

IMPLEMENTING AND EVALUATING TEACHERS TRAINING AND EDUCATION INTERVENTIONS IN THE GLOBAL SOUTH

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ABSTRACT¹

The aim of the present paper is to illustrate a model for implementing cooperation and research actions, focusing on developing education interventions in contexts that exhibit multiple risk factors. It involves an articulated model, one that has been tested through years of study and interventions in the field, and which comprises: 1) an adequate identification of education needs in the cooperation context; 2) structuring and elaboration of interventions, instruments and methods that are appropriate for local specificities; 3) implementation of training-research actions with teachers and educators in the cooperation country; 4) pilot implementation of interventions in schools, with the support of NGOs and Italian university students (appropriately trained via workshops and stages in Italy); 5) implementation of systematic experimentation and results evaluation. Such a model has the advantage of encouraging the active involvement of all subjects, the progressive acquisition of a method on the part of local professionals and the construction of an international research group. Critical features for the most part concern willingness/possibility of involvement on the part of various subjects and the difficulty of sustaining education interventions that are additional relative to scholastic programmes and which require local resources that are not always available.

INTRODUCTION

Planning and implementing interventions in support of the rights to education for children who live in risk contexts is a complex challenge, which can be tackled effectively only by means of a significant commitment of research on the part of the University, with the active involvement of international cooperation organisms and the synergic commitment of a variety of actors. This makes it possible to create networks that facilitate relationships and the willingness to get involved on the part of the scholastic institutions that constitute the addressees of the training actions.

In this triangulation the role of universities consists mainly in elaborating innovative interventions, based on international literature, and in the implementation of controlled experimental verifications. In this way it is possible to construct a patrimony of reliable knowledge that can then be shared with the various partners involved in the cooperation, constituting transnational research groups. In this interaction the role of university students (or persons who have just acquired their degrees) can also be significant as a vector of innovation in countries in the Global South. Involvement in such projects is also extremely beneficial for university students who can thereby acquire research skills, flexible didactic strategies that are attentive to contexts, cooperation values and intercultural dialogue abilities.

A COOPERATION MODEL

The present paper illustrates a research and cooperation model, elaborated by a workgroup at the Department of Philosophy and Sciences of Education in the University of Turin, to implement cognitive and motivational reinforcement interventions in contexts involving deprivation or socio-environmental risks. Such interventions involve the activation of workshops to encourage literacy skills and the scholastic success of pupils experiencing learning difficulties in countries in South and Central America and Africa. These interventions aim not so much to recover scholastic knowledge, but to activate cognitive processes in children who are often significantly behind in their development and to stimulate learning motivation, something that is lacking in socio-cultural deprivation contexts. In those contexts, exhibiting serious risk factors (natural catastrophes, wars...) there is provision for a specific supplementary intervention on creativity, to reinforce children's resilience (i.e. the ability to successfully deal with and overcome traumas).

The intervention model, progressively developed through analysis and various experiences, involves collaboration between universities and NGOs, based in the territories under consideration, and those scholastic-education institutions involved in improving the quality of didactics and pupil success.

The cooperation and research plan is structured in various phases, considered essential in integrating the education

¹C. Coggi compiled par. 1, 2, 2.1., 2.2., 2.3 ; P. Ricchiardi compiled par. 2.4., 2.5., 2.6., 2.7, 3.

proposals in the local culture, in order to increase their persistence and hence their “sustainability”, and encourage the acquisition of skills and maturity in global citizenship behaviour in the various protagonists involved.

1. Identification of context requirements

The model, inspired by an action-research approach, involves an initial needs analysis phase performed in the context in which the intervention is required. The difficulties are first conceptualized, with exploration of the international literature, in order to identify their etiological factors and to focus possible interventions. The analysis of problems is also implemented using direct methods, including interviews with privileged witnesses and the adoption of in-field observation techniques (diagnostic tests, questionnaires and discussions with local teachers and managers...). University students are often involved in carrying out such observations in loco, in systematically gathering documentation and in transmitting it to the research group.

We set out below some significant elements taken from input diagnoses, executed in two contexts in which we carried out cooperation projects: Minas Gerais (Brazil) and Santa Marta (El Salvador). In the first case (example 1) the observations were carried out by university students and by local teachers with the collaboration of an NGO.

Example 1 - Minas Gerais - Brazil – Identification of learning difficulties in children

The following is a summary table of the main problems observed in linguistic and mathematic contexts at Teofilo Otoni in infant and primary schools, obtained via the distribution of questionnaires to teachers.

Tab. 1 – Difficulties identified by teachers

<u>Language difficulties</u>	<u>School level</u>	<u>Mathematics difficulties</u>	<u>School level</u>
Colour recognition. Lateralization problems. Spatial perception problems.	<u>4-5 years</u>	Association of numbers and quantities.	Infant sch. (4-5 year olds) Primary sch. (all classes)
Oral comprehension of instructions. Distinction between lower and upper cases.	Primary sch. (2nd class)	Problems in graphically distinguishing one number from another.	Infant sch. (4-5 year olds) Primary sch. (all classes)
Letter recognition.	Primary sch. (2nd, 3rd classes)	Recognition of numbers up to 10.	Primary sch. (2nd, 3rd classes)
Syllable recognition. Autonomous writing of one's name.	Primary sch. (2nd, 3rd, 4th classes)	Recognition of numbers beyond 15.	Primary sch. (3rd, 4th, 5 th classes)
Separation between various words. Autonomous writing of simple words.	All classes	Execution of simple additions and subtractions up to 15.	Primary sch. (3rd, 4th, 5 th classes)

The survey carried out with teachers highlights the serious deficiencies of pupils in terms of readiness prerequisites and basic skills relative to reading and writing. To extend the analysis individual tests were also administered, relative to infant schools, together with structured language, mathematics and cognitive processes tests in the primary schools. The results were discussed with teachers to motivate them and involve them in recovery activities. Below we provide a graphic that sets out, in the form of a cognitive abilities profile, the results of a sample of children aged 5 at Teofilo Otoni. This profile was compared with that of Italian children in order to more clearly highlight the specific difficulties experienced by the Brazilian group. The same indicates systematic delayed development in the Teofilo Otoni children in disadvantaged communities in almost all cognitive abilities when compared with the standards for their Italian peers experiencing similar poverty and migration contexts (fig. 1).

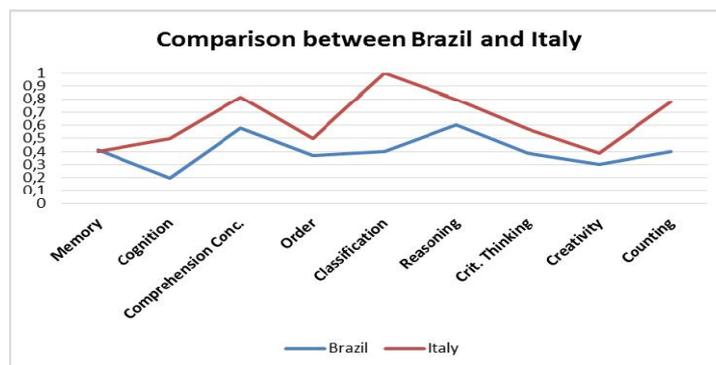


Fig. 1 – Comparison between Brazil and Italy

In the following example (e.g. 2) the observations, carried out at Santa Marta in El Salvador, were the work of NGO professionals (psychologists). The data has been further explored thanks to the systematic observations of an Italian university student.

Example 2 - Santa Marta – Observation carried out with the collaboration of an NGO (Psychologists)

We set out in descriptive form some results of an analysis similar to the previous one, carried out relative to children in primary school at Santa Marta in El Salvador. In this context, scholastic delay can be attributed mainly to the effects on the second generation of the civil war (1981-1992), which generated significant traumas in adults (teachers and parents) and indirectly in the children. Given the difficulties experienced by teachers in getting involved, the first analysis, which we report, was carried out directly on pupils in a primary school, via the administration of entrance tests regarding reading-writing skills, mathematics and cognitive processes. The sample comprises two 4th year classes, relative to which a realignment intervention was requested.

Among the main results, it can be seen that 20.97% of the children in the two classes were illiterate; 33.87% can read a few words, but do not know how to write. In mathematics, on average, the students answer less than a quarter of the test questions, which involve the solution of two simple problems and the performance of calculations, with four operations, for the most part with one or two figures. Success in logic questions is on average greater when the questions are cultural free: in this case, on average, pupils correctly answer 59% of the items. This indicates that difficulties are largely due to socio-cultural deprivation. In this regard it is significant that it is not possible to forecast the cognitive level of the pupils relative to their success in language ($r=0.19$), while there is a significant correlation between the results of questions regarding cognitive processes and results in mathematics ($r=0.57$ with $p<0.01$). The results in reading and writing therefore seem to underestimate the cognitive potentiality of the children, who exhibit serious difficulties in their cognitive processes in only 3% of cases, but considerable delays in their reading and writing processes.

2. Planning interventions relative to specific contexts

Based on the needs emerged in the initial analysis, education interventions were elaborated to reinforce deficient abilities and the motivational resources of pupils with more difficulty. The first interventions in this line were elaborated by us and introduced in Brazil, with the involvement of UNEB (University of Bahia). The first pilot experiments for the method were realised by a Brazilian psychologist-pedagogue, in a school constructed and supported by Italo-Brazilian cooperation. The project was named Phoenix, referring to the mythological bird that recreates itself from its own ashes, symbolizing the hope that all children can enjoy success in their lives. The logo for the project (fig. 2), which formed the basis of a collective identity, was designed and elaborated by a Brazilian UNEB Design student, born in a shantytown, and selected from among various competitors by the international research group. The symbol embodies the essence of the project and the type of cooperation involved, integrating the colours of the Italian flag with those of the Brazilian flag.



Fig. 2 – Phoenix Logo

The success of the method in Salvador de Bahia led to the extension and adaptation of the same to other Brazilian contexts (Minas Gerais and Pernambuco) and to disadvantaged Italian environments. Experimentation in Italy allowed the method to grow and develop further, given the opportunity for continually monitoring the experiment and the possibility of differentiating between infant, primary and first year secondary schools. Parallel to these developments in the project were carried forward in French, the appropriate language for contexts like Rwanda, Madagascar and Haiti, together with an experiment in Spanish, which was launched in El Salvador.

The programme, precisely because it was the fruit of the efforts of workers from various countries, stands as a transcultural didactic model, which is effective relative to common risk factors in very different contexts, with appropriate adaptations. Training in the various countries focuses on the main objectives of the project i.e. the stimulation of specific cognitive and motivational processes, and general theoretical references. The materials relative to which the action is applicable, and the privileged ludic forms are, on the other hand, the subject of re-elaboration in the various cultures, carried out by Italian researchers in partnership with local experts, teachers and educators. In each country, referents are identified who provide the required indications for rethinking the activities and the modalities for realising the project, in forms that are appropriate for the context. Relative to infant schools, where the approach is entirely ludic, the symbolic game is the one that requires the most transformations, since play objects, narrative traditions and the social roles that have to be learned as well as the known contexts are different in different countries. In addition, space and the importance attributed to symbolic play seem to be remarkably deficient in some cultures, with long-term effects on creativity and the capacity for abstraction in children. It is therefore necessary to regulate their introduction, in line with the features of each context.

In the same way, given the frequent experiential poverty of children in those contexts in which the project is implemented, interventions are usually planned such that they gradually integrate pupil knowledge and skills, in order to progressively satisfy the requirements of a globalized world and to stimulate those cognitive processes that appear to be most compromised. This approach also comprises the decision to use didactic software, especially in training aimed at the primary school. Interaction with computers, while introducing some difficulties in experimentation (e.g. problematic use of networks, hardware that is often obsolete...), is an important condition in reducing the *digital divide* and in opening up new possibilities for access to the international culture and communication.

In general, therefore, in re-adapting education interventions it is vital to take into account, on the one hand, features in the local didactic tradition (importance attached to writing rather than speaking, memorization rather than critical and creative activities), and on the other, the need for a more complete development and appropriate reading and writing levels. It is therefore not simply a question of translating the activities but of elaborating new materials relative to cultural contents, programmes and educational habits specific to the context, while at the same time encouraging the complete development of children.

3. Involvement and training of university students

Involving Italian university students in the cooperation interventions described above comprises, in addition to an adequate knowledge of the host country language (particularly important when it is necessary to take part in teaching interventions), participation in training. This consists in an articulated course, since it involves above all a workshop (20-30 hours), with a theoretical section, relative to risk factors and the scholastic problems of disadvantaged children in countries in the southern hemisphere. The academic activities therefore involve an analysis of the survey instruments to be used in carrying out the diagnoses and a presentation of the most effective interventions in order to encourage the cognitive and motivational reinforcement of the addressees. These are followed by simulation activities in the lecture hall to encourage the acquisition of didactic-operational skills.

The training ends with an apprenticeship phase in Italy, in which students are asked to implement the project in infant and primary schools, for at least 45 hours, to acquire familiarity with the method. University students are then involved in adapting the materials relative to the foreign country where the experimentation will be carried out. Finally, the students are provided with the materials that have been elaborated together with innovative aids which can then be presented to the local teachers.

4. Teachers training in cooperating countries

To stabilize innovation abroad systematic training is also realised relative to teachers in the cooperating countries.

The training interventions focus on the theoretic outlines, didactic strategies and organisation and verification modalities as set out in the Phoenix Project. This is a training-research approach in which addressees progressively master those principles at the heart of the method and the criteria adopted to structure the intervention. The teachers are therefore involved in adapting the programme and in the production of new aids, in line with the said action-research approach. Teachers are subsequently called upon to re-elaborate the theoretical stimuli they have received; to observe an expert in the field who activates the innovative practices; to then introduce them in pilot form in their appropriate context; to collaborate in a subsequent collective revision and to evaluate the courses realised relative to their systematic introduction. One of the greatest priorities at the core of the training model for teaching personnel concerns the actual effects of the innovations and the updating of education practice. Involvement in the research has proved to be an effective response to this need. Indeed by activating research courses which are integrated with training, teachers are stimulated to appropriate what they have learned and to become more reflective and metacognitive, and hence to change their practices through intelligent innovation.

5. Implementation of interventions and experiments

Among the teachers trained in the cooperating countries, some referents are identified that are interested in implementing the innovative intervention. The same are involved in pilot experiments and in the documentation and verification of results, with monitoring by the Torino University research group.

The aim of the experiments is therefore to encourage progressive acquisition of the method by local psychological-pedagogical operators, with periodic meetings, if possible, and with the support of a local coordinator.

6. Involvement of local universities

Collaboration with university professors in the universities of the countries involved in the cooperation is useful in supporting the training seminars, to improve the actions involved and to **create a network able to provide continuity for the interventions**. Local universities can also involve their students (future teachers or educators) in the training, to enable them to use the method and to encourage a capillary introduction of new didactic strategies.

7. Evaluation

Evaluation at the start or during the project can pursue decision-making aims, focusing on the emergence of empirical criteria, which justify the choice of launching or sustaining the programme in a given context. In this regard the entity of the emerging requirements, the authenticity of the motivations for innovating the contexts in question, the stability of the education figures involved, the possibility of monitoring *in itinere*, the quality of NGO involvement and the possibility of registering the results obtained can all prove to be highly significant. Evaluation also seeks to encourage improvement, since it is focused on perfecting the actions and transferring them to other contexts.

A complex process is therefore initiated in this regard, one that includes the university but also operators in the countries involved. The following phases can be distinguished.

- 1) *A priori evaluation*: there is a priori verification of the level of effective knowledge of requirements on the part of the addressees and the coherence of any solutions designed with the latter.
- 2) *Initial evaluation*: a formal evaluation of the project is implemented, centring on the organisation, programming and materials. The adequacy of the interventions is evaluated (realistic, verifiable objectives...) together with timescale (correspondence between the scholastic calendar and the availability of volunteers...) and context resources (teacher skills, willingness to be involved, presence of adequate informatics instrumentation, Internet...).
- 3) *Evaluation in itinere*: this is aimed at monitoring the actions. It involves interactions of the research group with NGOs and local operators in gathering documentation *in itinere* on organisational aspects, actions effectively undertaken, difficulties encountered and solutions adopted... The feedback permits fine-tuning *in itinere* of the interventions: transmission of new materials, teacher-training actions. As regards these aspects university student availability proved to be extremely useful.
- 4) *Evaluation of results*. This focuses on the overall estimate of the efficacy of the project relative to the objectives which one seeks to achieve and the changes caused by the implemented actions.

Evaluation of the efficacy of Phoenix interventions realised in cooperating countries is carried out using a multiplicity of instruments and involves various actors in the project (the pupils, addressees of the method, local teachers who have received training and have taken part in the experimentation, university students, who have realised the didactic activities abroad, entities or actors in the territory in question, universities and NGOs).

A) Evaluation of pupil results

Experimental verification of the results of the Phoenix programme is carried out using an experiment plan with two

equivalent groups, one experimental and another as control, in order to compare the children’s progress with traditional didactics and that of pupils who have been exposed to innovative didactics. The plan makes it possible, as is well known, to keep the maturation effect under control. The results of applying the method with children in the cooperating countries are measured by administering structured tests (translated and revised for the local context). We will report, by way of example, the presentation of some results obtained in Minas Gerais and in the state of Bahia, using standardized instruments, aimed at the pupils. The results are illustrated to teachers on a local level, and, when possible, discussed publically - including with citizens - and disseminated to an international scientific audience.

Example 1 – Results of 5 year old children (Minas Gerais)

At the end of the Phoenix experimentation realised at Teofilo Otoni with 5-year-old children in the infant school, the following results were obtained using a readiness test, administered before and after the intervention.

The actions focusing on cognitive and motivational reinforcement realised with the experimental group, by means of a sequence of targeted ludic proposals, made it possible to progressively harmonise the cognitive profile of the sample subjects, a profile which was initially significantly deficient (as indicated in fig. 3). The initial lowest levels concern the creation of relationships, verbal memory, knowledge and creativity. At the end of the course, progress is noted in almost all areas, with significant gains in sequencing and in critical development.

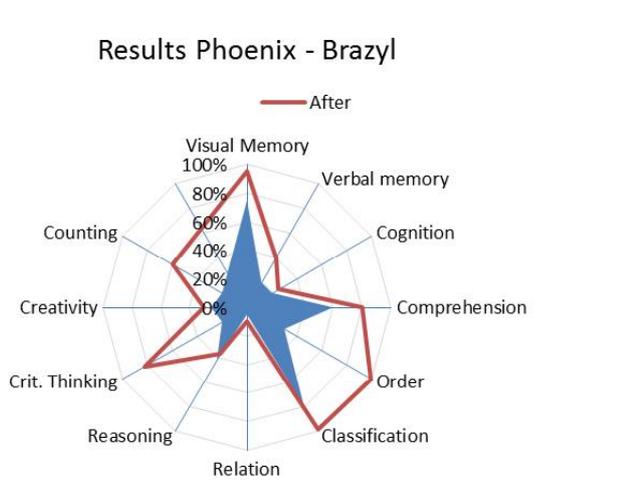


Fig. 3 – Comparison of test results before and after the Phoenix project (5 year olds) – Minas Gerais

Example 1 – Primary school children results in three years of project work (Bahia)

The following is an example of the results for the primary school. They constitute the results of three years of work in Salvador de Bahia and make it possible to appreciate the constant improvements achieved in the skills of experimental group subjects, through the administration of structured tests. In Brazil too, as in other contexts, mathematics is the disciplinary sector exhibiting the greatest gains, followed by cognitive development and language progress, in this case Portuguese (fig. 4). Linguistic skills therefore appear to be the most difficult to improve.

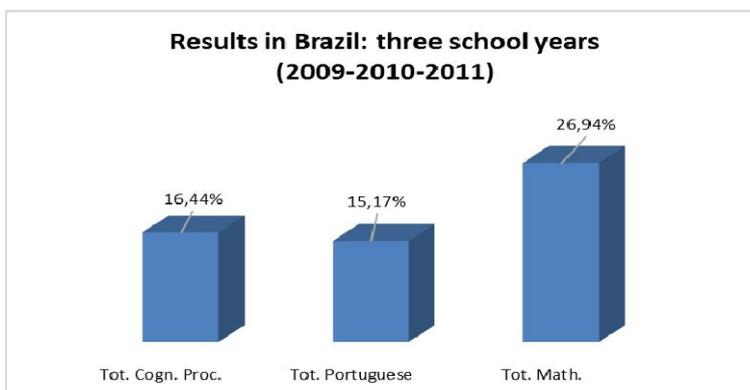


Fig. 4 – Results in Brazil

The results achieved by pupils are evaluated indirectly by noting the perceptions of teachers relative to the efficacy of the project.

Example – Teacher perceptions

We set out the *improvements* that teachers have noted in their pupils following participation in the Phoenix project.

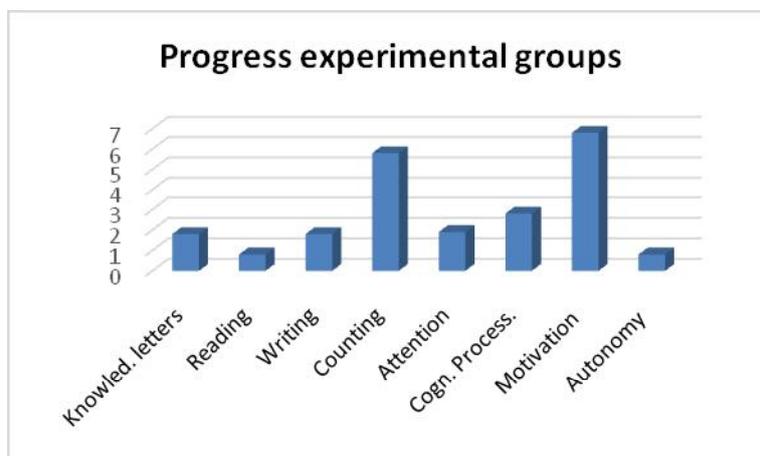


Fig. 5 – Improvements perceived by teachers

B) Method evaluation

The didactic quality of the proposed programmes is also evaluated indirectly through the perceptions of teachers regarding the adequacy of materials and the proposed intervention.

Example – Evaluation of the method by teachers

We set out below, in a schematic manner, the main advantages of the Phoenix methodology as emerging from the questionnaires handed out to teachers involved in training and experimentation at Teofilo Otoni:

- Attractive easy-to-use games
- Teaching that is flexible and adapted to a wide variety of needs
- Possibility of using computers to acquire basic familiarity with informatics
- Stimulation of curiosity and interest in knowledge
- Development of learning ability.

C) Evaluation of effects on teachers

Training interventions focusing on teachers are accompanied by monitoring aimed at evaluating the professional growth of the same. We set out, by way of example, the training results relative to 40 education professionals in Minas Gerais.

Example – Training results**a) Increase in knowledge, change of attitudes and acquisition of specific skills**

Using semi-structured questionnaires (administered in input and in output of the training course), the following changes were noted. According to primary school teachers, the training has made it possible to **structure and share** in a group context **innovative didactic practices** (84.21%) and to plan interventions in various schools. The activities contributed to *reducing the digital divide*, familiarising teachers with the use of technologies. Teachers also confirm that they have acquired **more in-depth knowledge of the difficulties** experienced by their pupils. Relative to an initially more superficial description of the said difficulties, at the end of the course one notes a greater analytic and diagnostic ability. At the end of the training we also noted that *teachers had learned to carefully document cases exhibiting articulated anamnesis and in-depth input diagnosis, with attention devoted to specific and deficient cognitive processes.*

As regards *infant school* teachers at the end of the course, the same confirm that they have learned to finalise ludic activities relative to the cognitive difficulties of children experiencing most difficulty. More specifically, teachers confirm that they have learned to work in a manner that counters the difficulties of children as regards concentration and attention levels, as well as those of reasoning, which are particularly common among their pupils.

b) Appreciation of the training proposal

Relative to levels of enjoyment regarding the training proposal, evaluated on a 4 level scale, one notes appreciation indices that are very close to maximum values (between 3.5 and 3.8). The highest level was achieved in meetings that involved workshop experimentations and the general presentation of the project, followed by illustration of software for primary school teachers and concrete games for those teaching in infant schools.

D) Evaluation of effects on university students

The involvement of university students in the cooperation projects was aimed - in addition to contributing to support for the rights of children and the development of research - at increasing their skills as future education professionals. Cooperation experience can also encourage greater awareness of global citizenship values and international solidarity.

Student empowerment therefore involves cognitive, affective and behavioural aspects. The *cognitive aspects* include creativity in the didactic sector, critical ability in selecting adequate materials, specificity and ability to identify with others in order to establish a deeper level of dialogue with another culture. The *affective aspects*, on the other hand, included the development of a realistic level of esteem for oneself, as a subject able to realise the values in which one believes; a good level of empathy, required in order to be able to perceive the feelings and difficulties experienced by others; a good level of control over emotions, both positive and negative. Some of the above results can be observed using self-evaluation instruments.

E) Evaluation of effects on the territory

The effects on the territory are evaluated through data relative to the diffusion of the experimentation. Specifically the following indicators are assessed: the number of teachers and children involved, the nature of the involvement of adults (production of materials, documentation, innovation...), the number of entities implicated and the activation modalities (inspector reports, manager videos, interviews with political figures and budgeting of local resources to support the project).

We also carried out an evaluation of the effects on current didactics: in some contexts, teachers state that they have moved from transmissible didactics to heuristic-inductive didactics, with a ludic learning approach that makes learning more motivating and meaningful.

CONCLUSIONS: ADVANTAGES AND CRITICAL FEATURES

The cooperation model adopted displays numerous advantages, as can be seen from the examples referred. At the same time, it requires a number of conditions if it is to achieve optimal implementation. Indeed, it assumes a stable presence in the cooperation territory of those NGOs that collaborate and the presence in the territory of a motivated and competent referent who maintains contact between the research group and the experimentation group. The model assumes also a willingness to get actively involved on the part of a variety of actors, local tenacity, including when project launch financing ends, and a willingness on the part of all actors to continue to commit personal time and energy to actions for the collective good. The latter aspect is complicated in those contexts where teachers often have “two job” commitments or are still taking part in university training.

As regards Italian university students, cooperation interventions of an educational-didactic character require good skills in terms of language ability and a willingness to commit oneself, respecting local needs and requirements. Such criteria are not always easy to satisfy.