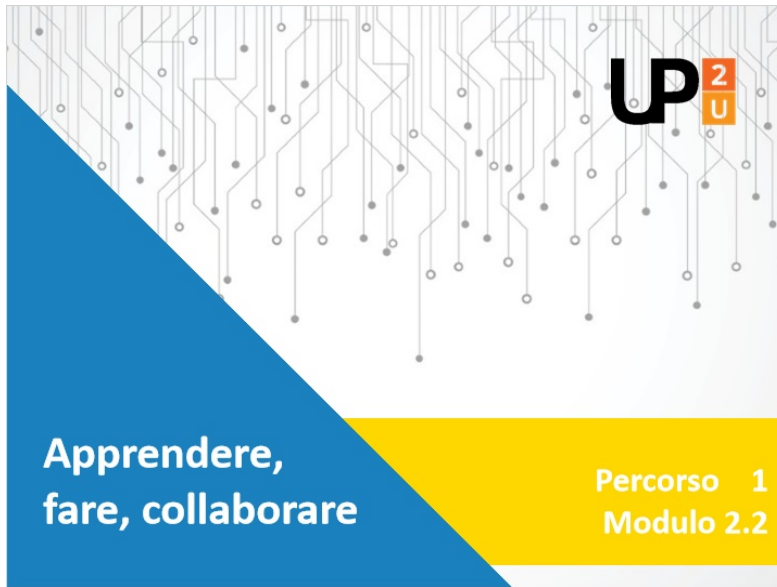


1.1 Learning, doing, collaborating



1.2 A real living and working environment

One of the goals of education is to provide students with useful skills for success in studies, the workplace and, in general, life.

Today, in the 21st century, teaching that does not keep the school separate but rather places it in the knowledge society should include activities that involve:

- interaction with others;
- interaction with objects and tools that are part of our culture, including digital technologies;
- contact with the complexity of the external world.

And in practice?

An innovative response comes from a recent and particularly interesting model, known as the *trialogical approach to learning*.

1.3 From dialogue to triologue

The trialogical approach, proposed by Kai Hakkarainen and Saami Paavola of the University of Helsinki, has resulted in an intense programme of research and experimentation throughout Europe since 2005.

This model is part of the socio-constructivist approach that underscores the value of dialogue between the learner and the community to which he belongs and the dynamics of participation in cultural processes.

In relations between individual and community, processes of communication, sharing and negotiation of meanings are set in motion. They are "dialogical" processes that go side by side with "monological" ones, linked to individual elaboration of concepts

The new approach adds a third element, hence the "trialogical" neologism: the collaborative production of "artefacts".

Students, therefore, interact with the community pursuing an objective: the production or modification of an "object" that can be of many types, but is always something "real".

1.4 The third element

Artefacts can be:

- tangible objects (such as a robot);
- conceptual objects (such as ideas, plans or models);
- organisational practices (such as a new way of working at school).

In any case, they must be useful to someone outside the class that created them. Better still, outside the school. Because these artefacts must be a bridge to the outside world.

There are two other important aspects to consider regarding the process of conceiving and constructing these objects:

- the process must be mediated using modern technological tools;
- it must include the collaboration of external experts, who come from the business world, and contamination with the practices of that world.

As you can see, this goes beyond the normal scope of tasks usually offered to students, which have no meaning outside the four walls of a classroom, and are used simply to assign a grade to the student.

1.5 The trialogical approach and integration of theories

Although it emphasises practical work, the trialogical approach derives from precise and rigorous theoretical models, ranging from socio-cultural constructivism to Vygotsky and Leont'ev's Theory of Activity in its more recent versions which, in short, consider knowledge as the result of construction work based on three main traits:

- it is collaborative, i.e. it is performed in a group, indeed a community;
- it is mediated by cultural and social artefacts, among which technologies (digital technologies in today's world) play a leading role;

- it is based on practical activities.

The trialogical approach incorporates and moves beyond the dichotomies of previous theoretical models, which occasionally tended to favour only individual or social processes, or only conceptual or tangible artefacts.

1.6 Learn what?

The trialogical approach has given rise to a form of teaching that is active, creative, challenging and intrinsically motivating. Above all, it is able to promote some key competences in the knowledge society, including, for example:

- the ability to combine individual and collective goals;
- continuous enhancement of work products;
- the ability to give and receive constructive feedback;
- collaboration in areas other than one's own;
- the management of complex projects;
- focus on long-term goals;
- an understanding of the real needs that an artefact is called upon to meet;
- the organisation and division of work;
- effective group communication;
- the ability to take personal responsibility;
- the correct framing and solving of problems;
- the knowing use of digital technologies;
- reflection on one's learning path.

It is not by chance that these skills are the same as those demanded by the business world and by society as a whole.

But it is clear that such a wealth of skills can only be acquired through the careful planning of educational activities, which need to be flexible yet leave nothing to chance. This is why teachers are required to make a knowing and continuous effort.

1.7 Design principles behind the trialogical model

Very precise guidelines have been drafted for teachers interested in applying this method in their classrooms, directing the planning of teaching towards the collaborative construction of artefacts.

There are six "design principles" in the trialogical approach.

These design principles:

- Are consistent with the reference theoretical model, therefore they provide a sound base for pedagogical planning.
- Are general enough not to result in strict rules. Can be customised based on the experience, interests and needs of teachers.

Are the result not of desk work but of a long process of experimentation and re-working, resulting in the current version.

These are the six design principles:

- *To organise activities around the construction of shared objects.*
- *To hybridise knowledge practices between communities and institutions.*
- *To support interaction between personal and collective agency levels.*
- *To support long-term knowledge-building processes.*
- *To emphasise development through transformation and reflection between different forms of knowledge and practices.*
- *To provide flexible mediation tools.*

Let us now look at these principles one at a time...

1.8 Principle 1

The first principle requires the organisation of educational activities around the construction of shared objects.

This is the fundamental principle of the trialogical teaching method. We may indeed consider all the other principles as filling in the details.

There is nothing new in making students create something tangible, but in general production falls in the areas of research, posters, hypertexts or videos, whose sole aim is to learn contents and, in some cases, the methods needed to obtain such products. And in any case, to receive a grade.

What is new is that the object to be built using a trialogical approach must have some essential properties.

Firstly, it must be useful.

The object serves not only to obtain a grade, it leaves the community that has created it because it must serve to actually solve a problem or meet the needs of someone else: other classes, the school as a whole, the neighborhood, an organisation or the community.

Thus the student begins to think of himself as a producer, with a specific social role.

The second property, which derives from the first, is the connection with external contexts.

The object must serve to assist the shift from the class (the community that creates it) to

another community that will use it at another time and in another place.

Finally, the object must embody the knowledge and skills that the students have supplied to make it. Competences not unrelated to curricular objectives.

Only in this way can an object arouse students' interest and motivation. And their pride, not limited to a generic "I did this!" but in seeing one's own product actually used by others.

1.9 Principle 2

The second principle relates to the need to integrate the so-called personal "agency", i.e. the ability to act intentionally, with the collective agency. Thus to integrate what the individual learns with what the group learns.

We know that in the triological approach the social dimension of learning is an essential component, however social skills are not at all innate.

This is what gives rise to a phenomenon that occurs frequently in group work: "implicit delegation". Pupils who are less motivated tend to stop participating, leaving all the work to the more active pupils. Active pupils, for their part, are often very happy to take on this extra responsibility (resulting in a second distortion).

It is up to teachers to adopt appropriate strategies to prevent this from happening.

Let us see what they can do.

1.10 Stimulating collaboration and responsibility

To achieve real collaborative learning, a certain way of being and working together needs to be promoted, to create a balance between:

- autonomy, responsibility and individual goals
- group goals, namely the realisation of an artefact and an increase in collective knowledge

From an operational point of view, it is necessary to act on several fronts:

- Emphasising the importance of integrating two elements: the collaboration and personal (and intentional) engagement of each member.
- Focusing on individual motivation, bearing in mind the needs, inclinations and interests of each member.
- Stimulating the implementation of individual self-regulated skills, such as clearly defining goals and planning the necessary steps to achieve them.
- Adopting technological tools and environments that guarantee real collaboration through interdependence.

- Using ad hoc techniques to guarantee individual engagement and ensure compliance with time frames and deadlines.

1.11 Principle 3

The third principle establishes that trialogical paths must support the real advancement of knowledge, a process that inevitably takes some time.

Why does it take such a long time?

New ideas, concepts and attitudes are absorbed at once. They need to be perceived, known and processed, so they become familiar and fully established. Then they should be tried out in practice, evaluated, examined and integrated with other ideas, other concepts, other attitudes, triggering a path of action and reflection that may require several "cycles".

In a trialogical process this natural learning process needs to be supported.

1.12 Planning multi-stage paths

A trialogical path is not just long term: it should also have a modular structure, in which each stage includes:

- an activity based on certain practices in which a well-defined set of skills can be used
- analysis and reflection to gauge the work performed and plan the next stage
- repeated construction and review of knowledge objects, improved by virtue of mutual feedback

There are three aspects to note in this sequence of work phases:

1. Students have the opportunity to repeat similar activities, experimenting in different ways.
2. Each stage is a milestone. Milestones are compared to observe individual, group and whole class evolution.
3. With each milestone the object presents improvements, which gradually lead to innovative results. In short: the development of the object serves to further develop learning.

There is another operational indication linked to the third principle. This entails imagining how the final product, at the end of the educational activity, can be used by its recipients. Furthering the idea of an object that acts as a bridge with other communities. These communities, in turn, can improve the object and create new knowledge.

1.13 Principle 4

The fourth design principle consists of encouraging reflection and transformation between different forms of knowledge and different practices. The trialogical approach thus overcomes the almost exclusive focus that traditional methods place on conceptual knowledge.

The teaching of a trialogical path needs to alternate:

- different forms of knowledge (declarative, procedural, implicit)
- different formats (text, images, audio, video, etc.)

A student's written contribution may for example be discussed in the classroom, recorded and then turned into a graphic summary. Knowledge objects "mature", passing from one form to another, helping new ideas and new practices to emerge.

This is why alternation should be pursued, starting with the materials and knowledge sources provided to students along the path. Support should be given through multiple knowledge-oriented working practices: from brainstorming to decide the object to be created to a conceptual map to summarise discussions on a specific topic, the collection of evidence and drafting of a report.

This principle also invites moments of reflection on one's own learning path and on the dynamics of participation. In other words, the student is again placed at the centre of learning, with the promotion of key meta-cognitive skills and encouragement of autonomy and a sense of shared responsibility.

1.14 Principle 5

The fifth principle relates to the hybridisation of knowledge practices between communities and institutions.

By producing concrete objects we obtain a very important result: the community making them enters into a relationship with the community that will use them. This is why we talk about "boundary practices" between educational and professional communities.

Many of the strengths of the trialogical approach derive from boundary practices:

- creative and innovative processes for the reorganisation of knowledge are set in motion
- bridging skills are developed between the world of education and that of business, making contact with professional tools, languages and procedures
- students are offered the extraordinary experience of interacting with persons other than teachers, interested in evaluating not the student but the object itself, seeking to understand how it works and testing its capacity to meet their needs

This "professional" type of learning brings with it a change of identity, and is of strong motivating value.

But it has not always been easy to achieve...

1.15 Getting the business world involved, overcoming obstacles

In order to boost contacts with the world outside school, as we have repeatedly stressed, it is necessary to produce objects that are of real use to someone.

But that is not all. The business world must, if possible, also be involved in providing the tools and skills that make the entire educational activity challenging, and raise the likelihood that the objects produced are really useful.

This all requires a considerable organisational effort to forge contacts with a community different from one's own. The main obstacles come not from the outside world, which is generally well-disposed to schools, but from annoying red tape, resulting in slowness and delays.

It takes a good deal of tenacity and a deep knowledge of decision-making and organisational mechanisms. As well as an element of creativity that helps to find a way around the obstacles put in one's way. Once this is done, it will be a question of organising the building of the bridge-making object so that it allows a virtuous contamination between the two worlds, and hands-on use of the professional tools and procedures needed to build it.

1.16 Principle 6

The sixth principle crosses the paths of the first five, providing support for all of them: to provide flexible mediation tools.

We say "mediation tools", but we mean "fit-for-purpose digital technologies". "Fit for purpose" means taking full advantage of all the potential of digital technologies. The "new technologies" of today are not the same as those of the 1980s, when the Internet only existed in research laboratories. Or those of twenty years ago, before the web 2.0 revolution and the spread of "social media".

At the end of the last century the Web was simply an enormous database used to search, with some difficulty, for all sorts of information, or in some cases to transmit said information. It was a Web made for reading, not writing, and even less interacting. At best, it could provide support for the old way of teaching, centering on the teaching of predetermined knowledge.

Today, technologies allow actions that were previously unthinkable: they extend the boundaries of the community, allowing us to create new tools out of those that already exist, supporting "many-to-many" communication, adapting to any knowledge format.

These technologies can really provide valuable support for dialogical processes.

Let us see how...

1.17 Which technologies for which mediations

The multiplicity of tools, environments and services designed for learning, collaboration and knowledge-oriented work provides guarantees for supporting and integrating varied mediation processes:

- Epistemic mediation is facilitated by environments and tools designed to create, transform, comment, organise and connect knowledge artefacts. There is the Web, with its powerful search engines, applications for editing texts, artistic images, technical drawings, audio, video, animations and hypertexts.
- Pragmatic mediation is supported by technologies, such as project management systems, for planning, organising and coordinating work processes.
- Social mediation uses tools, environments and communication channels that support interaction around shared objects. These include: forums, chats and instant messengers - with which work groups can be created - or collaborative versions of word processing systems, making it possible to work together, remotely, on a shared document.
- Reflective mediation, boosted by environments and tools that make the work process visible. This includes, for example, applications for creating mental or conceptual maps of large knowledge domains or for transforming procedures into algorithms.

On the whole, these technologies basically allow "only" two things: to communicate for collaborative purposes, and to turn ideas into something concrete. This is the essence of the trialogical approach to learning.