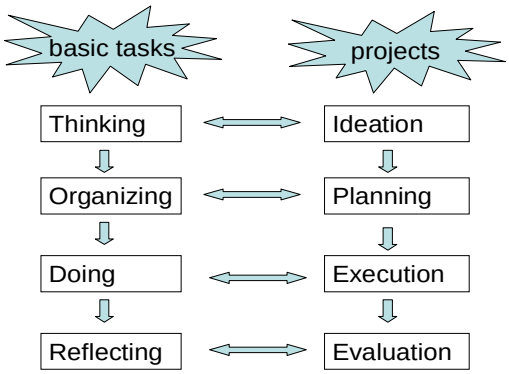
Introduction: teaching by projects using the “Lepida Scuola” method

This is a practical guide for the application of **Project Based Learning (PBL)** in the classroom using the Lepida Scuola method. It considers simple projects and is aimed primarily at those who are approaching PBL for the first time. In its maximum extension, the Lepida Scuola method confronts the problem in its wholeness; in this handbook, we refer to one of its subsets. The basic idea is that of transferring to the classroom the consolidated **theory of project management**, keeping in mind that, in the classroom, the final product is less important than the process. At school, in fact, we are not proposing a project for doing business, but to foster **the development of students’ skills and knowledge-building**. To ensure an effective transfer, the teachers must be meaningfully equipped; they must have references that replace those present in traditional didactics based on transmission. This is a crucial aspect: identifying the **fundamental activities and the products required (deliverables),** which in these passages must be realised by students and teachers. The teacher thus regains a system of coordinates that gives her orientation and prevents her from feeling at the mercy of a kind of entropy that is disorienting even though necessary and educational. **Teaching by projects** thus becomes possible and practicable for fostering the development of 21st century skills.

There is an age-old problem that must be examined: it is quite simple to push the students to “do”, but it is difficult to guarantee and verify their thinking during the action. Our system, with its steps and deliverables, attempts to respond, albeit limitedly, to this problem.

We feel that it is strategic, if possible, to have the deliverables deposited on an Internet **cloud platform** that can always be consulted by the instructor and the students, as this allows them to overcome space-time barriers. All the project materials become available at school, at home, and any other place with a computer, tablet, or smartphone and an Internet connection (the platforms of choice for these activities are, for example, the free suites of Google Apps, Zoho, etc.). This will allow the students to **continue collaborating with their groupmates even outside of school.**

When we talk about Project Based Learning, we refer to projects characterised by a life cycle that develops in four phases: **Ideation**, **Planning**, **Execution** and **Closing - Evaluation**. With the Lepida Scuola method we propose a structured and meaningful path for developing these phases. The method is not confined to carrying out projects, but is also valid in the case of simple activities. For these too, it is important to educate students towards a method - thinking before doing; getting organised; doing; and reflecting on the outcomes of the action-, as illustrated below:



The development of a project: summary of phases, activities, products realised by the students, and teacher assessment

What kinds of activities should a teacher envisage for the development of projects in the classroom? The table in the next page shows the activities, the deliverables expected, and the appropriate assessment tools for an essential implementation of PBL in the classroom. By "essential" we mean a minimal, but still meaningful path. The Lepida Scuola method as a whole encompasses every phase, providing for a series of activities and deliverables that together satisfy the requirements of Project Management principles. In this document we consider all the phases, but in a more limited manner in terms of activities and deliverables.

For each one of the four project phases - ideation, planning, execution, and closing/evaluation- Lepida Scuola identifies **activities, deliverables, and related assessment tools**. At school, due to the lack of a habit of working by projects, it is often difficult to respect the development of the phases. In many situations, we have found it to be more productive to let the students start the actual execution and then subsequently recover the moments of ideation and planning. Each teacher, according to his or her own context and professional skills and experience, will evaluate the most appropriate approach.

The deliverables represent anything concrete that the project groups submit to the instructor. We divide the deliverables into two families: product and process. The **product deliverables** are the progressive artefacts up to the final product/service. They represent the concrete and tangible outcome of the project. The **process deliverables** are the documents that illustrate the process by which the project developed.

As regards the assessment activity, we propose using the **rubric**, the tool of choice for evaluating performance (authentic assessment). The rubric is an assessment method based on response construction (like the other tools of authentic assessment: the checklist and the performance list), and is structured as a matrix. Performance is broken down according to the point of view and aims

of the person making the assessment, into a series of important elements, one per row. For each important element, the expected levels of performance are stated: these make the columns of the matrix. The rubric is constructed and/or shared with the students, and represents a pact between teacher and students. The students know beforehand what they will be assessed on. Each assessment using a rubric represents an important moment of feedback for the students, and for the instructor it is an important moment of performance assessment: consistent and documented assessment. A student assessed with a rubric knows exactly where he or she stands and what he/she must do to improve his or her position.

Table 1 - Key steps in PBL following Lepida Scuola method

Project Phase	Description of Activities	Deliverables	Assessment tools
Preliminary	Deciding on the number of projects: one for the whole class, divided into sub-projects, or several distinct projects.		
	Deciding whether projects are mono-multi-interdisciplinary or extracurricular.		
	Choosing the project themes.		
	Forming the groups of students, if they are group projects.		
Ideation	Defining the project idea	Split tree map	Rubric for Map
Planning	Breaking the project down into macroactivities and assigning them to single students: define who does what and in what timeframe.	Basic scheduling	
Execution	Developing / Implementing the project.	The product/ The service	Rubric for Product / Service
Closing	Presenting the project results and the process documents.	Powerpoint presentation	Rubric for Presentation
Transversal to the entire project	*Reflections in action included in the narrative report.*	*Narrative report*	*Rubric for Narrative report*

Preliminary operations at the start of a project

There are at least four operations that must be carried out prior to the actual work on the project: deciding on the number of projects; deciding whether they are mono/multi or inter- disciplinary; choosing the theme(s) of the project(s); and dividing the class into groups.

a) Deciding on the number of projects: one for the whole class, by sub-projects, or by distinct projects

It is very important for the instructor to decide right from the start whether she prefers to have a single project on which the entire class will work (though divided into sub-groups delegated for the sub-projects), or whether she prefers to have a series of distinct projects on which the various groups will work. The single project modality is less frightening to teachers who are new to PBL, since they will be dealing with a single theme, even though it is divided into multiple sub-topics. It is more reassuring to have a narrow topic of reference. Having multiple distinct projects is a different matter. In reality, in both cases the instructor should feel that she masters above all the methodology, and she should not be afraid of a situation in which she does not master all the topics. This is a traumatic change for many teachers, who consider an unavoidable, key feature of their profession the ability to fully master any subject dealt with in the classroom, and therefore find unacceptable not to be knowledgeable about all the topics at play. However the teacher who is capable of fostering the development of her students' skills and knowledge-building must give priority to mastery of method rather than content. She must not feel uncomfortable when she loses her undisputed rule over the knowledge and rather assumes the role of coach and guide. The instructor herself should shift the centre of gravity of her own action: no longer the curriculum, with its disciplinary knowledge and the programme to be carried out, but rather the learning of individuals that she must continuously monitor and to whom she must provide appropriate feedback. Work grows exponentially and the certainties that come from disciplinary knowledge begin to diminish: this is the price to be paid for looking after everyone, even those apparently less talented, and transforming a teaching practice based primarily on classificatory objectives into an educational action aimed at fostering the learning of all.

b) Deciding whether the projects are mono-multi-interdisciplinary or extracurricular

It often happens that teachers renounce PBL because they do not find colleagues willing to collaborate with them. It is clear that multidisciplinary or interdisciplinary projects are preferable to monodisciplinary projects. However, our experience suggests that it is also possible to carry out excellent monodisciplinary projects. In this case the risk is having a working modality that is "out of sync" with that of the other teachers and, paradoxically, one is viewed by colleagues as a heretic.

Our method aims to provide teachers with the procedures and deliverables that can replace those of transmission-based teaching. In this way, the instructor can participate in the meetings with her colleagues with the same wealth of information as they have, but also with of the additional experience that comes from practicing a teaching mode that, by itself, enables the development and certification of skills and that concretely fosters the shift to educational action centred on the students.

c) Choosing the themes

There are various possible approaches for choosing the themes, to be evaluated in relation to the context. In general, it is the teachers who supply the themes, the ideas of the project. Sometimes the students themselves decide, within some limits set by the instructor. One possible approach, very widely used, is for the instructor to choose a single theme/project, that can then be broken down into sub-projects that are assigned to various students sub-groups. There is also the possibility of choosing different themes for different projects. The case of projects for the high school's final examination is a typical case.

This is a very delicate decision that should be made with the greatest care. A correct choice of themes must harmonise two important needs: to engage the students in tasks that embody the complexity of everyday life, and at the same time to encourage them to conduct in-depth inquiry of topics related to the school curriculum. Failure to give due attention to one of these needs means either falling back into simplified, non-authentic tasks, and therefore those which do not educate towards life skills, or neglecting the disciplinary themes, with the risk of creating knowledge gaps in the students.

Here we offer some practical advice about identifying project ideas/themes. In particular we propose a series of suggestions that come from the Buck Institute for Education.

Planning backwards starting from a theme. Project ideas can come from articles, essays, current events, conversations, and other sources. They often emerge in the discussions within a teachers team. When an idea occurs to you, you proceed backward to give shape to the idea that best aligns with the curriculum standards.

Start from your basic nuclei. The basic nuclei represent a compendium of that which is important in a discipline: they contain themes that can be taken as a basis for projects.

Find projects and ideas on the Web. It is possible to find websites with project ideas or also with descriptions of successful projects for each discipline and for each level and grade of school.

Start from your community. Outside the school there are a multitude of possible projects. For example, one stimulating idea is to have the students carry out research on the local community.

Start from the daily life of different professions. You can find many project ideas starting from the daily life of many work activities.

Imagine projects starting from local or national events. Projects can be an excellent way to stimulate the students on current events, issues, and debates.

Meet specific needs in your community. Project ideas can be found starting from an analysis of the needs of the local community. There are plenty of non-profit organisations that need help and skills.

d) Forming the groups

The development of projects can be an individual task, though we feel that true projects should be undertaken by a team and that learning to work in a team is a very important life skill. Group creation and management is a crucial aspect in teaching by problems and projects. Community dynamics radically changes compared to that of teaching by transmission: we move from a community based on a one-to-many ratio to a community organised in work groups, in which the instructor is no longer the only source of knowledge, but rather acquires the role of guide and tutor.

One essential criterion is to form heterogeneous groups. Students from different backgrounds, having different abilities, experiences and interests, represent a rich resource. When you are dealing with the intensive use of information technologies, for example, it is important that at least one member of the group is passionate about technological aspects and that other group members are more oriented towards the theoretical/project design aspects.

The appendix n.1 includes some techniques for the formation of the groups drawn from Johnson and Johnson. (Johnson, D.W., & Johnson, R., 1999)

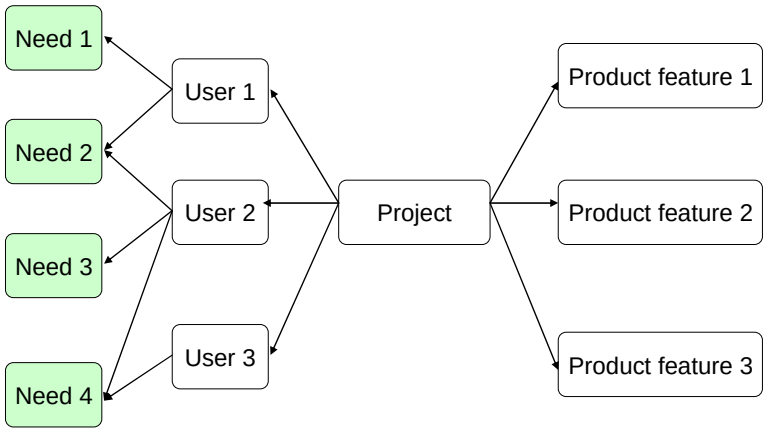
Students in the ideation phase: defining the project idea

The first step that the instructor asks from the students is the definition of the project idea. The students can define a project idea in many ways and, if not guided, risk being disoriented, getting lost, talking about generic things. We propose an approach, taken from project management theory, which involves three basic steps:

1. identify the potential users of the product or service that you are setting out to realise;
2. analyse their needs and necessities;
3. imagine and evaluate the characteristics of the product or service to be realised in order to satisfy the needs that emerged.

DELIVERABLE: THE CONCEPTUAL MAP

The definition of the project idea can be synthesised in a *split tree* conceptual map (see below). This deliverable summarises the project idea, including the analysis of the user and her needs and the appropriate evaluation of the product/service. This is a very important pedagogical moment, since it engages the student in operations of analysis, synthesis, and evaluation, which are rarely part of traditional teaching practices. The map, including the title of the project, is composed of three levels: one describing the users, one the needs, and the third one the product's characteristics.



ASSESSMENT: Appendix 2 provides a rubric prepared for map assessment. As for all rubrics, it is one of many possible solutions, not The solution, which obviously does not exist. The rubric also indicates the most important life skills for each significant element: an important step towards certification of the skills.

Students in the planning phase: defining the main activities (who does what and the timeframe)

The activities to be done in this phase which eventually make up the project plan are:

- to define the project activities in detail and the resources to do them
- to assign the activities to each member of the group, i.e. define who does what
- to estimate the timeframe for the execution of the various activities

We feel that the phase of creating the project plan is a very difficult one to have the students do in class. Students tend to prefer “doing” over abstract planning. Detailing the possible activities and resources, accurately defining the timeframes (scheduling), and stating the specifications of the product-service are arduous tasks for young people and, based on our experience, we feel that it is not necessary or productive to insist too much on them.

It is also necessary to instil in the students, as in the teachers the idea that plans are made to be reworked. In short, making forecasts that will later be re-calibrated is physiological, not pathological. Relieving anxiety about the perfect project plan –almost impossible to do!- should be one of the top priorities in this phase.

Given this premise, there is one requirement on which we cannot and must not yield: the identification of macroactivities and their assignment to the group members. At the end of this phase, each member of the group must know which tasks to carry out and on which he or she will be assessed. For us as teachers, this is a mandatory step.

It is also important in order to move from a group assessment to an individual assessment.

DELIVERABLE: THE BASIC PROJECT PLAN

This is the deliverable in which the students provide the essential information: macroactivities, resources, who does what and the presumed timeframes. This replaces the feasibility study and WBS, as envisaged by the complete Lepida Scuola method, though certainly without entirely taking their place. In any case, for an introductory level in schools, we feel that it represents a good starting point.

Basic project plan outline

- Macroactivity 1
    - Who
    - Resources
    - Presumed timeframe 1
- Macroactivity 2
    - Who

    - Resources
    - Presumed timeframe 2
- Macroactivity 3
    - Who
    - Resources
    - Presumed timeframe 3

ASSESSMENT: Appendix 3 provides a rubric that represents a good starting point for the assessment of the basic project plan / feasibility study.

Students undertake the execution phase: implementing the project

This phase is easily carried out in the classroom. The students enjoy doing it, and it is a very important phase from the pedagogical perspective. It is the time when students construct advanced knowledge. The more we are able to enrich the learning environment in terms of cognitive resources from which the students can draw and points of view they can consult, the more this experience will be transformed into that desirable path that leads them to gradually transform the “know about” into the “know how”. That will also enable them to develop, amongst other things, the competency that is now universally considered to be fundamental: learning to learn.

DELIVERABLE and ASSESSMENT: the output of projects can be any kind of product or service. It is therefore impossible to refer to some exemplary item and to provide recommendations about how to assess them. The one element that should accompany whatever product/service is realised is the Narrative Report, which is presented later on.

Students undertake the closing phase: presenting project results and process documentation

At this point the bulk of the project has been completed. The students have defined the project idea, planned its development, and realised the product or service. Now they must present the work carried out, communicate the results achieved. The presentation as we conceive it will be multimedia, possibly using Power Point or similar tools, and will be aimed at the rest of the class, the teacher or group of teachers. It may sometimes be extended to the various stakeholders or even to a wider audience, taking advantage of public moments. Each member of the group will present the part of the work he or she has carried out, and this will allow an individual assessment in addition to that of the group. The presentation becomes a crucial moment for training the students in communication. Initially, students often feel uncomfortable mastering communication techniques and only a few are entirely at ease. However, we have noticed that in a short time there are considerable improvements, and after a few presentations the students are quite at ease and learn to use the various media to express themselves effectively. The presentations of the various groups require a great deal of time, so it is advisable to govern them adequately and try to organise everything in advance. There is always one computer that fails to work or does not connect correctly to the video projector. It is good and formative to give the students responsibility so that they become accustomed to not taking anything for granted. This is also the moment of

reflections and assessments. The students can be asked to express their views on the results achieved with respect to the forecasts, on the best practices and on the lessons learned.

DELIVERABLE: THE PRESENTATION in digital format

This is the deliverable, usually involving slides, that summarises the project procedure and the results achieved. We do not ask the students to use a particular software package; what is important is that they construct this deliverable as the basis of the presentation. This in itself represents an important moment of reflection.

ASSESSMENT:, Appendix 4 provides a rubric for the assessment of project presentations.

Students narrate during the project

The development of projects involves resolving many problems that are encountered along the way. What differentiates the solution of typical school problems from those of everyday life outside school is that in the classroom students are accustomed to confronting problems that are structured, with only one solution, such as problems of mathematics, physics, and so on. In everyday life, problems are unstructured, without a precise solution, so being good at problem-solving means finding the “least bad” solutions. The way of proceeding by solving problems encountered during the development of a project is similar, by successive approximations, and students who narrate the problems and the solutions found become accustomed to reflecting while acting. This is how professionals work. So this narration becomes similar to the epistemology of professional practice proposed by Schön based on “reflection-in-action” (Schon, D.A., 1983).

DELIVERABLE: NARRATIVE REPORT

The narrative report is the document/diary that narrates the students’ reflections, strategies, choices, doubts, fears, and certainties in confronting the various moments of carrying out the project.

It can be organised in three columns as in the scheme below. The first column contains the date, the second a student’s name or the group description, the third a reflection.

DATE	NAME	REFLECTION
…	…	…
…	…	…

Appendix 6 provides a number of suggestions on how to **create a good narrative report.**

It can be produced in many different ways: Word document, hand-written, blog, and so on.

ASSESSMENT: a reference rubric for the assessment of the narrative report is provided in Appendix 5

Space in the cloud. For each project carried out, we suggest students to store the deliverables of each phase of the project in a cloud environment. The students will subdivide them into four folders, one for each phase of the project, titled respectively: Ideation, Planning, Execution, Closing. The “Narrative Report”, transversal to all the phases-folders, will therefore have to be

stored outside of the folders. All the assessment tools (rubrics and performance lists) will also be deposited in the cloud environment.

Conclusions

We have described an essential approach to Project Based Learning that, drawing from the literature, confronts the issue of its concrete application in the classroom. This handbook is the result of many significant experiences in schools of every level and aims to give a tangible response to the widely expressed need for methodological change. The work refers to simple projects and is aimed primarily at those who are approaching PBL in the classroom for the first time. We provided indications for both the activities preliminary to the development of the project and for the various phases of their implementation in the classroom. We have included at least one activity for each phase with related deliverables and assessment proposals. In relation to assessment, we went further to produce rubrics that provide an initial means of assessing the life skills. It goes without saying that we will be constantly and continuously refining what has been proposed here. This will take place following the method of Design Based Research, an excellent interpreter of our spirit which, keeping a distance from the still attractive and unpredictable *naiveté* of do-it-yourself, assiduously seeks the rigour of a scientifically based method.

References

- Johnson, D.W., & Johnson, R. (1999). Learning Together And Alone. Cooperative, Competitive and Individualistic Learning. Needham Heights, Massachussetts. Allyn and Bacon.

- Schon, D.A. (1983). Il Professionista Riflessivo. Per una nuova epistemologia della pratica professionale. Bari. Ed. Dedalo srl.

Appendix 1 - Suggestions about students groups creation

Following Johnson and Johnson, (Johnson, D.W., & Johnson, R., 1999), we suggest below some techniques for group creation.

Random assignment. The easiest and most effective way to form groups in a class of students is to select them randomly. The total number of students (e.g. 30) is divided by the desired number of group members (e.g. 3 people), resulting in 3 sets of 10 people. Each student in each set is given a number from 1 to 10. The ten 3-member groups are then created by putting together all students with the same number.

Stratified random assignment. It is essentially the same as random assignment, with the additional requirement that each group include at least one or more students with a given feature, such as learning style, personal interests, technical orientation and so on. The following procedure is recommended (referring to 4-member groups):

- rank all the students with respect to the selected feature in descending order, based on some entry test results, past assessment or the teacher's own knowledge;
- create the first group by picking one student from the top of the list, one from the bottom and two from the middle. Assign them to the group, unless they are all of the same gender, or fail to reflect the ethnic composition of the class, or are notoriously enemies or best friends among themselves. If one of these conditions holds, then move one student higher or lower in the ranks, so as to rearrange the group;
- follow the same procedure to create the other groups, from the ever shrinking list. If some students are left out, then set up one or two groups with just thee members
- avoid creating groups based on features which are not relevant for the accomplishment of a project.

Students' interests. Ask your students to write the name of their favourite sport on a piece of paper. Then, make up a group of all those who like the same sport. You can shift from sport to food, animals, cars and so on.

Groups selected by the teacher. Group composition is chosen by the teacher. J&J particularly encourage the creation of groups which address the more isolated students. They suggest to ask each student the names of three other students they would like to have in their group. From their

answers, you can create a list ranking from the most popular to the most isolated (less requested) students.. Each group can then be created by assigning to it two of the most popular students.

Self-established groups. According to J&J the least appropriate approach to group creation is when students are left to decide and do it by themselves. This typically results in homogenous groups, with the best performing students joining in a group; those from an ethnic minority joining into another one; boys with boys, and so on.

Appendix 2 – Rubric for the assessment of conceptual split-tree map

DIMENSION	1	2	3	4	5	Score	Related life skills
MEETING DEADLINES	Map delivered with a delay above 7 days	Map delivered with a delay less than 3 days	Map delivered on time				Behaving in responsible way
IDENTIFICATION OF END USERS	Students identify generic users unlikely to be even potentially interested in the project	Students identify only a subset of users potentially interested in the project	Students identify all users potentially interested in the project and just them				Problem solving, Designing
NEEDS	Students do not understand the needs of potential users	Students only partly understand the needs of potential users	Students understand in details the needs of potential users	Students understand in details and critically the needs of potential users			Acquiring and interpreting information
OBJECTIVES	Project goals address user needs with difficult to achieve and incoherent solutions	Project goals address user needs with feasible, but not fully coherent solutions	Project goals address user needs with feasible and coherent solutions	Project goals address user needs with feasible, coherent and creative solutions			Problem solving, Designing
INTERACTION WITH TEACHERS (PROCESS EVALUATION)	Students only occasionally ask for help and they do it without a clear investigation strategy	Students regularly ask for help, but they do it without a clear investigation strategy	Students regularly ask for help, with the aim of defining a clear investigation strategy	Students ask for help, with the aim of defining specific aspects of their investigation strategy	Students' question show that they have both a strategy and an autonomous work method		Learning to learn
QUALITY OF CONCEPTUAL MAP PRESENTATION (PROCESS EVALUATION)	Students are unable to explain the choices they made w.r.t. users, needs and solutions	Students are able to explain only to a limited extent the choices they made w.r.t. users, needs and solutions	Students are able to clearly explain the choices they made w.r.t. users, needs and solutions	Through their explanations of choices made, the students reveal a deep awareness of problem interpretation and solving processes			Communication
					Total score		

Rubric by Orfeo Bossini and Roberto Menozzi

Appendix 3 – Rubric for the assessment of the feasibility study / project plan

DIMENSION	1	2	3	4	5	Score	Related life skills
MEETING DEADLINES	Study delivered with a delay above 7 days	Study delivered with a delay above 3 days	Study delivered with a delay less than 3 days	Study delivered on time			Behaving in responsible way
IDENTIFICATION OF ACTIVITIES	Students are unable to breakdown the objectives in activities which would make the project feasible		Students break down the objectives into specific activities which are not entirely rigorous, but enough to make the project feasible	Students break down the objectives into specific activities, in most cases according to priority, sequencing and feasibility criteria	Students break down the objectives into specific activities, always according to priority, sequencing and feasibility criteria		Problem solving, Designing
DESCRIPTION OF ACTIVITIES' ACTIONS AND RESOURCES	Students cannot identify all the actions and resources needed to run the project		Students identify the actions and resources needed to run the project , but their articulation is not always detailed and accurate	Students identify all the actions and resources needed to run the project. Their articulation is almost always detailed and accurate	Students identify all the actions and resources needed to run the project. Their articulation is always detailed and accurate		Problem solving, Designing
SEQUENCING AND TIME FRAME OF ACTIVITIES	Timing in the project is unrelated to the activities. An organisational principle is lacking creating strong doubts about project feasibility		Timing in the project is related to the activities. Some critical aspects show up, but not to the point of endangering project feasibility	The time frame of activities is set in a strategic and well organised way. The project is clearly feasible			Problem solving, Designing
INTERACTION WITH TEACHERS (PROCESS EVALUATION)	Students only occasionally ask for help and they do it without a clear investigation strategy	Students regularly ask for help, but they do it without a clear investigation strategy	Students regularly ask for help, with the aim of defining a clear investigation strategy	Students ask for help, with the aim of defining specific aspects of their investigation strategy	Students' question show that they have both a strategy and an autonomous work method		Learning to learn
QUALITY OF PRESENTATION OF THE FEASIBILITY STUDY (PROCESS EVALUATION)	Students are unable to explain the choices they made w.r.t. activities, resources and timing	Students are able to explain only to a limited extent the choices they made w.r.t. activities, resources and timing	Students are able to clearly explain the choices they made w.r.t. activities, resources and timing	Through their explanations of choices made, the students reveal a deep awareness of problem interpretation and solving processes			Communication
					Total score		

Rubric by Orfeo Bossini and Roberto Menozzi

Appendix 4 – Rubric for the assessment of project presentation

DIMENSION	1	2	3	4	Group score					Related life skills
MEETING DEADLINES	Presentation is delivered with a delay above 7 days	Presentation is delivered with a delay above 3 days	Presentation is delivered with a delay less than 3 days	Presentation is delivered on time						Behaving in responsible way
TIME MANAGEMENT DURING PRESENTATION	Presentation takes much longer than agreed	Presentation takes some more time than agreed	Presentation ends within the agreed duration							Communication
QUALITY OF PRESENTATION SUPPORTS	Presentation provides limited information; images or text prevail; nothing much creative to it	Presentation fails to provide all relevant information; images and text are well balanced; nothing much creative to it	Presentation provides all relevant information, captures attention and applies creative solutions	Presentation provides all relevant information, captures attention, applies creative solutions and balances well images and text						Acquiring and interpreting information
FORMAL ACCURACY	Presentation has 5/6 grammar and/or orthography mistakes	Presentation has 3/4 grammar and/or orthography mistakes	Presentation has 1/2 grammar and/or orthography mistakes	Presentation has no grammar and/or orthography mistakes						
ORGANISATION OF PRESENTATION	Attendants cannot follow presentation because information is not well organised	Attendants have occasional problems following presentation as it is often poorly structured	Attendants follow presentation smoothly, since information is presented in a logical and well-sequenced way	Attendants are involved in the presentation, since information is presented in a logical and interesting way						Communication
					Student score					
					A	B	C	D	E	
KNOWLEDGE OF SUBJECT AND CONTEXT	Student cannot answer to questions about the project subject, showing only superficial knowledge of it	Student can only answer to simple questions about the project subject, showing enough knowledge of it	Student can answer to questions about the project subject, showing to know well the aspects she is in charge of, and quite well also the topics dealt by other group members	Student answers to questions by adding examples and personal reflections. She shows a full knowledge of project subject and good mastery also of topics dealt by other group members y						Learning to learn
MASTERY OF LANGUAGE AND VISUAL CONTACT	Student seems NOT to pay attention to the speed of presentation, voice tone, grammar and/or let the presentation run with limited intervention. She only reads her notes	Student uses the right presentation speed and voice tone, but uses an inadequate language. Student keeps an eye on her notes	Student is a bit too fast/slow and uses too high/low voice tone during presentation. She has acceptable grammar proficiency. Checks on her notes only occasionally	Student expresses herself correctly, with the right speed and voice tone. She keeps an eye on the presentation, but never reads her notes.						Communication
				Total student						
				Total score						

Rubric by Orfeo Bossini and Roberto Menozzi

Appendix 5 – Rubric for the assessment of the Narrative Document

Dimension	1	2	3	4	Score	Related life skills
MEETING DEADLINES (OF NARRATIVE REPORT PRODUCTION)	The student does not provide reflections	Only a few reflections are put into the narrative document in the agreed deadlines	Most reflections are put into the narrative document in the agreed deadlines	All the reflections are put into the narrative document in the agreed deadlines		Behaving in an autonomous and responsible way
ARTICULATING MOTIVATIONS BEHIND THE DESIGN PROCESS (HESITATIONS, DOUBTS, ASSESSMENTS, STRATEGIES ETC.)	The motivations which have accompanied the student in the design process never show up in the report	The motivations which have accompanied the student in the design process show up occasionally in the report and in a partial way	The motivations which have accompanied the student in the design process show up partially in the report	The student reflects constantly and with detailed arguments on the motivations which have accompanied her in the design process		Learning to learn, Communicating
ARTICULATION OF OWN POTENTIAL (SELF-EVALUATION)	The student does not reflect on her own potential	The student does reflect on her own potential, but only occasionally and with respect to few aspects	The student always reflects on her own potential, but with respect to few aspects	The student reflects in an articulate and full way on her own potential		Designing, Communicating
ARTICULATION OF OWN GROUP POTENTIAL (EVALUATION)	The student does not reflect on the potential of the group she belongs to	The student does reflect on the potential of her group, but only occasionally and with respect to few aspects	The student always reflect on the potential of her group, but about few aspects	The student reflects in an articulate and full way on the potential of her group		Designing, Communication Behaving in an autonomous and responsible way
CAPABILITY TO DEVELOP A REFLEXIVE CONVERSATION WITH RESPECT TO OWN CONTEXT OF ACTION	The student does not reflect on her context of action and on that of her group.	The student only reflects on the strategies aiming at determining her context of action?	The student reflects on the strategies aiming at determining her context of action and on her own understanding of her subjective condition	The student constantly reflects, in an articulate and full way, on the strategies aiming at determining her context of action and that of her group, as well as on her own understanding and evolution of her subjective condition		Problem solving, Designing, Communicating, Behaving in an autonomous and responsible way
					_/ 20	

Appendix 6 - Suggestions for the preparation of Narrative Report

Below are some questions which can help students in producing a good narrative document.

Questions for the ideation phase

- How was the group formed? Where changes made to it?
- What is the project idea?
- Where does this idea come from, when and how?
- Which other ideas did you consider and why did you discard them?
- Which disciplines are related to your idea?
- Which are the project objectives?
- From which needs analysis have these objectives been drawn?
- Who is the real beneficiary of your project? Who will use your product or service?
- Have you learnt anything you in this phase (content, technology, method)?
- Which activities are needed to reach those objectives, and which resources to perform those activities? In particular, what will you need to learn?
- In the ideation phase did you have to review the resource plan over again, or did you work it out the first time?
- Would you be able to realize some prototype of your idea, or do you plan to do it later?
- Which roles did the different group member play?
- Do you have all what you need to give the presentation (of your project idea)?
- On which aspects do you expect to be evaluated?

Questions for the planning phase

- Was it necessary to rework the main activities planned in the feasibility study (if yes, why)?
- Which problems/obstacles have you identified?
- Which types of learning (content, technology, methods) were needed in this phase?
- Does each group member know exactly his/her tasks, and have all the tasks been assigned to some group member?
- Has it been difficult to define the project's details?
- Has the definition of the project's specific details pushed you to review the project's objectives?

Questions for the implementation phase

- Have you been able to meet the planned schedule of tasks?
- Have you regularly updated the progress report?
- Which types of learning (content, technology, methods) were needed in this phase?

- Did you have to make changes with respect to what you envisaged in the ideation phase?
- Did you have to make changes with respect to what you envisaged in the planning phase?

Questions for the wrap-up phase

- Which problems that you faced could help improve the next projects?
- Have you archived files, documents and artefacts so that other people will be able to easily find them in the future?
- Have you produced enough documentation so that other people in the future will be able to use your work as a reference case, or starting point for additional work?
- What can you say from a comparison between your original plans and what actually occurred during the project?