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**Cooperative Learning in Italian schools: learning  
and democracy**

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# Cooperative Learning in Italian schools: learning and democracy

Giorgio Chiari

## INTRODUCTION

### 1. Learning and democracy

In our schools there is much talk – and much teaching – about democracy, but democracy is rarely practised efficiently and consciously in the everyday life of the classroom.

Cooperative Learning is a form of democratic classroom management which gives detailed definition to Lewin's '*Democratic*' teaching method, enriching it with the findings of almost half a century of educational research around the world.

The principal goal of the training delivered to teachers and trainers by our group<sup>1</sup> is to introduce them to the theory underpinning the Cooperative Learning, and to make them aware, as both teachers and citizens, of the value of cooperation understood in the strictly scientific sense as a theoretically and empirically grounded method able to enhance (a) the levels of social competence and personal and moral responsibility of pupils (and also of teachers), and (b) their cognitive and metacognitive skills, given the marked potential of the higher-order thought subsumed by cooperative methodology, peer exchange, peer tutoring, reciprocal thinking, and open-ended questioning, where there is an evident parallel between the affective and cognitive structures of learning and of democracy.

Essentially centred on heterogeneous and constructive work groups, a positive interdependence of roles, and equal chances of success for everyone, Cooperative Learning seeks to create a non-competitive educational setting which is highly responsible and collaborative and generates higher-order cognitive processes.

Contact with more able pupils in cooperative situation makes the use of higher-order reasoning strategies more frequent, produces more profound and critical strategies of analysis, more creative responses and more elaborate explanations. The cognitive processes induced by having to talk, discuss and explain study materials – often in different ways – improves memory retention and develops higher-order thinking strategies (D. Johnson & R. Johnson, 1987).

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<sup>1</sup>*Training and Research at the University of Trento.*

The group set up in 1988 at the University of Trento has held numerous introductory and more advanced seminars on the Cooperative Learning method, inviting leading experts on the method as speakers (in sequence: J. Freiberg, R. Slavin, Y. Sharan, E. Cohen, Edith, David and Roger Johnson). In the same period we have attended seminars at the Cooperative Learning Centers of Baltimore: Md-USA (Crespar at the Johns Hopkins University), Loughborough (UK), and Minneapolis (Mn).

The reference groups for the training programme, to which the seminar speakers also belong, are the following:  
CRESPAR of the Johns Hopkins University of Baltimore (Md) (Robert Slavin)  
COLLEGE OF EDUCATION of the University of Houston (Tx) (Jerome Freiberg)  
UNIVERSITY OF TEL AVIV (Yael Sharan)  
UNIVERSITA' PONTIFICIA SALESIANA of Rome (Mario Comoglio)  
UNIVERSITY OF ROME, Faculty of Psychology (Clotilde Pontecorvo)  
UNIVERSITY OF TRENTO, Department of Sociology and Social Research (Giorgio Chiari)  
INECOOP (Istituto Nazionale per l'Educazione Cooperativa) of Rome (P. De Marco, F. Scalvini)  
ISSAN (Istituto Studi e Sviluppo Aziende Non profit) University of Trento, Faculty of Economics (Carlo Borzaga)  
COOPERATIVE-UNION LIMITED. COOPERATIVE COLLEGE of Loughborough, Leicestershire (Alan Wilkins, Sue Jones, Neil Lane)

Still strongly persistent in our school system is a general tendency for teachers to give prioritize verbal and frontal lessons, with the teacher as the central focus, telling more than asking, without enhancing the students' ability to develop self-learning autonomy, responsibility and control in application of data in real social and work settings.

During the last thirty years of empirical educational research, emphasis has been placed on the sense of school identity, on the great importance of the relational climate as the affective-emotional prerequisite for learning motivation, and for learning itself in more strictly cognitive terms. The endeavour to renew the school and the education system, stemming from the urgent need to counter the progressive decline in educational standards, centres on a shift of emphasis from teaching to learning.

Cooperative learning is the concrete expression of a change of paradigm whereby the student is the protagonist of his/her learning process and becomes instrumental to the affective, emotional, cognitive and relational improvement of him/herself and others through mutual exchange practices. The competitive learning typical of traditional lessons is replaced by cooperative learning, where the success of the individual student is related to the quality of his/her interaction with the others. Thus created are positive social attitudes towards diversity, a sense of mutual responsibility, and cooperation as way to success.

Of the various Cooperative Learning models, considered here are those that reflect Lewin's '*Democratic*' (Democratic + Directive) approach, as opposed to '*Laissez-faire*' models and ones based on 'Contact Theory' (Allport 1954) and 'Person-centered Learning' (Rogers 1968). 'Twinning technology' (Hubbard 1979) is based on these principles: students studying the same subject are paired to check or help each other on a mutual basis as 'coach and student', thus eliminating some of the critical aspects of Cooperative learning like balance in information exchange and the correct acknowledgement and evaluation of individual efforts. More generally, motivational, social and cognitive perspectives form the theoretical framework for Cooperative Learning (D. Johnson e R. Johnson, R. Slavin, 1996).

### *1.1. The need for a new learning model*

Our educational and training system, on one hand have to reckon with the phenomenon of mass education, and on the other with the ever more urgent demands for key *Qualifications, Core/Key Skills and High Competencies* on the workplace.

There is an urgent call to answer the demands posed by a Global Economy that causes us to lose out on our vision of a Globalized Educational Process, on theoretical grounds, that would identify and set the initial steps towards the achievement of those basic skills (social, cognitive, and communicative) as it is already the case for most national systems in other European and American countries.

#### *From cognitive to social skills.*

Empirical research in Europe and USA evidence that the main difficulties encountered by youngsters while entering the job-world are not due to their lack of disciplinary knowledge but to their lack of *Social Skills*, their inability to self-position accordingly and orientating within the working environment. Main theoretical referrals from such research-work are the cognitive sciences with particular regards to Constructivism and *Contest -Situated Learning*.

#### *Mass universities, motivational and structural deficiencies.*

The Italian university system tends to pose itself as a mass-university one; it is characterized by the problems (several) and chances/perspectives (very few) being offered to students coming

from low -or disadvantaged- social environments. To begin with, one must cite the limitations represented by the lack of structures to be used by an ever increasing number of students.

The recent educational reform that aims at accelerating the cycle of university studies («3 + 2 years») calls for new synergies from the educational system in order to keep up with the same or proper training standards over a shorter time-span.

It seems to be an urgent need to come up with teaching and organizational strategies that would bring about an increased level of student motivation, creating a drive towards research and group-work synergies within the present structures thereby improving the relationship with the job-world or real workplace.

### *1.2. Cooperation as essential requirement for social and cognitive skills towards the evolution of the complex society*

We are quickly moving towards complex societies in which individual work, even if brilliant, is no longer sufficient in a context featuring the increasing need for the positive interdependence of roles and of persons in the Team and of its more immediate products (Skills): participation, interdependence, communication, autonomy, responsibility, social skills, acceptance of the other, of the difference in others.

The new democracies and the new economic, managerial and organizational systems require more cooperation and less competition, through a new system of values and of regulations concerning active, positive, participatory solidarity rather than the passive, permissive, sometimes guaranteed kind. Democratic teaching/learning methods, such as those called Consistency Management and Collaborative Discipline, Cooperative Learning, are aimed at changing this situation through the positive influence of the group (S.Jones, 1995; J. Freiberg, 1996; G. Chiari, 1997a).

The opportunity offered by technology to constantly obtain mutual comparison, help and control in achieving a common purpose in understanding creates the ideal conditions in which to enhance responsibility level and acquire cooperative behavioural attitudes, and a willingness to share efforts with others. This is a key factor in the quality of social and work life.

### *1.3. New training models: Cooperative Learning, Situational Learning, Cooperative and Collaborative Working*

#### *Limitations of the traditional classroom method.*

One of the first myths that still holds strong in our school system (most of our teachers teach in a prevailing or exclusive manner) is that of the effectiveness of traditional classroom lessons. It is a myth that scientific research on education has clearly disproved: the prolonged traditional lesson is not only mostly boring and tiring but also tends to create passivity and dependence in the students. Suffice it to observe the students' posture during the lesson: they are passive, completely dependent from the teacher, from his or her words, preset to 'take', to receive information without any chance of exchange, of intervention. The prolonged traditional lesson is typical of the authoritative teaching method in which it is the teacher who decides everything: from the subject to be treated to the words to say, to the sequence, rhythm and tone of the exposition.

Just like a hierarchical and authoritative work climate creates scarce participation, weak managerial efficiency and considerable incompetence among workers, the authoritative approach in the school tends per se to block learning and creative and critical skills, providing a superficial, reactive and passive type of learning and scarce capability for in-depth comprehension.

In contemporary societies, the authoritarian, hierarchical, negative way of thinking is progressively giving way to positive thinking processes in a democratic and cooperative environment.

#### *Ineffectiveness of homogeneous groups.*

Not all teachers, trainers, students and parents know that the homogeneous group rarely works and that, on the other hand, heterogeneous groups, and cooperative heterogeneous groups especially, are those that produce the best learning results, not only affectively and socially, but also and especially cognitively speaking (R. Slavin, 1996; G. Chiari, 1995, 1997b).

At the beginning of the Seventies, the studies conducted on the British school system clearly demonstrated how a generalized application of homogeneous groups (*streaming*) in the British school system, starting from the early Sixties, had not produced the expected results and had actually proved to be catastrophic (R. Hargreaves, 1972). The *ability groups* tend to trigger all of the vicious mechanisms of the 'self-fulfilling prophecy', strongly conditioning the expectations of all of the subjects involved in the educational process. In such groups, students have a different access to the curricula, to the resources and to the educational opportunities, in the sense that the lower level groups that would require more and closer attention, instead are quantitatively and qualitatively followed less than the others. In level groups, even the ethnical and social differences are aggregated due to the high correlation existing between these and the cultural capital (Collins, 1979; Cazden-Mehan, 1989).

Vice versa, heterogeneous groups and the cooperative learning processes founded on them produce the best conditions for production and cognitive and social exchange/conflict (Piaget, 1926, Vygotskij, 1978, Kuhn, 1972. Deutch, 1949, Johnson & R. Johnson, 1989, Comoglio, 1996, Chiari, 1997).

#### *Social context and development of learning.*

The importance of the social context in the development of learning dates back to the beginning of this century. The studies conducted by Dewey and the experience gained in 'social learning environments' date back to 1916; the cognitive development theories by Piaget (the cognitive conflict) and by Vygotskij (the areas of proximal development) were formulated at the beginning of the Twenties; in the Thirties were conducted the studies on the "Lewin field theory and the unsurpassed research studies on group climates and teaching styles; to the Fifties belong the first contributions of authors such as Rogers (learning centered around the person), Bion (the relationship between affective and cognitive, between emotions and learning), Bloom (taxonomy of educational objectives); finally, to the Sixties belong the first studies by Bruner, Rosenthal and Jacobson (the self-fulfilling prophecy) and the first experiences in Cooperative Learning by Johnson & Johnson in US schools, based on the previous theories by M. Deutsch; not to mention the contributions of sociologists and sociolinguists who appear in those years, of Bernstein (linguistic codes theory), Bourdieu (l'inegalité des chances), Coleman (adolescent society and peer rules; equality of opportunities), Mehan (the *discourse analysis* method; the competent student, the social construction of intelligence), and of those of the other educational ethnomethodologists (Becker, Hargreaves, Sacks e Shegloff).

The most recent studies on '*Peer Tutoring*' and on '*Reciprocal Thinking*' have highlighted the superiority of group work and discussion compared to individual work. More precisely, research on '*Reciprocal thinking*' has shown that even College students involved in group-structured cooperative tasks learned the technical material and procedures much more easily than those who worked alone. In particular, in these groups, the students in turn played the role of '*recaller*' and of '*listener*'. The former summarized the information and the latter corrected any mistakes, filled in the omitted material, thought up ways of memorizing the main ideas. Both learned more than the students who worked alone, although it was the '*recaller*' who learned more, similarly to the results obtained in research on '*peer tutoring*'. In general, the studies all point to the superiority of the

cooperative group students who provided the others with processed explanations. In these studies, the students who received processed explanations learnt more than those who worked alone, but not as much as those who provided the explanations (N. Webb, 1985). Similar results come from research studies on '*mutual feedback*' and on '*peer-communication*' (R. Slavin, 1996).

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The pupils can pursue the educational objectives in three ways: in a competitive manner, in an individualistic manner, in a cooperative manner.

In a ***competitive environment***, the subjects work one against the other and continuously compare their results. Some fail in such an environment, resulting in loss of self-esteem and sometimes with negative feelings against higher achieving fellow students or colleagues.

In an ***individualistic environment***, the subjects work in an independent manner, with their own rhythms, to obtain the objectives established by the trainer or teacher, who then assesses the attainment of the objectives on the part of each one.

In a ***cooperative environment***, heterogeneous groups of subjects work together to achieve a goal. Each one is responsible for his or her own learning and for his or her assistance to others. The energies of each individual are used and success can be obtained by each group member. Good social skills are required for good work relations.

*"Within cooperative learning groups, there tends to be considerable peer regulation, feedback, support and encouragement of learning. Such peer academic support is unavailable in competitive and individualistic learning situations" (Johnson and Johnson, 1987).*

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#### *1.4. Cooperative Learning*

Cooperative Learning also includes specific strategies aimed at helping students to work together in groups in order to achieve affective and cognitive objectives.

Instead of competing one against the other, the students, organized into small heterogeneous groups, share the responsibility of learning. As a result, they learn one from the other and also learn to appreciate their differences and to resort to their own individual differences in order to reach the goals of the group. Research shows that group goals and individual evaluations are the two essential conditions for 'Cooperative Learning'.

The work group allows to learn social skills as well as school material. In particular, the group allows to develop leadership and communication skills. Moreover, cooperative learning tends to improve cognitive skills and positive group relations, takes into account the higher achievers and reinforces self-esteem. Cooperative learning encourages the acceptance of differences between students, who learn to cooperate instead of competing, and strongly favors individual initiative.

Cooperative learning is a teaching structure in which a group of subjects strive to achieve scholastic or professional objectives through cooperative activities. The students work together in small groups, pool their efforts and reciprocally assist each other in reaching the goal. This method encourages in any environment support and solidarity relations, good communication skills and higher quality reasoning skills.

*Competitive classroom context:*

“In the traditional classroom the teacher il in front of the class; he or she asks the students questions. Following each question a number of hands go up. Some students are anxiously stretching their hands in the hopes of being called. Others, of course, do not have their hands up and try not to have their eyes meet those of the teacher in hopes they will not be called. The teacher calls on Juan. Peter, who sits next to Juan, knows the right answer. As Juan begins to hesitate, Peter becomes glad and stretches his hand higher. Peter knows that if Juan misses, the teacher may call on him. In fact, the only way Peter can obtain a reward in this situation is if Juan fails. It is only natural in this competitive class structure for students to begin to take pleasure in the failures of others: their own rewards are contingent on the failures of others. Traditional classrooms provide a negative interdependence among students in which each failure of one student is associated with a success for another”.

*Cooperative classroom context:*

“In contrast to the peer relations in a traditional classroom is the positive interdependence among team members in cooperative classrooms. The success of any team member leads to increased rewards (grades, recognition, pride) for the others. Students in this structure naturally begin hoping for their teammates to do well. They begin to adopt a prosocial orientation toward their teammates, which probably generalizes to others as well”.

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The objectives of Cooperative Learning are the following:

1. Promote academic cooperation between students.
2. Encourage positive group relations.
3. Develop students' self-esteem.
4. Improve cognitive skills.

Research on models of Cooperative Learning, and in general on the family of social teaching models, has verified the validity of the positive effects of interactive learning on academic, personal and social behavior. Today, the main research groups on Cooperative Learning have studied:

a. if and how the skills and structures of cooperative rewards positively affect cognitive learning results (*Lower and Higher-order Achievement Skills*);

b. if and how the social learning results – group cohesion, cooperative behavior and intergroup relations – are enhanced through the Cooperative Learning procedures (*Social Skills*).

In general, research has indicated that cooperative groups tend to generate the energy that produces an improvement in learning: greater improvements in experimental cooperative groups compared to control groups who had received intensive individual or group tutoring on the same topics; considerable improvements in promotion rates among borderline students (from 30 to 95%), improvements in their integrative behavior and drastic reduction in destructive behavior (G. Chiari, 1997b).

The widespread opinion among parents, but also among many teachers, that better achieving students in the traditional individualistic environments will not profit by cooperative environments ("*gifted students prefer to work alone*"), has been widely contradicted by the results of many research studies (D. Johnson & R. Johnson, 1987; R. Slavin, 1991; B. Joyce, 1991). To this regard, it should be noted how the contribution – and the individual accountability – of each student is an indispensable result in cooperative group work. Collaboration with others tends to valorize individuals. Good students are not per se less cooperative (G. Chiari, 1997).

*“It is true that gifted students provide quicker, more intuitive and correct answers to the problems, but they often are not truly aware of the strategies put in place to obtain the answers. The oral explanation of the material to be learned and the connection with other conceptual frames allows learning that is more effective than simple reading. the ‘silent’ student, as research has shown, is an understimulated student precisely because he or she is not involved in all of the cognitive processes required to achieve higher quality learning*

*Another important benefit from the participation of higher achievers in heterogeneous cooperative learning groups is the development of collaboration and friendship skills. While brilliant students in competitive environments sometimes are ostracized, in a cooperative environment they are seen as positive and desirable partners. The friendships formed in cooperative groups are often greatly influential on the psychological and scholastic variables of the individuals (confidence, self-esteem, psychological balance, positive attitude towards the area of curricular contents to be studied). Not to mention, finally, the other abilities that are learnt in cooperative groups, such as leadership, communication, decision-making, conflict management, all of which are very important social skills in the world of employment in which they will soon enter and, more in general, during their entire life.” (G. Chiari, 1997b).*

Cooperative Learning therefore seems the ideal method for creating higher quality cognitive structures, social skills, team and group spirit and democratic conscience.

The conditions required for effective cooperative group work, as research has clearly shown, consist in the organizational combination between cooperative group processes and individual responsibility.

In conclusion, Cooperative Learning seems capable of solving many of the great problems affecting our school systems:

- a. Recovery of problem students, scarcely motivated to study and with emotional, motivational, social and cognitive learning problems;
- b. Integration of maladjusted, different students (disabled, from different ethnical groups, etc.);
- c. Valorization of gifted students;
- d. Development of social skills, of public spirit, of respect for the other, of participation, of responsibility, of interdependence;
- e. Development of the democratic citizen.

#### *1.4.1. Some theoretical references of Cooperative Learning*

Cooperative Learning is a method for the democratic management of the class that defines in depth Lewin’s ‘Democratic’ teaching method. Essentially centered on heterogeneous and constructive work groups, on the effective positive interdependence of the roles, and on the equal opportunity for success for all, Cooperative Learning tends to create a non-competitive, highly responsible and collaborative educational context that produces higher quality cognitive processes.

There are many theoretical paradigms underlying Cooperative Learning procedures:

- i. first of all, the *Theory of experimentally-induced learning climates* (K. Lewin, 1939), corollary to K. Lewin’s field theory, according to whom the ‘democratic’ (*Democratic + Directive*) method is much better in terms of emotional and cognitive acquisitions.;
- ii. a second important theoretical element is in *Contact theory* (G. Allport, 1954) according to which positive intergroup relations are activated when in school students participate in cooperative and egalitarian interactions;
- iii. a third and crucial theoretical element of Cooperative Learning is represented by the *Person-centered Learning Theory* (C. Rogers, 1968);
- iv. as regards cognitive and metacognitive progress, the *Cognitive conflict theory* by J. Piaget (1926) and the *Theory of “proximal development areas”* by L. Vygotskij (1934), at the basis of

current developments in the interactive learning theory are the two fundamental columns supporting the Cooperative Learning model.

More in general, the main theoretical references for Cooperative Learning methods, essentially of an interdisciplinary nature, are centered around three main prospects: motivational, social and cognitive.

#### *Motivational theories.*

The motivational prospects on Cooperative Learning, according to the tradition of studies on changes in behavior, mainly converge on reward and objective models according to which the students work. They identify three different value structures: *cooperative*, in which the efforts put in reaching the objective by each student contribute to the achievement of the objectives also on the part of the others; *competitive*, in which every effort on the part of each student tends to reduce the achievement of the objectives of others; *individualistic*, where the achievement of own objectives does not affect the achievement of the objectives of others (Deutsch, 1949).

According to a strictly motivational prospect, cooperative structures create a situation in which the only way in which the group's members can reach their own personal goals is through the success of the group. The group takes on an instrumental importance, it becomes a means by which to achieve the individual learning objectives. This makes the group members tend to help each other, to encourage each other to put in their maximum effort, so as to achieve success as a group and therefore the personal success of each member. In other words, the rewards for the group based on the results of the group (or on the sum of individual results) create an interpersonal structure of rewards in which the group members give or receive social acknowledgement (such as prizes and encouragement) in response to the efforts related to the task taken on by their group partners (R. Slavin, 1983).

The criticism made by motivation theoreticians against the traditional organization of the classroom is that the competitive classification and the informal class reward system create a system of peer norms that opposes the academic norms (J. Coleman, 1961). Since in traditional classrooms the success of one student reduces and frustrates the chances of success of the others, students tend to create a series of norms according to which high scholastic achievements are typical of 'saps' and 'teacher's pets'.

These norms that are reductive of the quantity and value of the activities to be carried out are often familiar in industry too, where the 'rate buster' is despised by his fellow workers. Conversely, when the classroom climate is cooperative and students work together towards a common objective, the effort put in understanding and learning helps the success of the peers and as such are accepted and reinforced by all: the groups process norms that favor scholastic success. As reported in the studies conducted in the last decades (M. Deutsch, 1949, E. J. Thomas, 1957, D. Johnson R. Johnson, 1969), in a cooperative class, the student who gives his or her utmost, who attends classes regularly and who helps others to learn is rewarded and encouraged by his or her classmates, entirely the opposite of what happens in the typical situation of traditional classrooms (Hulten and DeVries, 1976; Slavin, 1978; Madden e Slavin, 1983). In a cooperative class, learning is an activity that brings out the students from the social hierarchy of peer groups. This causes a radical change in the social consequences of academic success brought about by the cooperative climate and context. J. Coleman (1961), in his classical study on *Adolescent Society*, had already indicated how the gifted students in US High Schools in which academic culture prevailed, precisely because they were better accepted in the school's leadership, studied more than the brilliant students of schools in which prevailed the subculture and values of athletic prowess or social success.

Clearly, cooperative values tend to create 'proacademic' norms among students and these norms have an extraordinary effect on their scholastic achievements.

### *Cognitive theories.*

Where motivational theories of Cooperative Learning focus on the fact that cooperative values radically change the motivations of students in academic work, the cognitive theories – evolutive and process-related – emphasize the positive effects produced by the fact of working together.

The main assumption of evolutive cognitive theories consists in the fact that interaction between students on cognitive objectives increases their hold on critical concepts (Vygotsky, 1978; Murray, 1982; Damon, 1984). The cooperative learning group and interaction with the ‘better peers’ plays a fundamental role in the light of the ‘proximal development area’ concept by Vygotsky, defined as the “distance between actual development level and potential development level of the student obtainable through *problem solving* activities performed under the guidance of an adult or in collaboration with more capable mates”. The contact with peers within a collaboration group allows participants to operate reciprocally within their own proximal development areas, obtaining in the group behaviors and results that are more advanced than those to be obtained in normal individual activities.

The importance of having peers operating in their respective, reciprocal ‘proximal development areas’ was demonstrated in 1972 by Kuhn. Similarly, Piaget (1926) discovered that social type of knowledge – such as language, values, rules, morals, the system of symbols (such as reading and mathematics) – can be learnt only by interaction with others. The studies by followers of Piaget’s theoretical approach, as regards the principle of conservation, that most children reach between the ages of 5 and 7, show that interaction between peers tends to accelerate their acquisition precisely via the contact between children of the same age and at different levels of acquisition of this principle (Mugny et Doise, 1978; Perret-Clermont, 1980; among Italian authors, one for all: F. Carugati, 1996). Based on all these studies, many Piaget supporters have asked for the introduction of cooperative activities in schools, based on the fact that the interaction among students on cognitive subjects per se induces higher learning levels. In their debate on content, they learn one from the other through the onset of cognitive conflicts, the exposition of inadequate reasonings, the surfacing of higher comprehension levels.

### *Cognitive- developmental theories.*

According to the cognitive processing theory, if the information must be retained in the memory and referred to already memorized information, the pupil must go through a kind of cognitive restructuring, or process, of the material (Wittrock, 1978). For example, the writing of a summary or table of a lesson helps more than just taking notes, since the summary of table-making require the reorganization of the material and the selection of the most important facts (Hidi and Anderson, 1986). One of the most effective methods of cognitive processing is the explanation of the material to another student. Thus, research on ‘*Peer Tutoring*’ has indicated advantages in the learning process of both the tutor and the tutored (Devin-Sheenan, Feldman, and Allen, 1976). More recently, research on ‘*Reciprocal thinking*’ has shown that even College students involved in group-structured cooperative tasks learnt the technical material and procedures much better than the students who work alone (Dansereau, 1988). In particular, in these groups the students alternately played the role of ‘*Recaller*’ and of ‘*Listener*’. The former summarized the information and the latter corrected any mistakes, filled in the omitted material, thought up ways of memorizing the main ideas. Both learned more than the students who worked alone, although it was the ‘*recaller*’ who learned more, similarly to the results obtained in research on ‘*peer tutoring*’. In general, the studies all point to the superiority of the cooperative group students who provided the others with processed explanations. In these studies, the students who received processed explanations learnt more than those who worked alone, but not as much as those who provided the explanations (N. Webb, 1985). Similar results come from research studies on ‘*mutual feedback*’ and on ‘*peer-communication*’ (Slavin, 1996, Chiari, 1997a).

## 2. Contestualizing Learning and Training

### 2.1. *Situated Learning and traditional training: cognitive models and social models*

Education and training are similarly affected by the same technical reference frame: the student and the worker do not participate in an active manner because the teacher or manager is authoritarian. The authoritative approach is inflexible on students and workers, and this blocks learning and the capacity to create, while generating, on the other hand, superficial, passive, reactive and contra-authoritative learning, incapability of understanding and considerable incompetence.

Even student-centered teaching methods have had little effect at educational and training performance levels. It is true that this approach has brought a change in the classrooms and in class activities, but it has not caused much change as regards teacher-student relations that have remained based on authority and hierarchy (S. Jones, 1996).

Since focalized on teaching, the cognitive models of traditional education tend to consider learning as a distinct process separated from everyday life, in other words, the learning processes that take place both in school and business contexts as well as at the workplace are "decontextualized". When, on the other hand, the focus is on the learning process, it is considered as a social process. Such a process is continuous lasting one's whole life long - (*Life Long Learning* is the classical term used in the White Book of the European Commission) - and is of great social, cultural and contextual significance.

Some interesting reviews of studies on Organizational Learning recently published in Italy (Pontecorvo, 1995, Zucchermaglio, 1996, Gherardi, 1999) have highlighted the fact that the traditional approach to learning tends to furnish a reductive view of the real procedures of learning that take place within the world of business. Learning and working are not two distinct activities the one sequential to the other in time: instead they are shown to be closely interdependent in a process of production, of transformation and of changing individual and collective identities. The traditional distinction between the educational world and the world of work reflects this basic erroneous theoretical assumption and makes it obvious why there are difficulties in overcoming the limitations of the professional training models and also why, in our country there are still barriers between scholastic areas and areas of professional and company training

The traditional cognitive perspective assumes the transfer of knowledge from an active subject, who knows, to a passive subject, who does not know; the principal instrument for the transmission of knowledge is language and the frontal lesson is its didactic corollary; the metaphor is that of food and value both of which are capitalized as in a bank - and the language used to accompany this cognitive perspective is banking terminology (investment, cultural capital, educational credits and debits, etc.)

On the other hand, the social perspective assumes the image of an active learner, integrated into a network of social relationships, who thinks, discovers, invents, plays with knowledge. (C. Pontecorvo, p. 58). In the social or "situated" approach, learning is a social process, through which one becomes a competent member of a working group that carries out specific practices. *"a situated practice is learned through participation and making one's own contribution to a situation structured culturally and socially and that is continually being redefined by the activities of all the participants"* (S. Gherardi, 1995).

The theoretical construct central to the social perspective of learning is that of a '*community of practices*', deriving from studies of ethnography and ethnomethodology (Mehan, 1978; Wood, 1988), that now, for the past decade, has already been applied in research into learning within the context of the workplace (Zucchermaglio, 1995).

## 2.2. Traditions and myths of educational systems

Despite the numerous attempts to move beyond the prevalent model - still elitist and school centred - the traditional models of training on-the-job have some characteristics and limitations in common (G. Chiari, 2001):

1. The educational system is seen as a contrast to the working process. Education (classroom) is an activity separated from the working environment (company): this separation involves spatial, temporal and cultural aspects. The real context, that of the true functioning of the organization, instead of being valued and utilized as a resource for information and stimulus, is ignored and often considered a handicap to learning.. In other words, knowledge is conceived as something deprived of its context. Formal knowledge is assumed to be a prerequisite for doing, producing, knowing how to get things done.

A corollary of this first erroneous assumption is the separation between experts in production (artisans, entrepreneurs) and experts in teaching (teachers, trainers).

2. In the world of work, too, the educational contexts tend to reproduce the school model: in the style of teaching, in teacher-student interaction, in inter-pupil relationships; the experience of professional training tends to become removed from the working context for which it is - or should be - formulated and the training is considered by the trainees as a break, an interval in their working experience.

3. Essentially the training period focuses on the individual, as it is in individual terms that duties and responsibilities, career promotions, organizational placements are allotted. Exactly in these moments of training, interaction with others is a rare occurrence.

4. It is a myth to maintain that activity within the company is of itself educational. In order for the company to be an adequate seat of training for expertise and professional competence, it has to make an adequate assessment of Situation Learning theory. More and more often professional expertise consists of theoretical knowledge, of personal and interpersonal skills and the traditional model of apprenticeship, simply observing others working under the guidance of a skilled master, is no longer sufficient in order to really learn how to work.

5. We must overcome the prejudice, of long historical standing and still entrenched in many areas of our school system - and even in our system of professional training, that, for young people of school age, a job is something to fall back on for those who either cannot or do not wish to study. The choice of a job where everyone's educational potentialities really have the possibility of being expressed, retrieving an equal sense of dignity for choices whether to work or to study, profoundly diverse but globally complementary, is still denied or merely residual.

6. It is becoming more and more important to face the problem of what is effectively learned at school, and more generally in the context of the classroom, still seen as the physical and symbolical place reserved for the carrying out of tendentially decontextualized activities.

The most recent studies on cognitive learning demonstrate the possibility of realizing, even within institutional school contexts, the right conditions for contextualized and situated learning, able to overcome the traditional distinctions between concrete and abstract, everyday and theoretical (Lave (1992), comparing school mathematics with that used in their everyday life by the child hawkers of Brazil and also with that used by followers of the Weight Watchers diet, makes the proposal that even school mathematics should be considered a "situated activity") .

## 2.3. Cognitive Apprenticeship and On-the-job Training

In every educational context it is important to redefine the value of apprenticeship and the context of learning. In this regard, confronted by the incapacity of the school to prepare its charges for business and professional life, research literature has reintroduced the concept of *cognitive apprenticeship* (Collins, Brown, Newmann, Resnick) - bringing it alongside that of "situated

learning". One is only really competent when able to deal with "breakdowns." Anyone who works in a complex system must be able to refer to a mental model of the whole system that will enable him to deal with a "breakdown" (an unexpected change, different economic conditions, functioning problems, breakages) and to be able to do what a machine cannot do, that is to "move mentally outside the system and to think it over." (Pontecorvo, 1995,31). However, this type of direct approach can work only when there are relatively slow changes in the technological structure and thus it is no longer adequate for the present situation, characterized by rapid technological and social changes.

An alternative to professional/vocational training in school is *On-the-job* training, even if nowadays fully-fledged apprenticeship is no longer much practised. As Resnick (1987) reports, in the United States, even in On-the-job programmes, the prevalent form of instruction is similar to that in the schools. ". In the Army, in Community Colleges, in private educational establishments it is often the classroom culture that dominates making it difficult to pass to real workplace functions.

It is again Resnick who proposes forms of "Bridge Apprenticeship", able to couple simulated work environments with specially created social interactions. The simulated apprenticeship environment would thus act as a bridge between the theoretical lesson and real practice in a work environment. A second suggestion Resnick makes is to bridge the gap between lessons and practical activity by having recourse to the study of company cases.

Learning takes place according to the various constructs indicated by cognitive theory regarding learning in social interaction. In a class defined as a community of "learner apprentices" there is a change in the position of the teacher who, nevertheless, maintains educational responsibility. From the cognitive point of view, the emerging categories in research literature regarding the new function of the teacher as facilitator are those of a guide to discovery (*guiding*) (Brown, 1993), supplying the necessary framework for cognitive elaboration (*scaffolding*) (Wood-Bruner-Ross, 1976), and of combining activities (*joint activity*) (Wertsch-Sammarco, 1987) (*ibid.*, p.132).

In the studies on problem-solving, too, inspired to a greater degree by the current of American Human Information Processing, the constructs most often used are those of *coaching* (step by step guidance), of *fading* (gradual decrease in guidance, up to disappearance), and of *shaping* (fragmenting of the learning tasks), and *modelling* (behaviour modelling).

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**THE MODEL OF COGNITIVE APPRENTICESHIP. New studies of cultural psychology:**

LEARNING: Processes -> Constructs-> Products

TEACHER FACILITATOR: PROCESS  
guiding scaffolding joint activity

CONSTRUCTS  
coaching + shaping + modelling + fading

PRODUCTS  
Self-reliance, responsibility, higher order thinking, Problem-solving and others besides.

CONTEXT: The educational load of the context:  
negotiation, sharing, appropriation, distribution of knowledge, values, social rules, implicit practices.

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## 2.4. Encapsulating knowledge

The phenomenon of the encapsulation of the knowledge acquired at school, but that remains separate from the knowledge acquired from the real world, is faced in social terms as an educational intervention. Amongst the various proposals to be found in research literature the one made by Lave and Wenger (1991) takes into direct consideration the activities carried out at school and their links with the outside world. As happens in everyday life, individuals become progressively involved in an activity, taking part in the various "common practices" at first with marginal participation - peripheral according to the authors - and then, as they learn more, with a more central role, in school, too, a similar procedure can be realized and relationships can be established with a variety of extra-scholastic sets of common practices.

Engestrom's proposal, with the theory of Expansive Learning (1987, 2001), sets out a profound revision of the subject to be studied at school that includes its historical background: in other words, the students should recognize the very handbooks they use for studying as historical objects in which contents and methods built up during the course of time have settled, as it were, as sediment; the "hidden curriculum" itself becomes a specific object of exploration in order to recognize implicit class practices. Associating the three theoretical approaches (*constructs*) that he examines in his studies - the ascent from the abstract to the concrete, the legitimated peripheral participation and the expansive learning -, the Finnish author maintains that they can be considered as links between the three contexts of *practical social application*, of *critique*, of *discovery*.

*THE COMPETENT WORKER = SCHOOL TRAINING + ON-THE-JOB TRAINING*

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### How to escape from encapsulation (Y. Engestrom):

#### Constructs

expanding learning  
legitimated peripheral participation  
ascent from the abstract to the concrete

#### Contexts

critique  
discovery  
practical social application

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## 2.5. Context as a cognitive and organizational resource

The perspective of situation learning has been found to be particularly useful in order to analyse learning in working contexts where it is in fact necessary for the individual to learn, rather than formal, abstract, decontextualized notions, working practices, social roles and communicative behaviour relevant to the specific organizational context.

In organizations – Zucchermaglio (1995) reporting again - the traditional view of planning the allocation of duties is based on the assumption that the organization itself comes first and then the people who compose it: In organizations, formal aspects prevail incisively over matters of substance and this characteristic has a profound influence on the ways in which training is carried out. (...) the observation of genuine working practices shows an enormous variability in the ways of solving even the same problems, this variability does not depend on chance but is governed by rules such as, for example, the optimization of effort." (ibid., p.245).

*"thus the analysis of genuine working practices has made it possible to discover creative and innovative capacities - an organizational intelligence (H. Gardner, 1984; R. Sternberg, 1989) also in normal people who carry out ordinary and "banal" tasks and not just in scientists or ingenious artists." (ibid., 246).*

## 2.6. Community of Practices

The community of practices is another key concept of the social constructivist perspective of the theory of learning - social, situational, contextualized. The community of practices is the social and physical forum where learning and work actually take place; the specific skills and knowledge of the community do not reside in the brains of its more expert members, but in its social organization and structure. (...) in the communities of practices, social relations are built around activities, activities are shaped by relations and certain elements of knowledge and experience become a part of the individual identity and take their place within the community" (Eckert, 1993, quoted by Zucchermaglio, 1995, p. 247). A community of practises is composed of persons belonging to the same occupational group and this common working experience creates a common culture of 'practice', which comprises common customs, technical knowledge, management strategies and language (Brown & Duguid, 1991, Becker & Geer, 1972). The concept of 'community of practices', which is rather similar to that of 'occupational community', developed in connection with the studies on organizational cultures (Van Maanen & Barley, 1991, Gherardi, 1990, 2000), is more focused on work practices and on the actual work activities, rather than on occupation *per se*. Practise underlies tacit non-objective elements positing a contextual and relational (and not just analytical) practical sensitivity and intelligence (Sternberg).

Practical knowledge can be acquired through experience and by working in the job: the main source of knowledge for a newly-hired worker, in fact, is the community of practices of which he or she has become a member. Once he or she has been welcomed into the community (style of reception), learning the skills can take place in a variety of ways, through different channels: guidance, imitation, working alongside, direct instructions; but, above all, by actively partaking in the community's work-related practises, its interpretational models and its organizational customs and rituals (ibid., p. ...\*). Many studies have been published describing the process of learning through the practises observed at work (Pontecorvo et al., 1995, Zucchermaglio, 1996, Gherardi, 1999). Hutchins (1993) reports his observations on the apprenticeship of cadets on the Canadian Navy ships, where learning takes place through interaction under the strict control and supervision of senior peers. Nulty (1994) reports on the training of junior police officers (in particular, acquiring control over risks) by more senior officers, by exchanging experiences and examples of difficult cases generating a "common-sense knowledge" (ibid.).

All researches on communities of practices highlight the importance of the *dimension of participation*, in respect of learning at work. *Belonging to* or *membership* of an organization, or a company, enables the acquisition of the organizational knowledge that is a prerequisite for learning one's job. A second, relational, factor important for learning at work is the *dimension of interaction*, i.e. relations with colleagues and other workgroup members (*affiliation*). The sense of belonging to a group, inter-personal relations with colleagues at work, can help heighten one's sense of personal identity and self-esteem, besides contributing to the building of the affective and relational foundations of the sense of belonging typical of the community of practices, which allows the development of more specific professional skills and satisfies the third fundamental *need for achievement* (G. Chiari, 2001). Another important factor is the *contextual dimension*, i.e. the characteristics and requirements of the organizational context in which the training process takes place (or should take place).

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### Dimensions of the 'community of practices' culture:

<i>Organization:</i>	participation, belonging
<i>Work groups:</i>	interaction, relation, affiliation
<i>Individuals:</i>	learning and satisfaction for one's achievement
<i>Social Skills:</i>	communication, leadership, trust, decision making, problem solving, conflict resolution
<i>Tacit knowledge:</i>	stages, learning by doing, prolonged training experience
<i>Practical intelligence:</i>	complex instruction and multiple abilities tasks

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Research work on communities of practice have shown that there is a certain continuity between individual learning and social learning, and how the most effective training experiences are those that acknowledge and promote this continuity and complementarity between practical and formal knowledge in work groups. Another important research finding, concerning in situation learning experience, is the enhanced effectiveness of the *Cooperative Learning* and *Cooperative Working* training models, focusing on interdependence and close interaction, cooperative group work, *planning, decision making, problem solving* (S. Jones, 1997, G. Chiari, 2000).

#### *Tacit knowledge*

*Meta-skills* and *tacit knowledge*, which are significant aspects of corporate training practice, are not always given the attention they deserve in short training programs, such as stages or alternating experiences, in which beginners/trainees have difficulty in finding their bearings and only after a prolonged training experience, after having become “experts” and having understood the rationale of the practices they’re involved with, can actually put into practice the meta-skills they have acquired, in the form of tacit knowledge.

In communities of practices learning becomes an active and intentional process expressed by trainees as relational knowledge and on the basis of specific context characteristics and requirements. Learning, therefore, becomes a complex process, *"a heterogeneous and dynamic set of social relations, limitations, situational opportunities, but also symbolic elements, knowledge and knowledge procedures, which are part and parcel of the social context in which the learning takes place"* (Gherardi, *ibid.*, p. 168).

#### *Practical intelligence at work*

Recent studies on the nature of intelligence and day-to-day learning, which are typical traits of the real world, have provided elements for a fuller understanding of the distinctions between practical and formal intelligence.

*Practical intelligence is what most people call ‘common sense’ or ‘good sense’. It is the ability to adapt to, shape and select everyday environments* (R. Sternberg et al., 2000, p. xi). Among all the forms of intelligence we use in our everyday lives, practical intelligence is a truly indispensable one and, within this form, a particularly important role is played by ‘tacit knowledge’, i.e. the procedural knowledge we learn in our daily lives, and which is generally not taught or even verbalized. Practical knowledge is a predictor of future success, as valid as the common academic form of intelligence generally measured by means of so-called ‘general intelligence tests’; moreover, practical intelligence is, perhaps, an even better predictor of professional success than academic intelligence (Sternberg, 1996).

In the last 50 years, corporate management has split up into two schools of thought: those who perceive managers as rational technicians, whose goal is to apply the principles of management science to the workplace (Taylor, 1947); and those who see managers as ‘craftsmen’ who practise a craft that does not obey to scientific principles (Schon, 1983). This split has had a profound impact on the various management sectors of theory, practice and training (Wagner, 1991). As Robert Sternberg says in the aforementioned essay, one of the first alternative approaches was that of Isenberg (1986), who, in his analysis of the protocols of ‘thinking aloud’, vis-à-vis various US General Managers, pointed out how these managers failed to conform to the rational model, especially because of their propensity to act before becoming acquainted with all the facts (*thinking while doing*).

## 2.7. Contextualizing learning

The definition of context in terms of resources allows us to problematize and rethink its educational role: a work context is not always a learning context; it can become one only if it enables "genuine participation in the community of practices" (Lave-Wenger, 1991) and if it assures full access to all the key aspects of the practices, including activities, artifacts, jobs and individuals. From this point of view, the problem of training becomes how to organize and structure the resources to foster (and not hinder) the creation of appropriate learning conditions within the context." (ibid., p. 244).

As briefly mentioned above, the theory of learning refers increasingly to the procedures for acquiring knowledge that is "situated and contextualized" in such natural social contexts as the family, schools, the workplace and everyday life. Learning is increasingly seen as dependent on context; learning is increasingly defined as a constructive, social and contextualized process. The principles defined by the *Theory of Learning in Situation*, and its practical-educational-organizational corollaries, consisting of the *Cooperative Learning* and *Cooperative Working* methods, tend to inspire the entire (educational and professional) process of our education system, which is grounded on economic rationality and on the values of civic culture and democracy. In other words, the process of innovation of our training system must increasingly promote the spreading of the real world, and its specific cognitive thought procedures, in schools and training institutions in general.

## 3. The research

### 3.1. The Research Hypothesis

The Cooperative learning strategy seems to meet not only the needs of today's world of work but also those of citizenship education, in order to create real 'welfare opportunities'. The intention of the research is to respond to the need for new social competences based on the ability to cooperate and on recognition of the value of reflective learning (cf. Argyris and Shon, 1998). Therefore, (a) the main hypothesis of the research is to notice and demonstrate the higher level of *school identity* and *social support* perceived by an experimental group of perceived by pupils pupils experimenting a certain level of cooperation into their classroom relations and class work, confronting with an equivalent control group of pupils taught by more traditional methods of classroom management; (b) a second hypothesis is that the overall decrease in classroom climate and student's satisfaction, generally found out by passing through the school system both in Usa and Italian classroom climate research (R. Schmuck & P. Schmuck, 1997; Chiari, 1994) would be lower in cooperative learning classrooms; (c) as for the development of cooperative ethos and prosocial orientation, a third hypothesis to be proven by the research would be that the higher levels of cooperative involvement found in experimental cooperative groups would tend to decrease passing through the progressive levels of school system, showing the increasing difficulty of teaching prosocial and cooperative attitude categories while growing-up in the life cycle of the students' school life.

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**Research hypotheses:**

1. Experimental classes that begin with a warming-up training prior to getting fully into cooperative learning, show higher levels of classroom climate, classroom integration, student satisfaction, social support and cooperative involvement. Such improvement turns out to be statistically significant after having applied the method for one year.

The following *activities* were performed:

**Warm and Supportive:** welcoming, emotions, identity,

**Ruling and Controlling:** classroom rules, tasks assignment, role playing, social skills,

**Group Work:** Learning Together, STAD, Jigsaw II.

2. Experimental classes show a higher classroom climate perception.
  3. Experimental classes show higher levels of student satisfaction.
  4. Experimental classes show a lower decline in indexes of school identity and social support and cooperative involvement as the school years evolve.
- 

### 3.2. Methodology, instruments and procedures

The research involved a group of teachers in compulsory and post-compulsory schools in Trentino and other Italian provinces for some time connected with the research group at the University of Trento (teachers and ‘experimental’ classes), flanked by a control group of teachers and control classes. After a period of training in ‘Classroom Management’ and ‘Cooperative Learning’, from the 1997/1998 school year onwards, the ‘experimental’ teachers applied some of the methods and procedures learnt in their classes. A Before/After assessment schedule was administered in 58 experimental classes and 52 control classes in the cultural contexts foreseen by the research design for the experiments to measure affective, social and cognitive components.

Close attention was paid to the construction of operational teaching procedures which were correct from the psycho-pedagogic and social point of view. These were applied in the experimental classes and in some cases – during the crucial stages of creating the cooperative climate and applying the Cooperative Learning procedures – video recorded and then viewed with the teachers and pupils concerned.

#### *Assessment instrument*

The following Survey and Measurement instruments were used when setting up and calibrating the instruments and procedures:

- systematic video recordings;
- questionnaires and tests on the affective, social and relational dimensions of interaction in the class and the groups, adapted and calibrated to the Italian context:
- ‘cooperative lesson plans’ (produced by the teachers)
- observation forms on individual and group social skills (produced by the researcher, teacher and a member of the group)
- ‘Use of Cooperative Groups’ questionnaire (teacher)
- ‘Class Life’ questionnaire (pupil)
- ‘Class Climate’ questionnaire (pupil)
- ‘School Climate’ questionnaire (pupil, teacher, parent)
- Moreno sociometric test (researcher)

### Research Design

The experimental design of the research (Before/After– Experimental/Control) involved 98 different classes in 32 schools in the Italian educational system for a total of 2644 pupils attending the three levels of schooling: elementary, lower secondary and upper secondary. The surveys were conducted in three phases ('Pilot' phase: June 1998; 'Before' phase: November 1998; 'After' phase: May 1999). Overall, the incidence of the research in the Trentino-Alto Adige region was around 1/3. The surveys covered 750 pupils in the province of Trento and 118 in the city of Bolzano. The rest were distributed among schools located in northern Italy, in particular in the regions of Friuli Venezia Giulia, Veneto and Liguria (cf. Tables 1.1, 1.2, 1.3).

### Design

SURVEY:	Experim.	Control	Tot.
1°	384	481	865
2°	422	382	804
3°	606	369	975
Total	1412	1232	2644
schools	27	23	32
classes	81	73	154
different classes	58	52	98
pupils	1412	1232	2644

A total of 2644 pupils were tested, of whom 1412 belonged to 'experimental' classes with one or more teachers involved in the Cooperative Learning method, and 1232 to 'control' classes in the same schools but without teachers trained in the method. 40.2% attended elementary schools, 38.8% lower-secondary schools, and 21.0% upper-secondary schools.

### Distribution by school level

	Experim.	Contr:	(N)
elementary	49.0	51.0	1065
lower secondary	53.5	46.5	1025
upper secondary	61.7	38.3	554

The 'experimental mortality' of the design was high between one phase and the next. Only 151 pupils compiled the tests in all the phases of the research, 99 compiled them in the first and second, and 366 in the second and third, i.e. at the beginning and end of the 1998/1999 school year. Most of the data enabling comparisons with the test-retest derive from the second year of the research, in which 517 subjects (151 pupils who participated in the three phases and 366 in the last two) compiled the survey instruments at least twice, enabling calculation of the respective Delta scores and Before/After differences which make it possible to analyse in individualized manner the effects of the experimental 'stimulus', i.e. exposure of the teacher to training in the Cooperative Learning method and the application of certain basic activities: in particular, welcome and creating the cooperative climate activities, forming the work groups, and allocating the roles.

## Type

Value Label	Value	Frequency	Percent
1 1 1	1.00	151	8.5
1 0 0	2.00	507	28.7
0 1 0	3.00	188	10.6
0 0 1	4.00	350	19.8
1 1 0	5.00	99	5.6
1 0 1	6.00	108	6.1
0 1 1	7.00	366	20.7
Total		1769	100.0

### 3.3. The effectiveness of the experimentation

A large number of training and research activities formed the framework for the project, which consisted of authentic Action Research in which the part comprising action, and in particular the training of the teachers and experiments in their classes – at least in part – in the Cooperative Learning method, was mainly responsible for the efficacy of the project and its results.

Of course, if the philosophy of cooperation centred on exchange, giving, the sense of we-ness and respect for and the valuing of others and of diversity is the pedagogic core of the method, it should – and did – inspire the research and the action-research strategy used by our group. Although the method was not always completely applied, it proved to be significantly effective in almost all the classes in the research design, and in particular those followed with most resources and given the most training and collaboration. The best results were obtained in classes where closest attention was paid to the teachers and pupils – in some cases also to the parents, who were informed of the cognitive, social and civic potential of cooperative group work and involved in the research.

The most successful strategy was the caring-guiding-feedback strategy summed up in the following pattern:

- a. theoretical training at the university of Trento or at the schools where the experiments were conducted;
- b. joint planning with the teachers of the group's activities relative to the creation of a cooperative class climate and the cooperative teaching units;
- c. video recording of salient phases in the activity planned;
- d. viewing – with commentary – of the video recorded materials with the teachers and pupils.

### 3.4. The structure of the experimental and control groups

Before beginning the analysis of the results and of the differences among the various phases of the survey, we provide a more detailed description of the composition and structure of the experimental and research groups involved in the research. The two groups will be compared in terms of a set of parameters of particular significance for learning and the perception of the class climate, satisfaction with school, and training in cooperative involvement, which was the focus of the project.

Tables 2.1 and 2.2 show the main structural features of the classes.

#### a. ACHIEVEMENT(a): Self-assessment

phases->	first		second		third	
	EXP	CON	EXP	CON	EXP	CON
	1	4	2	5	3	6
SELF-ASSESSMENT (X)	3.51	4.00	3.64	3.80	3.61	3.95

At the beginning of the experiment, the experimental classes displayed a level of self-assessed achievement much lower than that of the control classes

**b. REPEATS:**

phases->	first		second		third	
	EXP	CON	EXP	CON	EXP	CON
REPEATS (%)	15.9	9.8	9.3	12.7	13.5	15.2

At the beginning of the experiment, the experimental classes had a larger proportion of pupils repeating the year than did the control classes.

**c. ACHIEVEMENT (b): Likes going to school**

phases	first		second		third		
	EXP	CON	EXP	CON	EXP	CON	
LIKES GOING TO SCHOOL(%YES)		85.4	80.8	81.9	83.7	78.9	76.5

The attitude towards school was more positive – although slightly and not to a statistically significant extent – in the experimental classes compared to the control classes (Table 2.1).

**d. MEMBERSHIP: “do you think that your classmates like you?”**

phases	first		second		third	
	EXP	CON	EXP	CON	EXP	CON
THINKS S/HE IS LIKED (%)	2.83	2.94	2.74	3.13	2.91	2.88

Also the sense of identity with classmates manifested by the group of experimental classes was initially lower than that of the control group. This inferiority, however, tended to disappear by the end of the experimentation period.

The more problematic initial situation in the experimental classes suggested that difficulties in class management had induced the teachers to take up the Cooperative Learning method suggested by the research project and to begin – with success – to apply the cooperative groups model.

### 3.5. Summary of results

We begin by presenting a summary of the results relative to the five dimensions on which application of the Cooperative Learning model was assessed, according to the experimental groups defined by the research design (Before/After and Experimental/Control):

- a. *The perceived class climate* (the '**Classroom Climate**' questionnaire by Les Brown and Goodall, 1981, adapted by Chiari, 1994)
- b. *Pupil satisfaction* (the '**Student Satisfaction**' questionnaire by V. and S. Jones, 1990, adapted by Chiari, 1994).
- c. *Integration in the class group* (Moreno '**Sociometric test**', Northway version)
- d. *Pupil's educational achievement* (indicator: '**Pupil self-assessment**')
- e. *Cooperative involvement* ('**Classroom Life**' questionnaire, by D. & R. Johnson, 1996).

### 3.5.1. Before/After, Experimental/Control

#### a. CLASSROOM CLIMATE

In the experimental classes, the class climate tended to improve significantly over time between one survey and the next; in the control classes, the climate indicators instead tended to remain stable over time and in the various survey phases.

The perceived climate indicators in the experimental classes were generally lower than those of the control classes. However, and this is the most interesting finding in that it is statistically significant, the difference between experimental classes and control classes tended to disappear with time: by the end of the school year, the differences of climate perceived by the pupils in the experimental and control classes were practically nil (see Table 3.1).

#### b. PUPIL SATISFACTION

Also as regards the pupil satisfaction index, the initial differences were in favour of the control classes (significant diff. with  $p(F) = 0.000$ ):

	Phase I		Phase II		Phase III	
	Experim.	Control.	Experim.	Control	Experim.	Control
Satisfaction index:	3.57	3.82	3.69	3.75	3.96	4.05
p(f)	(.000)		(.336)		(.689)	

However, as the experiment progressed, whereas the satisfaction index tended to increase, in the control classes it diminished (Table 3.1).

#### c. INTEGRATION IN THE CLASS GROUP

The experimental classes displayed a better sociometric dynamic than did the control classes. The percentage of ‘marginalized’ pupils diminished with time to an extent greater than that in the control classes (Table 3.1):

Phase	Experimental			Control		
	1	2	3	1	2	3
% NO CHOICES	19.2	14.4	12.2	16.8	16.0	13.5

#### d. PUPIL ACHIEVEMENT

Of the more strictly cognitive indicators contained in the measurement instruments administered to the pupils, the best was the one relative to self-assessment by the pupil (questions: “How are you getting on at school?”, “Are your grades good?”). As the research repeatedly showed, this was closely correlated with other objective measurements and teacher assessments of a pupil’s achievement (G. Chiari, 1994). As regards pupil self-assessment, the initial marked inferiority of the experimental group with respect to the control group tended to persist with time, albeit with a slight decrease across the three survey phases (Table 2.1).

#### e. COOPERATIVE INVOLVEMENT

The general index of cooperative involvement was slightly higher in the experimental classes and tended to remain so in the Before/After phases, while in the control classes cooperative involvement diminished significantly with time ( $p < .000$ ) (Table 3.1).

### 3.5.2. The classroom climate

More profound analysis articulates the results according to further features. The index of perceived class climate was divided into three sub-dimensions:

the pupil's identity, relationship with classmates, relationship with the teachers.

#### *3.5.2.1. The pupil's identity and relationship with classmates*

The levels of identity perceived by pupils and the relationship with classmates in the experimental group were lower than the levels measured among the pupils in the control group (Table 4.1), and the situation did not change with time.

#### *3.5.2.2. The relationship with teachers*

Conversely, the relationship with teachers distinctly improved among the pupils in the experimental group, compared to the control group (Table 4.1).

#### *3.5.2.3. Year repeaters and non year repeaters*

The perceived class climate was markedly better among pupils who had not had to repeat a school year compared to those that had repeated one or more times. As regards the three components of climate, difficult identity and especially the more difficult relationship with teachers were evidenced by both groups; conversely, pupils who had repeated school years had better relationships with their classmates, especially in the control classes (Table 4.1).

#### *3.5.2.4. Integration in the class group*

The most popular pupils, those who received the largest numbers of choices and were therefore more closely integrated into the class group, had a better perceived class climate, in all its components (Table 4.1).

#### *3.5.2.5. Males and females*

Female pupils tended to perceive a better class climate in general, due largely to the better 'relations with teachers' (Table 4.1).

#### *3.5.2.6. Achievement and self-assessment*

Academic performance as self-assessed by the pupils interviewed was closely correlated with the class climate, and also with 'goes willingly to school'. The only exception to this general tendency was the dimension of 'relations with classmates', which was not statistically significant (Table 4.1).

#### *3.5.2.7. Type and level of school*

As other studies on class climates and well-being have shown (G. Chiari, *Climi di classe e apprendimento*, 1994, 1997), the class climate perceived by the pupils in the present research tended to decrease the higher the school level. In transition from elementary school to lower-secondary and the upper-secondary schools, all the indices of class climate diminished very significantly (Tables 4.1, 4.2). In particular, 'relations with teachers', dialogue with them and being able to talk about problems with them, were markedly and increasingly problematic (Table 4.1, 4.2). However, the pupils attending the lower- and upper-secondary schools in the group perceived their class climates as better than those in the control group .

### *3.5.3. Pupil satisfaction*

While pupil satisfaction generally tends to diminish with the amount of time spent at school, this was not the case of the experimental classes.

Table 4.2 and 5.1 gives the data for the trends in the 'pupil satisfaction' index and the sub-indices relative to the five dimensions of satisfaction for the various survey phases and the experimental and control groups. The general satisfaction index (SATISF) displays the following trend (Table 5.1):

	Experimental			Control		
	1	2	3	1	2	3
SATISFACTION	3.57	3.69	3.61	3.82	3.75	3.58
p(f)	(.163)			(.003)		

Pearson r coefficients:

	<i>SATISF</i>
PHYSIOLN (PHYSIOLOGICAL NEEDS)	0.700
SECUR (SECURITY)	0.816
AFFBEL (BELONGING/AFFILIATION)	0.832
SELF-EST (SELF-ESTEEM)	0.738
SELF-FUL (SELF-FULFILMENT)	0.735

(Cronbach's alpha =0,779)

### 3.5.3.1. The dimensions of satisfaction

Analysis of the sub-dimensions of the satisfaction index yields interesting data and insights into the effects of the Cooperative Learning experimental model.

#### a. Physiological needs

A first dimension that differentiated the experimental and control groups comprised the 'physiological needs' of pupils connected to the physical and material aspects of school life (see questions 1-9 in the STUDENT SATISFACTION questionnaire in Appendix 3). The pupils in the experimental group tended to increase their level of satisfaction with these aspects, while those in the control group tended to grow increasingly dissatisfied (Table 5.1).

	Experimental			Control		
	1	2	3	1	2	3
A. PHYSIOL. NEEDS	3.78	3.95	3.89	4.05	3.88	3.91
p(f)	(.018)			(.014)		

#### b. Confidence

Also as regards the dimension of the pupils' confidence (questions 10-18 in the questionnaire in Appendix 3), the data show a tendency for satisfaction to increase among pupils in the experimental group and to decrease among those in the control group (Table 5.1).

	Experimental			Control		
	1	2	3	1	2	3
B. CONFIDENCE	3.42	3.55	3.49	3.66	3.61	3.48
p(f)	(.219)			(.054)		

#### c. Affectivity and belonging

The experiments using the Cooperative Learning method tended to increase the pupils' sense of belonging (questions 19-28 in the questionnaire by V. and S. Jones, 1990, adapted by G. Chiari, 1994). Among the pupils in the control classes, by contrast, the sense of belonging to the class, the perception of a community in which teachers and classmates paid attention to one's ideas and problems – aspects of belongingness and membership crucial for the formation of a school identity and for learning – did not tend to improve. Instead, they worsened, as indicated by research generally (G. Chiari, 1994). The data clearly reflect this aspect, and the differences are significant in both groups (Table 5.1).

	Experimental			Control		
	1	2	3	1	2	3
C. BELONGING/AFFILIATION	3.02	3.20	3.16	3.45	3.34	3.08
p(f)		(.089)			(.000)	

#### d. *Self-esteem*

Also the sense of self-esteem (questions 29-31), a fundamental part of school identity, reflects the ‘virtuous’ tendency just seen in the case of belonging, albeit to a lesser extent. The ‘experimental’ pupils maintained their initial levels of self-esteem between Before and After, while those of the ‘control’ pupils tended to diminish (Table 5.1).

	Experimental			Control		
	1	2	3	1	2	3
D. SELF-ESTEEM	3.75	3.85	3.80	3.94	4.04	3.79
p(f)		(.594)			(.050)	

#### e. *Self-fulfilment*

The pupil’s sense of self-fulfilment (question 34: “Are you able to study what interests you at school?”) is the dimension that least demonstrates the success of the experiment, an unequivocal sign of how difficult it is to find topics, curricula and activities that match the pupils’ motivations and interests. The superiority of the experimental groups attenuated in this case and the Before/After differences were significant for the control groups and quasi-significant for the experimental ones (Table 5.1).

	Experimental			Control		
	1	2	3	1	2	3
E. SELF-FULFILMENT	3.86	3.93	3.71	3.98	3.89	3.66
p(f)		(.113)			(.048)	

#### 3.5.4. *Cooperative involvement*

The main instrument with which to measure the effects of experimentation with the Cooperative Learning is the ‘Classroom Life’ questionnaire developed by D. & R. Johnson in 1985 which we translated and adapted to the research context in Italy. The reduced version of the questionnaire (54 items) was used in the elementary classes, and the full version (91 items) in all the others (see Appendix 2).

Perception of social support from classmates is one of the most important aspects of class climate. By this term is meant a particular kind of atmosphere in which the pupils are aware that they can rely on their teacher and classmates for any sort of assistance, support and attention. The research literature shows that this social support is directly correlated with educational performance, especially with regard to problem-solving, persistence (i.e. perseverance with a task in particularly difficult and frustrating conditions), academic and career aspirations, resistance to stress, self-confidence, autonomy, a coherent and integrated identity, and good mental health (Johnson, Johnson, Buckman & Richard, 1986, 405). A perception of social support is therefore an important factor in the achievement of education goals both short-term and long-term. Moreover, it is an important form of pro-social behaviour conducive to the pupil’s sense of citizenship and civic and political commitment when adult (G. Chiari, 1994; A. Cavalli G. Deiana, 1999).

*Before/After, Experimental/Control*

The pupils in the experimental classes displayed a higher level of cooperative involvement than did those in the control classes (Tables 3.1 and 6.2). The overall level of cooperative involvement (COOPINV) was higher in the experimental classes than in the control classes ( $p(F)=0.047$ ). Between the beginning and the end of the 1998/1999 school year (phases 2 and 3 of the research), the general level of perception of social support remained constant in the experimental classes, while it diminished in the control classes.

	Experimental			Control			p(f)
	1	2	3	1	2	3	
COOPINV	3.31	3.25	3.23	3.26	3.29	3.13	
		(.054)			(.000)		

One of the main differences in favour of the experimental classes was apparent in the schools where the research group was most frequently present and in which video recordings were made and feedback and monitoring were conducted in the classes and with the pupils.

*3.5.4.1. The dimensions of the cooperative climate*

When subjected to factor analysis, the battery of 91 items (54 for the version administered to the elementary school pupils) led to the construction of 17 dimensions of social support and a cooperative involvement index which revealed a number of interesting patterns in the various subgroups examined (Johnson, Johnson, Buckman & Richard, 1986).

**Table 6.1 gives the average values, the number of subjects analysed and the Cronbach alpha coefficients for the 17 indices of perceived social support.**

	Exper	Contr.	p(F)
coop01(Teacher Academic Support)	3,85	3,81	n.s.
coop02(Teacher Personal Support)	3,03	3,19	.01
coop03(Students Academic Support)	2,77	2,73	.08
coop04 (Students Personal Support)	3,20	3,19	n.s.
coop05 (Cooperation(I))	3,99	3,84	.01
coop06 (Cooperation(II))	3,62	3,39	.01
coop07 (Positive Goal Interdependence)	3,73	3,54	.01
coop08 (Resource Interdependence)	3,70	3,57	.01
coop09 (Alienation)	3,10	3,16	.01
coop10 (Achievement by social approval)	2,06	2,18	.01
coop11 (Cohesion)	3,48	3,50	n.s.
coop12 (Academic self-esteem)	3,27	3,29	n.s.
coop13 (Fairness of Grading)	3,83	3,81	n.s.
coop14 (Individualistic Learning)	2,94	3,00	.05
coop15 (Competitive Learning)	2,88	2,86	n.s.
coop16 (Controversy)	2,88	2,82	.09
coop17 (Valuing Heterogeneity)	2,99	2,85	.01
<b>COOPINV (COOPERATIVE INVOLVEMENT INDEX)</b>	<b>3,25</b>	<b>3,21</b>	<b>.05</b>

### *Before/After. Experimental/Control*

In all the surveys, the measures of cooperative involvement in the majority of dimensions were better in the experimental classes (Table 6.2).

The majority of the measurements made in the three research phases tend to decrease with the amount of time spent at school. Exceptions are the following dimensions:

- Coop06 (Cooperation (II))
- Coop07 (Positive Goal Interdependence)
- Coop13 (Fairness of Grading)
- Coop16 (Controversy)
- Coop17 (Valuing Heterogeneity)

However, if the results for the experimental and control classes are distinguished, the situation is distinctly in favour of the former, as the data in Table 6.2 clearly show.

Some dimension display the greatest differences between the two groups of pupils. In particular, the indices COOP03 (Students Academic Support) and COOP09 (Alienation) reinforce the hypothesis that the cooperative learning method works.

Of course, there are negative patterns also in the experimental classes which reveal the difficulties of applying the cooperative method and the teaching practices connected with it. For example, the indices COOP08 (*Interdependence of resources*) and COOP10 (*Achievement by social approval*) tended to worsen as the school year progressed. The former indicates a certain difficulty encountered by the teachers in concretely applying the practical principles of positive interdependence, one of the theoretical pillars of the model; the second signals the possibility that although the pupils were managed cooperatively, they accepted the principles of the method more for extrinsic motives like dutifulness, rather than real conviction.

### *Year repeaters and the marginalized in the class group*

More careful analysis of Table 6.2 reveals interesting patterns that tend to support the hypothesis that Cooperative Learning manages on the one hand to relax the classic determinism of informal and hidden educational selection, and on the other to increase the tolerance and valorization of pupils less integrated in classes managed in the traditional manner. In some dimensions, repeat-year pupils were not significantly different from non-repeaters. Above all, marginalized pupils in the class group manifested egalitarian positions in numerous dimensions of the perception of social support by classmates and the teacher. Although a weak position from the educational and relational point of view tends to reproduce significantly negative indices of class climate and satisfaction, this process is less marked as regards cooperative involvement and the perception of social support in classes managed using the Cooperative Learning approach.

### *3.5.4.2. Before/After differences: the components of the Cooperative Climate*

Specific analysis of the data made it possible to identify and follow individually through the three research phases a set of pupils covered by all three surveys, ‘surviving’ the transition from one phase to the next and the various changes that took place in the experimental and control classes. The availability of individual cases measured across the three survey phases enabled calculation and analysis of Before/After differences between individual experimental and control pupils.

Despite considerable reductions in the number of cases analysed, the patterns described thus far were largely represented. In the passage from the second to the third phases – for which there was the largest number of analysable pupils – the overall index of Cooperative Involvement (COOPINVO) and in particular the dimensions of Personal Support (COOP04), Academic Self-

Assessment (COOP12), Individual Learning (COOP14) and Valorization of Heterogeneity (COOP17) show the significant superiority of the pupils in the experimental classes compared to those of the control classes (Table 7.2).

### 3.5.5. Conclusions: the determinants of class climate, pupil satisfaction and the sense of social support

In order to draw some brief conclusions from the results of the research that accompanied the project to spread the Cooperative Learning model in the Italian schools associated with our research group at the University of Trento, it will be helpful to present the preliminary results from multiple regression and variance analysis models which synthesize some interesting patterns.

An important finding is yielded by comparison among the three models applied to explain the indices of Class Climate, Student Satisfaction and Cooperative Involvement (Tables 8.1, 8.2, 8.3). The relation among the various components of class management is certainly very close, as shown by the table of the coefficients of linear bivariate correlation:

	CLASSCLIM	SATISF	COOPINV
CLASSCLIM	1.000	688	389
SATISF		1.000	416
COOPINV			1.000

While on the one hand educational achievement or doing well at school closely conditions of student satisfaction with the educational experience, class climate and sense of social support prove not to be influenced by it. The causal linkage between achievement, class climate and sense of social support operates in reverse, in the sense that it is not doing on well at school that conditions the class climate and the sense of social support perceived in class; rather, it is the good class climate and a good perception of social support that condition learning. In other words, affective, social and relational factors seem to precede and condition cognitive factors.

The multiple regression model (Table 8.2) shows that *Pupil Satisfaction* is closely tied the class climate and cooperative involvement. It tends to diminish with the time spent at school and between the Before/After phases as learning motivation and good educational results increase, in a virtuous circle which does not significantly reflect the experiment in cooperative learning.

As for *Class Climate*, this too was closely conditioned by satisfaction and the cooperative climate perceived by the pupil, and it too tended to worsen with the passage of time, although to a lesser extent than satisfaction, and appeared not to be conditioned by academic achievement.

Finally, *Cooperative Involvement*, or the perception of the cooperative climate and *social support* that derive from the application – or attempted application – of the cooperative model in class, tends to depend more on affective and social dimensions than on educational results and cognitive dimensions. This too seems to diminish with age and time, but it more strongly reflects the experimental strategy adopted: the cooperative model and the social activities connected with it. In the third research phase, at the end of the 1998/1999 school year and at the end of the experimentation, when a larger amount of data were also available, the variable DESIGN (Experimental/Control) was the one that explained, together with the dependent variable ‘school level’, most of the variance of the dependent variable ‘cooperative involvement’, i.e. the sense of social support perceived by the pupils.

Moreover, the fact that neither the variable ‘repeats’ nor the ‘pupil’s sociometric level’ even explain a minimum part of the variability in the index of perception of social support seems to sustain the hypothesis that the Cooperative Learning model, with the group activities and work that it seeks to apply, is able to some extent to attenuate the classic social determinism that our schools, despite intentions and a century of debate, have still failed to eliminate and against which they must constantly battle.



## BIBLIOGRAPHY:

- Ajello A., Ripensare la scuola: con quali costrutti? In: C. Pontecorvo A. Ajello C. Zucchermaglio, *I contesti sociali dell'apprendimento*. LED, Milano, 1995, p. 117-137.
- Allulli G. (2000), *Le misure della qualità. Un modello di valutazione della scuola dell'autonomia*. SEAM, Roma (collana 'Sviluppo e Competenze' diretta da Giuseppe Martinez).
- Alpern M. (2000), *Critical Workplace Competencies: Soft? Essential? Generic? Basic? Non-Technical? What's in a Name?* (www.).
- Anderson J. Reeder L. Simon H. (1996), Situated Learning and Education. *Educational Researcher*, 25 (4), 5-11.
- Argyris C. Schon D. (1998), *Apprendimento organizzativo. Teoria, metodo e pratiche*. Milano, Guerini e associati.
- Aventur F. Mobus M. (1999), *La formation professionnelle initiale et continue en Europe*. Magnard Vuibert, Paris.
- Beinke L. (1991), *Was Macht die Schule falsch?*. Interform Verlag, Berlino.
- Benadusi L. (1990), *Scuola, riproduzione. mutamento*. Sociologie dell'educazione a confronto. La Nuova Italia, Firenze.
- Besozzi E. (1993), *Elementi di sociologia dell'educazione*. La Nuova Italia Scientifica, Roma.
- Berlinguer L. (1996), "Scuola, basta guerre tra cultura e lavoro", *L'Unità*, 11 agosto.
- Billett S. (1996), Situated Learning: Bridging Sociocultural and Cognitive Theorizing. *Learning and Instruction*, V. 6, n. 3, p. 263-280.
- Bloom B. S. (1956), Taxonomy of Educational Objectives: the Classification of Educational Goals. In: Bloom B. (Ed.), *Handbook 1: Cognitive Domains*. New York, Trad. It. *Tassonomia degli obiettivi educativi: area cognitiva*. Teramo, Giunti e Lisciani, 1984.
- Bocca G. (1992), *Pedagogia e lavoro*. F. Angeli, Milano.
- Bocca G. (1995), *Istruzione, formazione, cultura*. Vita e Pensiero, Milano.
- Brown J. S. Duguid P. (1991), Organizational Learning and Communities of Practice: Toward a Unified View of Working, Learning, and Innovation. In *Organizational Science* 2/1 Febr. 1991, pp. 40-57. Traduz. Italiana: *Apprendimento nelle organizzazioni e comunità di pratiche. Verso una visione unificata di lavoro, apprendimento e innovazione*. In: C. Pontecorvo A. Ajello C. Zucchermaglio, *I contesti sociali dell'apprendimento*. Milano, LED, 1995, pp. 327-357.
- Brown J. Palincsar A. (1989), *Guided, Comparative Learning and Individual Knowledge Acquisiton*. In Resnick L. (Ed.), *Knowing, Learning, and Instruction. Essays in Honor of Robert Glaser*. Hillsdale NJ, Erlbaum.
- Carugati F. Selleri P. (1996), *Psicologia sociale dell'educazione*. Bologna, il Mulino.
- Cavalli A. Deiana G. (1999), *Educare alla cittadinanza democratica: etica civile e giovani nella scuola dell'autonomia*. Roma, Carocci.
- Chiari G. (1995), *Le dimensioni sociologiche del processo di apprendimento/ insegnamento*. In: G. Ceccatelli Gurrieri (ed.), *Qualificare per la formazione. Il ruolo della sociologia*. Vita e Pensiero, Milano.
- Chiari G. Saltarelli S. (eds.) (1995), *Alternanza Scuola/Lavoro. Educatori, politici, industriali alla ricerca di un modello comune*. F. Angeli, Milano.
- Chiari G. Saltarelli S. (eds.) (1995), *Alternanza Scuola/Lavoro: istruzioni per l'uso*. Quaderni operativi dell'Istituto Pedagogico in Lingua Italiana di Bolzano. La Grafica Editrice, Rovereto.
- Chiari G. (1997), *Climi di classe e apprendimento*. Milano, Angeli, 1997. 2°ed.).
- Chiari G. (1997), Gruppi e apprendimento cooperativo: un'alternativa ai gruppi di recupero. *Scuola Democratica*, 1. gennaio-marzo, pp. 24-34.
- Chiari G. (1998), Metodi e modelli didattici. In: *Scuola Democratica*, n.2-3 1997.
- Chiari G. (1998), "Alternanza Scuola/Lavoro: modelli e strumenti di valutazione in provincia di Bolzano". In : E. Besozzi (ed.), *Navigare tra formazione e lavoro*. Roma, Carocci Editore, pp. 205-258.
- Chiari G. (Ed.) (1999), *Cooperative Learning: ricerca e formazione nella scuola e nel mondo economico*. Trento, Regione Trentino Alto Adige.
- Chiari G. (ed.) (1999), *Alternanza Scuola/Lavoro: un modello alla prova. Il modello dell'Istituto Pedagogico di Bolzano: i risultati di un'esperienza triennale (1994-1996)*, Edizioni Junior, Bergamo.

- Cicourel A. V. (1970), *The Acquisition of Social Structure: Toward a Developmental Sociology of Language and Meaning*. In: Douglas J.D., *Understanding Everyday Life: Toward the Reconstruction of Sociological Knowledge*. Chicago, Aldine Publ. Co., p.136-168.
- Cicourel A. V. (1972), *Cognitive Sociology: Language and Meaning in Social Interaction*. New York, Free Press.
- Cohen E. (1994), *Designing Group Work: Strategies for the Eterogeneous Classroom*. New York, Teachers College Press. Trad. it.: *Organizzare i gruppi cooperativi*. Trento, Erickson, 1999. Presentazione di G. Chiari.
- Coleman J. (1966), *Equality of Opportunities*. Washington, D. C.: U.S. Office of Education.
- Collins R. (1979) *The Credential Society*, Academic Press, New York.
- Collins A. Seely Brown J. Newman S. E. (1989), *L'apprendistato cognitivo, per insegnare a leggere, scrivere e far di conto*. In: C. Pontecorvo A. Ajello C. Zucchermaglio, *I contesti sociali dell'apprendimento*. LED, Milano, 1995, p. 181-231.
- Comoglio M. Cardoso M. (1996), *Insegnare e apprendere in gruppo, Il Cooperative Learning*. Roma, LAS.
- Comoglio M. (1998), *Educare insegnando. Apprendere e applicare il Cooperative Learning*. Roma, LAS.
- Coulon A. (1993), *Ethnomethodologie et éducation*. Paris, Puf.
- Cotton K. (1993), *Developing Employability Skills*. School Improvement Research Series, Northwestern Regional Educational Laboratory: Portland.
- Cresson E. Flynn P. (1996), *Insegnare e apprendere. Verso la società conoscitiva*. Commissione Europea, Bruxelles.
- D'Arcangelo A. Montedoro C. (1997), *La simulimpresa: modello di innovazione della formazione professionale in Italia*. Milano. Angeli.
- Delbos G. Jorion P. (1984), *La trasmission des savoirs*, Ed. Maison des sciences de l'home, Paris.
- Delors J. et al. (eds.) (1996), *L'éducation. Un trésor est caché dedans*. Editions Unesco/Editions Odile Jacob, Paris.
- Devin-Sheehan L. Feldman R. allen V. (1976), *Research on Children Tutoring Children: A Critical Review*. *Review of Educational Research*, 46 (3), 355-385.
- Dewey J. (1916/1966), *Democracy and Education*. New York, The Free Press.
- Dewey J. (1961), *How we Think*. Boston, Heat. Trad. it. *Come pensiamo*. Firenze, La Nuova Italia 1973.
- Di Francesco C. (1993), *Progettazione di competenze aspecifiche-trasversali: l'esperienza tedesca*. in: Di Nuovo S. Giovannini D. Loiero S. (1999), *Risolvere Problemi*. Utet, Torino.
- ISFOL, *Competenze trasversali e comportamento organizzativo*. Milano, Angeli.
- Drucker P. F. (1968), *The Age of Discontinuity*. Harper & Row, New York. Trad. Italiana: *L'era del discontinuo*. Etas Kompass, Milano, 1970.
- Engestrom Y. (1987), *Learning by Expanding: An Activity-Theoretical Approach to Developmental Research*. Helsinki, Orienta-consultit.
- Engestrom Y. (1991), "non Scholae sed Vitae Discimus": Toward Overcoming the Encapsulation of School Learning. *Learning and Instruction*, v. 1, n. 3, p. 243-259.
- Engestrom Y. et al. (1995), Polycontextuality and Boundary Crossing in Expert Cognition: Learning and Problem Solving in Complex Work Activities. *Learning and Instruction*, V. 5, n. 4, p. 319-336.
- European Commission (1995), *Key/Core Competencies*. Bruxelles.
- Fabbi D. (1999), "L'esperienza dell'apprendere. Riflessioni sui rapporti tra teoria, pratica e apprendimento" in R. Di Nubila (ed.), *La formazione oltre l'aula: lo stage. L'organizzazione e la gestione delle esperienze di tirocinio in azienda e in altri contesti*. CEDAM, Padova.
- Fontana L. (2000), *La valorizzazione dell'esperienza pratica nei processi educativo-formativi*. In *B.D.P. Formazione Funzioni Obiettivo*, Marzo 2000.
- Frabboni F. (1998), "Valutare con credito", *Iter. Scuola cultura e società*, settembre dicembre 1998, anno I numero 3, pp. 40-.
- Freiberg H.J. Driscoll A. (1992), *Universal Teaching Strategies*. Boston, Allyn and Bacon.
- Gardner H. (1983), *Frames of Mind: The Theory of Multiple Intelligences*. N. Y., Basic Books. Trad. it. *Formae mentis. Saggio sulla pluralità dell'intelligenza*. Milano, Feltrinelli, 1991.
- Gardner H. (1993), *Multiple Intelligences: The Theory in Practice*. New York, Basic Books.
- Gherardi S. Nicolini D. Odella F. (1997), *Learning in Communities of Practice and Learning in Traditional Formative Contexts*. *Apprendere nelle comunità di pratica e apprendere nei contesti di formazione tradizionali*. *Sociologia del Lavoro*, 65, 79-98.

- Hargreaves, A. Woods, P., *Classrooms and Staffrooms: The Sociology of Teachers and Teaching*. London, Open University Press, 1984.
- Hargreaves, D. Hopkins, D., *The Empowered School*. London, Cassel, 1991, 1993.
- Harley S. (1993), Situated Learning and Classroom Instruction. *Educational Technology*, 33 (3), 46-51.
- Husén T. (1990), *Education and the Global Concern*. Pergamon Press, Oxford.
- Hutchins E. (1991), Organizing Work by Adaptation. In "Organizational Science" 2/1, pp.14-39.
- ISFOL (1991), *La formazione nei programmi comunitari*. Capone ed., Roma.
- Johnson D.W. Johnson R.T.(1987), *Learning Together and Alone: Cooperation, Competition, and Individualization*. Englewood Cliffs, NJ: Prentice Hall.
- Johnson D. W. Johnson R. T. Holubec E. J. (1994), *The nuts and bolts of Cooperative Learning*. Edina, Interaction Book Company. Trad. It.: *Apprendimento cooperativo in classe. Migliorare il clima emotivo e il rendimento*. Trento, Erickson, 1996.
- Johnson D.W. Johnson R.T.(1996), *Meaning and Manageabe ASSESSMENT Through Cooperative Learning*. Edina, Interaction Book Company.
- Jones S. (1996), *Developing a Learning Culture. Empowering People to deliver quality, innovation and long-term success*. London, McGraw-Hill Book Co.
- Joyce B. Weil M. Showers B. (1986, 1992), *Models of Teaching*. Englewood Cliffs (NJ), Prentice-Hall.
- Kagan S. (2000), *L'apprendimento cooperativo. L'approccio strutturale*. Roma, Edizioni Lavoro.
- Kohlberg L. Higgins A. Power C. Reimer J. (1986), *Democracy and Schooling*. New York, Columbia University Press.
- Lave J. (1992), *Word Problems: A Microcosm of Theories of Learning*. In P. Light G. Butterworth (eds.), *Context and Cognition. Ways of Learning and Knowing*. London, Harvester Wheatsheaf, pp. 74-92.
- Lave J. Wenger E. (1991), *Situated Learning: Legitimate peripheral participation*, New York, Cambridge University Press.
- Lave J. Wenger E. (1996), *Situated Learning: Legitimate Peripheral Participation*. Cambridge, Cambridge University Press.
- Lewin K. Lippitt R. White R. (1939), "Patterns of Aggressive Behavior in Experimentally Created Social Climates". *Journal of Social Psychology*, 10, 271-299.
- Lewin K. Lippitt R. White R. (1961), *Autocracy and Democracy*. New York, Harper & Rowe.
- Libera S. Betta G. (1996), Daedalus: un racconto fra scuola e mondo del lavoro. In: *Osservatorio del mercato del lavoro*, Provincia Autonoma di Trento, Agenzia del lavoro, 3/1995.
- Malizia G. Pieroni V. Salatin A. (1997), La formazione professionale nell'UE: problemi e prospettive. In: *Rivista quadrimestrale ISRE*, n.2, IV. pp. 15-34.
- Marconato G. (1998), *Competenze critiche per il lavoro e l'occupazione. Studio di casi e indicazioni metodologiche*. Progetto Key Skills. Provincia Autonoma di Bolzano, Formazione professionale in lingua italiana.
- Marconato G. Rocchetti L., L'azienda come 'produttrice di competenza professionale'. In: *Professionalità*, 30, Dic. '95, p. 71-81.
- Mclellan H. (1996), *Situated Learning Perspectives*. Englewood Cliffs, (N.J.), Educational Technology Publ.
- Mehan H. B.(1978), Structuring School Structure. In: *Harvard Educational Review*, 48, 1, pp.32-64.
- Mehan H. B.(1979), *Learning Lessons: Social Organization in the Classroom*. Cambridge, Cambridge University Press
- Mehan H, B.(1993), *Why I Like to Look: On the Use of Videotape as an Instrument in Educational Research*. In: Schratz M. (Ed.), *Qualitative Voices in Educational Research*. London, The Falmer Press, pp. 93-105.
- Mehan H. Hertweck A. Meihls J.L. (1985), *Handicapping the Handicapped*. Stanford (CA), Stanford University Press.
- Moro G (1998), *La formazione nelle società post-industriali*. Roma, Carocci.
- Moscatti R. (ed.) (1989), *La sociologia dell'educazione in Italia*. Centralità e marginalità della scuola, Zanichelli, Bologna.
- OCSE (1998), *Esame delle politiche nazionali dell'istruzione - Italia*. Roma, Armando.
- Oggero L. (1998), *Alla ricerca di nuove rotte manageriali. L'azienda tra apprendimento e desiderio*. F. Angeli, Milano.
- Painelli A. (1995), Letteratura e lavoro. In: *Rassegna*. Istituto Pedagogico in Lingua Italiana, Bolzano, 3/95.

- Palincsar A. S. Brown A. L. (1984), Reciprocal Teaching of Comprehension-fostering and Comprehension-monitoring Activities. *Cognition and Instruction*, 1, pp. 117-175. In: Pontecorvo C. Ajello M. Zucchermaglio C. (1995) *I contesti sociali dell'apprendimento*. LED, Milano.
- Piaget, J. (1926), *The Language and Thought of the Child*. New York, Harcourt, Brace.
- Pontecorvo C. (1995), *L'apprendimento tra culture e contesti: l'apprendistato cognitivo*. In: C. Pontecorvo A. Ajello C. Zucchermaglio, *I contesti sociali dell'apprendimento*. Milano, LED, 1995.
- Provincia Autonoma di Bolzano, Ripartizione Formazione Professionale in Lingua Italiana (1995), *Progetto di transizione lavoro - apprendistato*. Ripartizione Formazione Professionale in lingua italiana, Prov. Autonoma di Bolzano editore.
- Quaglino G. Casagrande S. Castellano A., Gruppo di lavoro Lavoro di gruppo. Milano, Raffaello Cortina, 1992.
- Rescalli G. (1995), *il cambiamento nei sistemi educativi*. La Nuova Italia, Firenze.
- Resnick L.B. (1987), "Learning In School And Out", *Educational Researcher*, 16/9,1987, p. 13-20, in C. Pontecorvo, A.M. Ajello, C. Zucchermaglio (eds.) (1995), *I contesti sociali dell'apprendimento. Acquisire conoscenze, a scuola, nel lavoro, nella vita quotidiana*. LED, Milano.
- Resnick L. B. (1987), *Education and Learning to Think*. Washinton D. C., National Academy Press.
- Ribolzi L. (1993), *Sociologia dei processi formativi*. La Scuola, Brescia.
- Rogers C. R. Freiberg H. J. (1994), *Freedom to Learn*. New York, Maxwell Macmillan International.
- Saltarelli S. (2000), Alternanza scuola-lavoro: integrare per rinnovare. In *B.D.P. Formazione Funzioni Obiettivo*, Marzo 2000.
- Sharan Y. Sharan S. (1992), *Expanding Cooperative Learning Through Group Investigation*. New York, Teachers' College Press. Traduzione italiana, *Gli alunni fanno ricerca*. Trento, Ericson, 1998. Presentazione di G. Chiari.
- Shavit Y. Muller W. (1995), *From School to Work*. Oxford, Claredon Press.
- Schmuck R. A. Schmuck P. A. (1997), *Group Processes in the Classroom*. Brown & Benchmark, Chicago, (pp. 277-290).
- Slavin R.E. (1991, 1996), *Cooperative Learning: Theory, Research, and Practice*. London, Allyn and Bacon.
- Sternberg R. Spearl Swerling L. (1996), *Teaching for Thinking*. American Psychological Association, Washington, D. C., 1996. Traduz. italiana: *Le tre intelligenze. Come potenziare le capacità analitiche, creative e pratiche*. Trento Ericson, 1997. Presentazione di C. Cornoldi.
- Sternberg R. et al. (2000), *Practical Intelligence in Everyday Life*. New York, Cambridge University Press.
- Van Maanen J. Barley S. (1984), *Occupational Communities: Culture and Control in Organizations*. In: Straw B.. Cummings L. (Eds.), *Research in Organizational Behaviour*. London, JAI Press.
- Vygotsky L. S. (1962), *Thought and Language*. Cambridge, Mass., the MIT Press, VI ed., 1992. Traduz. italiana: *Pensiero e linguaggio*. Firenze, Giunti-Barbera, 1973.
- Vygotsky L. (1978), *Mind in Society: The Development of Higher Psychological Processes*. Cambridge: Harvard University Press. Traduz. Italiana: *Storia delle funzioni psichiche superiori*. Firenze, Giunti.
- Vygotsky L. (1980), *Il processo cognitivo*. Torino, Boringhieri.
- Webb N. (1985), *Student Interaction and Learning in Small Groups: a Research Summary*. In R. E. Slavin S. Sharan S. Kagan R. Hertz- Lazarowitz C. Webb R. Schmuck (Eds.), *Learning to Cooperate, Cooperating to Learn*, pp. 147-172. New York, Plenum.
- Wertsch J. V. (1985), *Vygotsky and the Social Formation of Mind*. Cambridge, Harvard University Press.
- Wertsch J. Sammarco J. (1985), *Social Precursors to Individual Cognitive Functioning: The problem of Unity of Analysis*. In R. Hinde A. Perret-Clermont J. Stevenson Hinde (Eds.), *Social Relationships and Cognition Development*. Oxford, Clarendon Press, pp. 276-291.
- White R. Lippitt R. (1960), *Autocracy and Democracy*. New York, Harper.
- Wittrock M.C. (1986), *Students' Thought Processes*. In: Wittrock M. C. (Ed.), *Handbook of Research on Teaching*. New York, Macmillan.
- Woods P. (1983), *Sociology and the School: an Interactionist Viewpoint*. London, Routledge and Kegan Paul.
- Woods P. (1986), *Inside Schools. Ethnography in Educational Research*. London, Routledge & Kegan Paul.
- Woods P. (1990), *L'ethnographie de l'école*. Paris, A. Colin.
- Zucchermaglio C. (1995), "Studiare le organizzazioni. Apprendimento, pratiche di lavoro e tecnologie nei contesti organizzativi", in C. Pontecorvo, A.M. Ajello, C. Zucchermaglio (eds.) (1995), *I contesti sociali dell'apprendimento. Acquisire conoscenze, a scuola, nel lavoro, nella vita quotidiana*. LED, Milano, p. 235-261.
- Zucchermaglio C. (1996), *Vygotskij in azienda*. Roma, La nuova Italia Scientifica.

## Appendix 1. THE RESULTS TABLES

**Table 1.1. The experimental design**

1 <sup>a</sup> Survey (June 1998)			
	Tot	Exper.	Contr.
Schools	16	13	13
Classes	47	20	27
Pupils	865	384	481
2 <sup>a</sup> Survey (November 1998)			
	Tot	Exper.	Contr.
Schools	17	14	10
Classes	48	26	22
Pupils	804	422	382
3 <sup>a</sup> Survey (May 1999)			
	Tot	Exper.	Contr.
Schools	21	17	12
Classes	59	35	24
Pupils	975	606	369
Research total			
	Tot	Exper.	Contr.
Schools	32	27	23
Classes (tested)	154	81	73
Classes (different)	98	58	52
Pupils	2644	1412	1232

**Table 1.2. The research design: data by areas and provinces.**

		TN & BZ	Other Provinces	Tot
EXPERIMENTAL	1 <sup>a</sup>	191	193	384
	2 <sup>a</sup>	147	275	422
	3 <sup>a</sup>	<u>238</u>	<u>368</u>	<u>606</u>
Tot.		576	836	1412
CONTROL	1 <sup>a</sup>	103	378	481
	2 <sup>a</sup>	69	313	382
	3 <sup>a</sup>	<u>119</u>	<u>250</u>	<u>369</u>
Tot.		291	941	1232
Total		867	1777	2644

Province	Experim.			Control			Tot.
	1	2	3	1	2	3	
TN	159	147	204	68	69	103	750
BZ	33	-	34	35	-	16	118
PD	115	-	-	93	50	-	261
VI	40	43	-	62	-	-	145
UD	-	191	257	188	134	149	919
TV	36	38	61	34	129	61	359
SV	-	-	39	-	-	40	69
Total	384	422	606	4481	382	369	2644

**Table 1.3. The research design: schools, classes, pupils.**

Schools	Level			Experim.			Control			Tot
	Elem.	Mid.	High	1	2	3	1	2	3	
				1	2	3	1	2	3	7 4
BZ: Foscolo				2		2	2		1	118
				34	-	34	35	-	16	2 2
TN: Bernardi	x			2						31
				31	-	-	-	-	-	2 2
Buonarroti			x	1			1			35
				18	-	-	17	-	-	4 4
Filzi	x			2			2			77
				38	-	-	39	-	-	6 3
Sanzio	x			1	2	2	1			72
				13	21	26	12	-	-	1 1
Zandonai	x			1						16
				16	-	-	-	-	-	8 5
Don Milani			x	2		3		1	2	149
				43	-	55	-	13	38	6 3
Sc. Mezzolombardo	x				2	2		1	1	100
				-	34	32	-	17	17	6 3
Garbari		x			2	2		1	1	123
				-	42	40	-	20	21	5 3
Grazioli	x				2	2		1		86
				-	34	33	-	19	-	2 1
Manzoni		x			1	1				34
				-	16	18	-	-	-	2 2
Cognola	x								27	27
				-	-	-	-	-		1 1
Rodari	x					1				11
				-	-	11	-	-	-	2 2
PD: Cattaneo		x		1			1			45
				21	-	-	24	-	-	5 4
Guinizzelli	x			1			1	3		105
				29	-	-	26	50	-	5 4
Kennedy		x		3			2			112
				68	-	-	44	-	-	4 3
VI: Battistella	x			1	2		1			86
				19	43	-	24	-	-	1 1
Martini		x					1			12
				-	-	-	12	-	-	2 2
Rezzara	x			1			1			47
				21	-	-	26	-	-	19 13
TV: Rossi	x			2	2	3	2	7	3	359
				36	38	61	34	129	61	

**Table 1.3 (follows). The research design: schools, classes, pupils**

Schools	Level			Experim.			Control			Tot	
	Elem.	Mid.	High.	1	2	3	1	2	3		
							6	5	6	17	9
UD: Ellero	x			-	-	-	107	87	97	291	
					6	6	6			18	8
Galilei	x			-	77	81	81	-	-	239	
								1	1	2	1
Da Vinci	x			-	-	-	-	15	20	35	
					2	2				4	2
Faleschini	x			-	33	34	-	-	-	67	
					1	1		1	1	4	2
Linumio		x		-	20	23	-	14	16	73	
					1					1	1
Marinelli		x		-	27	-	-	-	-	27	
					1	1		1	1	4	2
Paschini		x		-	15	13	-	18	16	62	
					1	1				2	1
Solari		x		-	19	20	-	-	-	39	
						2				2	2
De Amicis	x			-	-	36	-	-	-	36	
Giovanni						2				2	2
XXIII		x		-	-	50	-	-	-	50	
SV:									1	1	1
Finalborgo	x			-	-	-	-	-	10	10	
						2			2	4	4
Finalmarina	x			-	-	39	-	-	30	69	
										151	98
									Total	2644	

**Table 1.3 (follows). The research design: schools, classes, pupils**

School level	2	3	4	5	6	7	8	9	10	11	12	
Elementary	124	333	350	258							1065	
Middle					412	417	196				1025	
Vocational								86	136	-	-	222
Technical								111	67	-	35	213
Liceo								21	24	-	74	119

Province	N.		N.		
	Schools		Classes		
		1 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>	Questionnaires
TN	11				761
BZ	1	2			119
PD	3				262
VI					145
TV					359
UD					919
SV					79
Total					2644

Level		Experim.			Control			Exper.	Contr.
		1	2	3	1	2	3		
Elementary	1065	98	166	258	239	123	181	522	543
Dower second.	1025	136	175	237	145	214	118	548	477
Upper second.	534	150	81	111	97	45	70	342	212
Total	2644	384	422	606	481	382	369	1412	1232
Design	Tot.	Exper.	Contr.						
Surveys: I	865	384	481						
II	804	422	382						
III	975	606	369						
Total	2644	1412	1232						

**Table 2.1. Structure of experimental and control groups**

	Design			Experimental				Control				
	Tot.	Exper.	Contr.	1	2	3	p(F)	1	2	3	p(F)	
<i>Self-Evaluation:</i>												
“How are you getting on at school?”	3.74	3.59	3.93**	3.51	3.64	3.61	.388	4.00	3.80	3.95	.121	
“Are your grades good?”	3.31	3.20	3.45**	3.20	3.31	3.12	.137	3.47	3.40	3.46	.000	
<i>Repeaters (%yes):</i>												
“Did you ever repeat a school?” (1 yes; 2 no)	1.87	1.87	1.88	1.84	1.90	1.86	.020	1.90	1.87	1.85	.061	
<i>Achievement (% yes)</i>												
“Goes willingly to school?” (1 yes; 2 no)	1.19	1.18	1.20	1.14	1.18	1.21	.043	1.19	1.16	1.23	.054	
	81.1	81.6	80.4	85.4	81.9	78.9	.043	80.8	83.7	76.5	.054	
<i>Membership:</i>												
“Do you think your classmates like you?” (1 yes; 2 no)	2.91	2.84	2.99*	2.83	2.74	2.91	.266	2.94	3.13	2.88	.145	
<i>Sociom. Research:</i>												
Coesion (COR)	29.8	30.4	29.2*	29.5	34.3	27.7	.000	28.1	31.7	28.2	.000	
<i>Sociom. Play:</i>												
Coesion (COG)	30.1	31.5	28.7**	26.3	37.4	30.1	.000	27.6	31.3	27.6	.000	

(\* p<.05  
\*\* p<.01)

**Table 2.2. Repeating students and self-evaluating school achievement by school level: comparing experimental and control groups**

	% Repeating stud.			% Goes not willingly			% Self-Evaluation Plain			% Marginalizes		
	Tot.	Exper.	Contr.	Tot.	Exper.	Contr.	Tot.	Exper.	Contr.	Tot.	Exper.	Contr.
<i>School level:</i>												
2	14.2	19.0	13.1	9.3	14.3	8.2	6.4	11.1	5.5	10.6	8.7	11.0
3	8.4	12.7	5.1	14.3	11.1	16.7	3.4	1.5	4.9	16.1	12.6	18.1
4	8.9	13.9	4.6	16.6	15.9	17.1	5.5	8.2	3.1	14.3	13.3	15.2
5	5.7	6.0	4.9	13.6	14.1	11.9	7.2	5.1	13.1	12.7	11.7	14.1
6	7.7	5.4	10.7	17.0	13.6	21.5	21.8	21.4	22.2	16.6	16.7	16.6
7	11.1	8.6	12.8	22.4	27.5	18.9	29.5	33.5	26.6	15.6	15.1	16.0
8	13.3	13.3	13.2	21.1	19.0	26.9	36.5	39.1	29.2	18.4	17.5	20.8
9	27.6	22.9	41.5	22.2	20.6	26.9	49.0	47.7	52.9	11.9	15.8	1.8
10	26.8	28.5	24.4	25.5	23.4	28.4	43.8	50.8	33.7	13.9	12.1	16.0
12	14.3	6.8	19.7	33.7	34.9	32.8	39.2	43.2	36.2	19.3	17.4	20.6
Tot	12.6	12.9	12.3	18.9	18.4	19.6	22.6	25.6	19.1	15.2	14.8	15.6
(N)	(2521)	(1350)	(1171)	(2488)	(1328)	(1160)	(2386)	(1294)	(1092)	(2386)	(1294)	(1092)
√di Cramer	[.212]	[.221]	[.260]	[.133]	[.151]	[.152]	[.377]	[.377]	[.377]	[.066]	[.071]	[.095]
										n. s.	n. s.	

**Table 3.1. The synthetic results: Before/After, Experimental/Control**

	(N)	Tot.	Phases			P(F)	Design			Experimental			P(F)	Control			P(F)
			1	2	3		Exper.	Contr.		1	2	3		4	5	6	
1. Climacl	2638	3.98	3.91	4.05	3.99	.088	3.92	4.06	.008	3.75	4.02	3.96	.004	4.04	4.08	4.05	.919
2. Soddisf <sub>I</sub>	2572	3.67	3.71	3.72	3.60	.015	3.62	3.73	.003	3.57	3.69	3.61	.163	3.82	3.75	3.58	.003
3. Sociom <sub>R</sub>	2399	15.2	17.8	15.1	12.8	.151	14.8	15.6	.281	19.2	14.4	12.2	.201	16.8	16.0	13.5	.866
4. Autoval	2572	3.74	3.78	3.71	3.74	.621	3.59	3.93	.000	3.51	3.64	3.61	.388	4.00	3.80	3.95	.120
5. Coopinv	1865	3.24	3.29	3.27	3.21	.000	3.26	3.22	.047	3.32	3.25	3.24	.057	3.27	3.29	3.14	.000

1 (% Ø choices)

**Table 4.1. My Classroom Group Climate Survey test (Brown & Goodall, G. Chiari, 1994)**

	N	Tot	Phases				Design			Experimental Phases				Control Phases				Repeaters			Sociom				Sex	
			1	2	3	p(F)	Exper	Contr	p(F)	1	2	3	p(F)	1	2	3	p(F)	Si	No	p(F)	0	1	2	3	M	F
Climac1		3.98	3.91	4.05	3.99	.088	3.92	4.06	.008	3.75	4.02	3.96	.004	4.04	4.08	4.05	.919	3.66	4.03	.000	3.88	3.95	3.98	4.18*	3.93	4.03*
	N	2638	863	803	972		1409	1229		383	421	605		480	382	367		318	2203		362	476	1295	261**	1229	1407
Identity		4.11	4.12	4.18	4.404	.221	3.99	4.25	.000	3.99	4.05	3.95	.641	4.23	4.32	4.19	.545	3.91	4.14	.030	3.84	4.03	4.14	4.42**	4.15	4.08
Classmates		4.11	4.03	4.22	4.09	.060	4.07	4.16	.170	4.01	4.19	4.03	.186	4.05	4.25	4.21	.177	4.20	4.09	.280	3.89	3.95	4.18	4.24**	4.06	4.16
Teachers		3.85	3.73	3.89	3.92	.060	3.81	3.90	.196	3.49	3.92	3.93	.000	3.92	3.86	3.90	.872	3.26	3.93	.000	3.87	3.90	3.78	4.02	3.75	3.94

	N	Tot	Achiev.				Willingly			School Type			
			B	M	A	p(F)	Yes	No	p(F)	Elem.	Mid.	High.	p(F)
Climac1		3.98	3.44	3.96	4.41	.000	4.17	3.23	.000	4.40	3.85	3.41	.000
	N	2638	540	1134	712		2017	471		1062	1023	553	
Identity		4.11	3.71	4.09	4.47	.000	4.24	3.60	.000	4.22	4.03	4.05	.020
Classmates		4.11	4.07	4.16	4.07	.481	4.21	3.70	.000	4.01	4.14	4.28	.008
Teachers		3.85	3.00	3.80	4.55	.000	4.10	2.80	.000	4.69	3.62	2.66	.000

**Table 4.2. The trend of the indexes of classroom climate, student's satisfaction and Cooperative Involvement by school level.**

	School level											p(F)	F
	Tot.	2	3	4	5	6	7	8	9	10	12		
CLIMACL	3.99	5.06	4.63	4.23	4.02	4.19	3.67	3.53	3.41	3.56	3.11	.000	46.32
Identity	4.11	4.98	4.39	4.00	3.93	4.15	4.02	3.78	3.94	4.00	4.36	.000	6.72
Fellows	4.11	4.43	3.97	3.93	3.94	4.33	4.02	4.00	4.32	4.30	4.11	.000	3.15
Teachers	3.85	5.42	5.07	4.49	4.11	4.14	3.31	3.18	2.68	2.97	1.98	.000	91.11
SATISFACTION	3.68	4.49	4.25	3.92	3.86	3.83	3.46	3.23	3.14	3.35	2.93	.000	57.63
BFisiol	3.92	4.65	4.44	4.17	4.08	3.98	3.69	3.48	3.57	3.63	3.37	.000	46.58
Sicur	3.54	4.47	4.10	3.85	3.71	3.64	3.29	3.14	2.97	3.26	2.86	.000	49.64
Affapp	3.22	4.49	4.08	3.68	3.41	3.35	2.80	2.67	2.54	2.74	2.29	.000	79.21
Autosti	3.86	4.31	4.18	3.87	3.95	4.10	3.80	3.51	3.56	3.65	3.41	.000	9.18
Autorea	3.84	4.56	4.46	4.06	4.17	4.11	3.74	3.38	3.05	3.45	2.73	.000	20.96
COOPINV	3.24	3.27	3.37	3.28	3.29	3.27	3.15	3.22	3.15	3.14	2.99	.000	12.81
(N)	(2644)	(124)	(392)	(349)	(257)	(410)	(417)	(196)	(218)	(226)	(109)		

Legenda:

BFisiol	Physiological needs
Sicur	Safety and security
Affapp	Belonging/Affiliation
Autosti	Self-esteem
Autorea	Self-Actualization

**Table 5.1. Student's Satisfaction Test (Jones V. F. Jones L. S., 1990/Freiberg J.)**

	N	Tot.	Phases			p(F)	Design			p(F)	Experimental			p(F)	Control			p(F)
			1	2	3		Exper	Contr	1		2	3	1		2	3		
BFisiol	2561	3.92	3.93	3.92	3.90	.731	3.88	3.96	.021	3.78	3.95	3.89	.018	4.05	3.88	3.91	.014	
Sicur	2567	3.54	3.55	3.58	3.48	.142	3.49	3.59	.007	3.42	3.55	3.49	.219	3.66	3.61	3.48	.054	
Affapp	2571	3.22	3.26	3.26	3.13	.025	3.13	3.32	.000	3.02	3.20	3.13	.089	3.45	3.34	3.08	.000	
Autosti	2554	3.86	3.86	3.94	3.80	.087	3.80	3.93	.014	3.75	3.85	3.80	.594	3.94	4.04	3.79	.050	
Autorea	2502	3.84	3.93	3.92	3.69	.007	3.82	3.87	.514	3.86	3.93	3.71	.113	3.98	3.89	3.66	.048	
Soddisf	2572	3.61	3.71	3.72	3.60	.015	3.62	3.73	.003	3.57	3.69	3.61	.163	3.82	3.75	3.58	.003	
N		2572	863	799	910		1386	1186		383	420	583		480	379	327		

  

	id.	Tot.	Repeaters			p(F)	0	SociomR			p(F)	Sex		p(F)	Achiev.			p(F)
			Yes	No	1			2	3	M		F	B		M	A		
BFisiol	id.	3.92	3.79	3.93	.012	3.87	3.91	3.89	3.98	.501	3.96	3.88	.019	3.62	3.90	4.16	.000	
Sicur	id.	3.54	3.20	3.58	.000	3.32	3.46	3.55	3.82	.000	3.51	3.56	.167	2.87	3.51	4.08	.000	
Affapp	id.	3.22	2.96	3.25	.000	3.09	3.26	3.20	3.36	.046	3.24	3.19	.270	2.67	3.14	3.73	.000	
Autosti	id.	3.86	3.63	3.90	.001	3.57	3.78	3.88	4.25	.000	3.87	3.86	.861	3.40	3.85	4.21	.000	
Autorea	id.	3.84	3.51	3.88	.000	3.59	3.83	3.85	4.12	.004	3.87	3.82	.518	3.24	3.83	4.30	.000	
Soddisf	id.	3.67	3.42	3.71	.000	3.49	3.65	3.67	3.91	.000	3.69	3.66	.408	3.16	3.65	4.09	.000	
N		2572	309	2150		353	464	1256	256		1194	1376		537	1113	681		

  

	id.	Tot.	Willingly			p(F)	School Type			p(F)
			Yes	No	Elem.		Mid.	High.		
BFisiol	id.	3.92	4.01	3.50	.000	4.27	3.76	3.56	.000	
Sicur	id.	3.54	3.71	2.83	.000	3.93	3.40	3.07	.000	
Affapp	id.	3.22	3.39	2.50	.000	3.80	2.99	2.58	.000	
Autosti	id.	3.86	4.01	3.23	.000	4.02	3.86	3.57	.000	
Autorea	id.	3.84	4.02	3.08	.000	4.25	3.82	3.15	.000	
Soddisf	id.	3.67	3.83	3.03	.000	4.05	3.57	3.19	.000	
N		2752	1963	466		1000	1019	553		

Legenda:

BFisiol	Physiological needs
Sicur	Safety and security
Affapp	Belonging/Affiliation
Autosti	Self-esteem
Autorea	Self-Actualization
Soddisf	Student Satisfaction

**Table 6.1. Dimensions of Cooperative Learning: Classroom Life scales. Values of Social support index and Cronbach's Alpha.Values. (J&J's Classroom Life questionnaire)**

Number of valid observations (listwise) = 1361,00

Variable	Mean	Std Dev	Minimum	Maximum	Valid N	$\alpha$
Coop 01 Teacher's Academic Support	3.84		1.00	5.00	1842	.721
Coop 02 Teacher's Personal Support	3.10	1.00	1.00	5.00	1853	.693
Coop 03 Student's Academic Support	2.75	.92	1.00	5.00	1865	.662
Coop 04 Student's Personal Support	3.20	.87	1.00	5.00	1861	.750
Coop 05 Cooperation I	3.92	.73	1.00	5.00	1433	.788
Coop 06 Cooperation II	3.53	.74	1.00	5.00	1853	.477
Coop 07 Positive Goal Interdependence	3.66	.80	1.00	5.00	1815	.571
Coop 08 Resource Interdependence	3.65	.96	1.00	5.00	1741	.734
Coop 09 Alienation	3.12	.56	1.38	4.75	1864	.557
Coop 10 Extrinsic Motivation Social Support	2.11	.98	1.00	5.00	1859	.761
Coop 11 Cohesion	3.49	.62	1.00	5.00	1864	.232
Coop 12 Academic Self-Exteem	3.28	.57	1.00	5.00	1864	.041
Coop 13 Fairness of Grading	3.83	.67	1.00	5.00	1850	.155
Coop 14 Individual Learning	2.97	.55	1.00	5.00	1858	.198
Coop 15 Competitive Learning	2.87	.90	1.00	5.00	1431	.794
Coop 16 Controversy	2.86	.75	1.00	5.00	1851	.025
Coop 17 Valuing Heterogeneity	2.93	.96	1.00	5.00	1844	.530
Coopin <sub>v</sub> COOPERATIVE INVOLVEMENT INDEX	3.24	.37	1.00	4.84	1865	.779

**Table 6.2. The Dimensions of Cooperative Attitude. (J&J's Classroom Life questionnaire) (Total)**

Total	Phases						Design		Experim.			Control			Repeaters		Sociomr				Sex							
	N.	Tot.	1	2	3		Exp.	Cont.	1	2	3	1	2	3	Yes	No	0	1	2	3	M	F						
- Coop 01	1842	3.84	4.04	3.85	3.74	**	3.85	3.81	4.06	3.81	3.82	**=	4.03	3.91	3.60	**-	3.57	3.87	**	3.87	3.81	3.82	3.83	3.78	3.88	*		
+ Coop 02	1853	3.10	3.34	3.09	3.00	**	3.03	3.19	**	3.16	2.99	3.03	+	3.45	3.25	2.96	**+	2.71	3.15	**	3.21	3.13	3.03	3.16	*	3.12	3.08	
+ Coop 03	1865	2.75	2.87	2.77	2.69	**	2.77	2.73	2.72	2.77	2.78	+	2.96	2.78	2.54	**-	2.62	2.76	*	2.85	2.64	2.74	2.83	*	2.81	2.70	**	
+ Coop 04	1861	3.20	3.18	3.22	3.18		3.20	3.19	3.25	3.16	3.21	+	3.14	3.32	3.13	*-	3.08	3.21	*	3.00	3.08	3.24	3.41	**	3.14	3.24	*	
Coop 05	1433	3.92	3.93	4.03	3.79	**	3.99	3.84	**	4.14	4.04	3.87	**-	3.80	4.03	3.66	**-	3.70	3.97	**	3.82	3.86	3.94	4.12	**	3.80	4.02	**
Coop 06	1853	3.53	3.50	3.57	3.51		3.62	3.39	**	3.88	3.58	3.58	**=	3.26	3.55	3.37	**-	3.44	3.54	*	3.48	3.50	3.50	3.60		3.50	3.55	
+ Coop 07	1815	3.66	3.62	3.67	3.66	+	3.73	3.54	**	3.81	3.70	3.74	+	3.50	3.63	3.51	°-	3.44	3.69	**	3.54	3.62	3.66	3.72	°	3.62	3.68	°
+ Coop 08	1741	3.65	3.70	3.79	3.54	**	3.70	3.57	**	3.89	3.77	3.62	**-	3.58	3.81	3.40	**-	3.47	3.69	**	3.54	3.64	3.66	3.83	*	3.60	3.70	*
- Coop 09	1864	3.12	3.20	3.12	3.09	**	3.10	3.16	**	3.10	3.11	3.09	=	3.26	3.15	3.09	**-	3.04	3.14	**	3.12	3.13	3.12	3.15		2.99	2.93	*
- Coop 10	1859	2.11	2.12	2.11	2.10		2.06	2.18	**	1.88	2.02	2.12	*+	2.26	2.24	2.07	*-	2.17	2.09		2.26	2.13	2.08	1.97	**	3.13	3.12	
+ Coop 11	1864	3.49	3.55	3.52	3.45	**	3.48	3.50	3.54	3.50	3.46	-	3.56	3.56	3.42	**-	3.27	3.52	**	3.43	3.49	3.49	3.53		3.50	3.48		
= Coop 12	1864	3.28	3.33	3.36	3.20	**	3.27	3.29	3.31	3.34	3.21	-	3.34	3.38	3.19	**-	3.31	3.27		3.33	3.31	3.29	3.19	°	3.27	3.28		
+ Coop 13	1850	3.83	3.79	3.76	3.88	**+	3.83	3.81	3.82	3.73	3.90	**+	3.77	3.80	3.83	+	3.62	3.85	**	3.73	3.75	3.81	3.92		3.82	3.83		
Coop 14	1858	2.97	3.03	2.97	2.94	*	2.94	3.00	*	2.88	2.95	2.95	=	3.12	3.00	2.92	**-	3.01	2.96		3.02	2.95	2.95	3.01		3.02	2.93	**
Coop 15	1431	2.87	2.89	2.90	2.82		2.88	2.86	2.77	2.95	2.85	°-	2.96	2.83	2.78	°-	2.83	2.87		2.89	2.95	2.87	2.71	°	3.12	2.66	**	
Coop 16	1851	2.86	2.83	2.78	2.91	**	2.88	2.82	°	2.85	2.84	2.91	-	2.82	2.70	2.91	**+	2.87	2.85		2.92	2.87	2.82	2.85		2.92	2.80	**
Coop 17	1844	2.93	2.91	2.98	2.90		2.99	2.85	**	3.24	2.94	2.95	**=	2.72	3.03	2.82	**-	2.98	2.93		2.84	2.88	2.95	2.98		2.91	2.94	
COOPINV	1865	3.24	3.28	3.26	3.18	**	3.25	3.21	*	3.31	3.25	3.23	.054	3.26	3.29	3.13	.000	3.13	3.26	**	3.22	3.22	3.23	3.28		3.25	3.22	°
(N)			379	573	913		1070	795	140	348	582		235	225	331		(232)	(1538)		(242)	(342)	(760)	(308)		(870)	(993)		

**Table 6.3. The Dimensions of Cooperative Attitude. (J&Js Classroom Life questionnaire) (before)**

[1° Rilevazione]	Total	Design		Repeaters		Achiev.		Sociometric				Sex		Type of school							
		Exper.	Contr3	1 Yes	2 No	1 Low	2 High	0	1	2	3	M	F	1Elem.	2 Mid.	3 High					
Coop 01 T Academic Support	4.05	4.07	4.03		3.95	4.07	3.90	4.15	**	3.99	4.03	4.09	4.15	4.01	4.08	4.20	3.88	3.87	**		
Coop 02 T Personal Support	3.34	3.16	3.45	**	3.19	3.36	3.10	3.48	**	3.55	3.48	3.28	3.34	3.36	3.32	3.67	3.03	2.85	**		
Coop 03 S Academic Support	2.87	2.72	2.96	*	2.80	2.86	2.82	2.88		3.18	2.63	2.88	2.99	**	2.94	2.80	°	2.99	2.85	**	
Coop 04 S Personal Support	3.18	3.25	3.14		3.13	3.19	3.19	3.20		3.20	3.07	3.20	3.17	3.19	3.18	3.13	3.24	3.26			
Coop 05 Cooperation I	3.93	4.14	3.80	**	3.83	3.97	3.86	4.01	°	3.89	3.82	3.89	4.09	3.80	4.05	**	3.97	3.82	4.11	*	
Coop 06 Cooperation II	3.50	3.89	3.26	**	3.64	3.48	3.54	3.49		3.55	3.41	3.40	3.47	3.43	3.55	3.36	3.60	3.74	**		
Coop 07 Pos. Goal Interdep.	3.62	3.82	3.50	**	3.66	3.65	3.63	3.65		3.46	3.56	3.62	3.70	3.53	3.70	*	3.63	3.50	3.88	**	
Coop 08 Rersource Interdep.	3.71	3.89	3.58	**	3.66	3.75	3.68	3.75		3.62	3.60	3.69	3.79	3.61	3.79	*	3.76	3.53	3.92	**	
Coop 09 Alienation	2.98	2.98	2.98		2.97	2.99	3.05	2.94	*	3.05	3.02	2.98	2.80	°	3.00	2.95	2.96	3.02	2.94		
Coop 10 Extr. Motiv. Soc. Sup.	2.12	1.88	2.26	**	2.25	2.09	2.23	2.02	*	2.37	2.12	2.07	1.79	*	2.32	1.94	**	2.24	2.00	1.93	*
Coop 11 Cohesion	3.55	3.54	3.56		3.52	3.56	3.49	3.60	°	3.46	3.62	3.54	3.57	3.54	3.56	3.62	3.48	3.49	°		
Coop 12 Academ. Self Estrem	3.67	3.60	3.71	*	3.42	3.71	**	3.57	3.71	*	3.66	3.69	3.72	3.70	3.64	3.69	3.75	3.62	3.46	**	
Coop 13 Fairness of Grading	3.79	3.82	3.78		3.73	3.81		3.79	3.83		3.68	3.79	3.80	3.98	°	3.79	3.79	3.86	3.69	3.76	*
Coop 14 Individual Learning	3.03	2.88	3.12	**	3.05	3.04	2.99	3.06		3.05	3.01	3.06	3.10	3.07	2.99	3.12	2.93	2.90	**		
Coop 15 Competitive Learning	2.89	2.77	2.96	*	2.70	2.92	°	2.73	2.93	*	2.90	3.16	2.94	2.62	*	3.13	2.68	**	3.02	2.88	**
Coop 16 Controversy	2.83	2.85	2.82		2.58	2.87	**	2.78	2.82		2.94	2.84	2.84	2.61	2.89	2.78	°	2.81	2.89	2.76	
Coop 17 Valuing Heterogeneity	2.91	3.24	2.72	**	3.08	2.90		3.04	2.89	°	2.86	2.80	2.90	2.72	2.86	2.95	2.80	2.91	3.33	**	
COOPINV Indice Social Support	3.29	3.33	3.27	(.127)	3.24	3.30	3.26	3.31		3.32	3.27	3.28	3.27	3.29	3.28	3.34	3.22	3.23	**		
(N)	(379)	(140)	(239)		(48)	(316)	(108)	(230)		75	68	138	59	176	203	201	127	51			

**Table 6.3 (follows). The Dimensions of Cooperative Attitude. (J&Js Classroom Life questionnaire) (after b)**

[2ª Rilevazione]	Total	Design		Repeaters			Achiev.		Sociometric				Sex		Type of school							
		Exper.	Contr3	p(F)	1 Yes	2 No	p(F)	1 Low	2 High	p(F)	0	1	2	3	p(F)	M	F	1Elem.	2 Mid.	3 High	p(F)	
Coop 01 T Academic Support	3.85	3.81	3.91	.187	3.63	3.87	*	3.66	3.94	**	3.86	3.90	3.87	3.77		3.81	3.89	4.03	3.90	3.37	**	
Coop 02 T Personal Support	3.09	2.99	3.25	**	2.81	3.11	*	2.70	3.29	**	3.10	3.10	3.07	3.18		3.10	3.08	3.41	3.17	2.25	**	
Coop 03 S Academic Support	2.77	2.77	2.77		2.77	2.76		2.65	2.84	**	2.68	2.74	2.81	2.76		2.81	2.73	2.91	2.71	2.55	**	
Coop 04 S Personal Support	3.22	3.16	3.32	*	3.26	3.22		3.14	3.31	*	2.86	3.07	3.31	3.53	**	3.14	3.30	*	3.18	3.23	3.29	
Coop 05 Cooperation I	4.04	4.04	4.03		3.85	4.05	*	3.96	4.08	*	3.93	3.97	4.07	4.33	**	3.93	4.13	**	4.07	4.00	4.00	
Coop 06 Cooperation II	3.57	3.58	3.55		3.51	3.57		3.52	3.63	°	3.58	3.53	3.60	3.71		3.56	3.58	3.54	3.62	3.53		
Coop 07 Pos. Goal Interdep.	3.68	3.70	3.63		3.42	3.70	**	3.53	3.78	**	3.51	3.72	3.70	3.86	*	3.67	3.68	3.78	3.64	3.45	**	
Coop 08 Rersource Interdep.	3.79	3.77	3.81		3.52	3.82	**	3.76	3.80		3.66	3.87	3.81	3.97	.192	3.74	3.83	.180	3.81	3.81	3.69	
Coop 09 Alienation	2.94	2.91	2.96		2.97	2.91		3.00	2.86	**	3.08	2.97	2.93	2.71	**	2.98	2.89	*	2.97	2.85	3.00	*
Coop 10 Extr. Motiv. Soc. Sup.	2.11	2.02	2.24	**	2.19	2.09		2.08	2.14		2.13	2.20	2.08	2.15		2.31	1.93	**	2.41	1.87	1.83	**
Coop 11 Cohesion	3.53	3.50	3.56		3.33	3.54	**	3.41	3.60	**	3.44	3.53	3.54	3.57		3.57	3.48	°	3.71	3.49	3.16	**
Coop 12 Academ. Self Estrem	3.66	3.65	3.67		3.57	3.66	°	3.56	3.70	**	3.66	3.69	3.68	3.60		3.62	3.68	°	3.72	3.61	3.57	**
Coop 13 Fairness of Grading	3.76	3.74	3.80		3.59	3.78	*	3.64	3.84	**	3.80	3.77	3.75	3.78		3.77	3.75		3.82	3.81	3.54	**
Coop 14 Individual Learning	2.98	2.95	3.00		3.00	2.97		3.02	2.95	°	2.99	2.99	2.95	3.02		3.06	2.90	**	3.02	2.85	3.08	**
Coop 15 Competitive Learning	2.91	2.95	2.84	.137	2.98	2.90		2.91	2.91		3.01	2.94	2.85	2.76		3.16	2.68	**	3.01	2.92	2.63	**
Coop 16 Controversy	2.79	2.84	2.70	*	2.88	2.77		2.83	2.76		2.95	2.83	2.70	2.86	*	2.83	2.74	°	2.73	2.78	2.90	°
Coop 17 Valuing Heterogeneity	2.98	2.94	3.03		2.93	2.97		2.96	3.01		2.92	2.91	3.01	3.11		3.02	2.93		2.90	2.96	3.17	*
COOPINV 2Indice Social Support	3.27	3.25	3.29	.148	3.19	3.27	.084	3.19	3.32	.000	3.24	3.28	3.27	3.33	.654	3.30	3.24	.074	3.36	3.25	3.11	.000
(N)	573	348	225		62	484		212	307		68	106	292	60		269	303		261	195	117	

**Table 6.3 (follows). The Dimensions of Cooperative Attitude. (J&Js Classroom Life questionnaire) (after c)**

[3ª Rilevazione]	Total	Design		Repeaters			Achiev.			Sociometric				Sex			Type of school					
		Exper.	Contr3	p(F)	1 Yes	2 No	p(F)	1 Low	2 High	p(F)	0	1	2	3	p(F)	M	F	p(F)	1Elem.	2 Mid.	3 High	p(F)
Coop 01 T Academic Support	3.74	3.82	3.60	.000	3.40	3.79	.000	3.58	3.84	.000	3.78	3.66	3.70	3.75	.660	3.68	3.79	.046	3.97	3.67	3.40	.000
Coop 02 T Personal Support	3.01	3.03	2.96	.311	2.46	3.08	.000	2.71	3.18	.000	3.03	2.99	2.91	3.08	.383	3.03	2.98	.478	3.38	2.94	2.35	.000
Coop 03 S Academic Support	2.69	2.78	2.54	.000	2.47	2.72	.005	2.57	2.75	.006	2.73	2.58	2.63	2.82	.198	2.75	2.64	.089	2.87	2.64	2.40	.000
Coop 04 S Personal Support	3.19	3.21	3.13	.205	2.98	3.22	.005	3.10	3.25	.016	2.95	3.09	3.21	3.40	.002	3.13	3.23	.113	3.19	3.13	3.27	.256
	(521)	(336)	(185)																(11)	(333)	(177)	
Coop 05 Cooperation I	3.80	3.87	3.66	.001	3.55	3.87	.000	3.75	3.86	.117	3.62	3.78	3.83	3.90	.148	3.66	3.89	.000	4.17	3.74	3.86	.049
	(908)	(581)	(327)																(374)	(354)	(180)	
Coop 06 Cooperation II	3.51	3.58	3.37	.000	3.32	3.55	.001	3.49	3.52	.539	3.36	3.52	3.47	3.59	.166	3.49	3.52	.454	3.51	3.50	3.52	.945
Coop 07 Pos. Goal Interdep.	3.66	3.74	3.51	.000	3.36	3.71	.000	3.48	3.78	.000	3.61	3.58	3.66	3.62	.778	3.63	3.68	.343	3.87	3.54	3.44	.000
Coop 08 Rersource Interdep.	3.55	3.61	3.40	.006	3.37	3.58	.058	3.53	3.58	.559	3.40	3.52	3.55	3.74	.197	3.50	3.59	.223	3.46	3.58	3.65	.109
Coop 09 Alienation	2.96	2.96	2.97	.757	3.02	2.95	.226	3.08	2.87	.000	3.09	3.05	2.92	2.88	.005	2.98	2.94	.266	2.90	3.02	2.96	.011
Coop 10 Extr. Motiv. Soc. Sup.	2.10	2.12	2.08	.539	2.13	2.09	.738	2.11	2.08	.686	2.26	2.08	2.07	1.91	.090	2.29	1.94	.000	2.29	2.04	1.81	.000
Coop 11 Cohesion	3.45	3.46	3.42	.353	3.14	3.49	.000	3.38	3.47	.040	3.41	3.42	3.43	3.48	.858	3.44	3.45	.772	3.49	3.53	3.17	.000
Coop 12 Academ. Self Estrem	3.49	3.51	3.46	.294	3.50	3.49	.851	3.57	3.44	.002	3.47	3.50	3.51	3.52	.963	3.46	3.52	.131	3.35	3.60	3.56	.000
Coop 13 Fairness of Grading	3.88	3.90	3.83	.184	3.58	3.92	.000	3.65	4.02	.000	3.72	3.73	3.86	4.00	.010	3.86	3.89	.638	4.18	3.70	3.58	.000
Coop 14 Individual Learning	2.94	2.96	2.92	.434	3.00	2.93	.199	3.00	2.89	.005	3.03	2.89	2.92	2.96	.244	2.97	2.92	.201	2.89	2.98	2.97	.114
	(520)	(335)	(185)																(11)	(333)	(176)	
Coop 15 Competitive Learning	2.83	2.85	2.78	.387	2.81	2.80	.937	2.75	2.85	.273	2.76	2.83	2.86	2.72	.696	3.07	2.64	.000	3.05	3.00	2.48	.000
Coop 16 Controversy	2.91	2.91	2.91	.914	2.99	2.90	.228	2.90	2.92	.737	2.88	2.92	2.90	2.94	.955	2.98	2.85	.011	2.91	2.90	2.94	.879
Coop 17 Valuing Heterogeneity	2.91	2.95	2.82	.076	2.97	2.91	.566	2.93	2.90	.715	2.77	2.89	2.94	2.98	.465	2.86	2.94	.271	2.77	2.92	3.13	.000
COOPINV Indice Social Support	3.21	3.24	3.14	.000	3.05	3.23	.000	3.15	3.24	.000	3.15	3.17	3.19	3.26	.310	3.21	3.20	.572	3.27	3.20	3.08	.000
(N)	913	582	331		122	738		329	494		99	168	437	82		425	487		379	354	180	

**Table 7.1. Classroom climate and Student's satisfaction: Before/After differences. (J&J's Classroom Life questionnaire)**

[D = 3° - 2° Ondata]	(N)	Design				Repeaters		Achiev.			Sociometric				Sex			Type of school					
		Total	Exper.	Contr	p(F)	1 Yes	2 No	p(F)	1 Low	2 High	p(F)	0	1	2	3	p(F)	M	F	p(F)	1Elem.	2 Mid.	3 High	p(F)
D32 Climate	(515)	-.129	-.119	-.146	.776	-.188	-.100	.582	-.064	-.135	.485	-.007	-.143	-.115	-.434	.166	-.124	-.134	.909	-.107	-.180	-.086	.712
D32 Identity		.042	.003	.104	.075	.138	.028	.253	-.046	.074	.052	.036	.077	.026	.035	.920	.063	.021	.447	.081	.031	-.041	.275
D32 Classmates		.014	-.005	.045	.404	.187	-.015	.043	.064	-.012	.237	.161	.020	.004	-.019	.396	.017	.010	.895	-.014	.071	-.028	.335
D32 Teachers		-.027	-.037	-.011	.578	-.036	-.024	.873	-.012	-.026	.768	.029	-.063	-.052	.038	.466	-.023	-.031	.865	-.007	-.077	.022	.233
			(318)	(196)																			
D32 Soddisf.	(514)	-.120	-.118	-.123	.948	-.138	-.122	.886	-.183	-.098	.257	-.043	-.154	-.103	-.206	.681	-.220	-.024	.004	-.134	-.142	-.032	.502
D32 BFisiof.		-.093	-.109	-.068	.566	-.174	-.100	.524	-.080	-.114	.656	.036	-.176	-.021	-.308	.029	-.088	-.098	.888	-.116	-.036	-.146	.446
D32 Sicurezza		-.039	-.042	-.033	.897	-.105	-.028	.520	-.115	-.010	.178	-.109	-.082	.010	-.099	.570	-.172	.089	.000	-.068	-.022	.006	.714
D32 Affappart.		-.116	-.077	-.180	.249	-.297	-.085	.145	-.195	-.079	.220	-.054	-.021	-.121	-.210	.688	-.235	-.002	.007	-.149	-.153	.050	.215
D32 Autostima		-.112	-.073	-.175	.405	.014	-.135	.458	-.245	-.070	.182	.038	-.197	-.179	.085	.432	-.108	-.116	.943	-.037	-.281	.024	.102
D32 Autorealizz.		-.213	-.250	-.151	.592	-.044	-.234	.543	-.229	-.192	.852	-.127	-.252	-.172	-.500	.744	-.465	.019	.007	-.235	-.222	-.131	.915
			(295)	(152)																			
D32 COOPINV	(447)	-.053	-.030	-.098	.069	-.109	-.044	.275	-.048	-.047	.984	-.089	-.063	-.050	-.041	.903	-.064	-.042	.533	-.087	-.004	-.048	.116

Legenda:

Soddisf. Student satisfaction  
 BFisiof. Physiological needs  
 Sicurezza Safety and security  
 Affappart. Belonging/Affiliation  
 Autostima Self-esteem  
 Autorealizz. Self-Actualization

**Table 7.2. Index of Social Support: Before/After differences. (j&j's Classroom Life questionnaire)**

[Δ = 3° - 2° Ondata]	Design			Repeaters		Achiev.			Sociometric				Sex			Type of school							
	Total	Exper.	Contr	p(F)	1 Yes	2 No	p(F)	1 Low	2 High	p(F)	0	1	2	3	p(F)	M	F	p(F)	1Elem.	2 Mid.	3 High	p(F)	
Δ 32 Coop	01	-1.09	-0.86	-.153	.422	-.041	-.114	.578	-.101	-.107	.947	+.060	-.097	-.150	-.174	.369	-.079	-.138	.453	-.091	-.124	-.130	.900
	02	-.063	-.029	-.129	.292	-.159	-.050	.415	-.061	-.041	.843	-.050	-.057	-.079	-.224	.776	-.056	-.070	.881	-.017	-.170	-.003	.251
	03	-.038	-.006	-.099	.324	-.331	+.011	.021	-.101	.009	.266	-.236	.000	-.050	.076	.362	-.034	-.042	.931	-.052	.019	-.102	.612
	04	-.017	.041	-.129	.050	-.235	.002	.089	-.019	-.024	.960	-.032	.024	-.008	-.055	.960	.000	-.033	.686	-.025	-.033	.036	.827
	05	-.079	-.100	-.026	.435	-.082	-.089	.954	-.157	-.022	.137	-.212	-.151	-.019	-.105	.395	-.020	-.129	.206	//	-.069	-.095	.765
	06	-.019	.003	-.062	.421	-.151	.003	.243	-.025	-.002	.787	-.127	-.019	-.028	-.028	.871	-.034	-.004	.701	-.033	.063	-.129	.235
	07	.058	.091	-.013	.247	-.008	.051	.674	.027	.057	.749	.220	.088	.016	.052	.499	.082	.033	.559	.095	.073	-.093	.288
	08	-.199	-.161	-.278	.357	-.114	-.204	.658	-.099	-.214	.387	-.320	-.261	-.179	-.002	.573	-.142	-.256	.337	-.297	-.066	-.159	.209
	09	.011	.017	-.001	.739	.012	.010	.985	.046	-.007	.346	.014	.084	-.012	.046	.530	.005	.016	.822	-.023	.057	.020	.377
	10	-.081	-.045	-.153	.228	-.192	-.059	.352	-.081	-.080	.991	-.048	-.183	-.049	-.096	.685	-.101	-.062	.644	-.174	.065	-.094	.043
	11	-.133	-.114	-.168	.418	-.172	-.132	.710	-.090	-.154	.368	-.101	-.163	-.106	-.240	.612	-.157	-.108	.450	-.282	-.014	.060	.000
	12	-.180	-.142	-.254	.109	-.140	-.186	.616	-.016	-.256	.001	-.078	-.213	-.188	-.271	.558	-.166	-.194	.673	-.341	-.028	-.018	.000
	13	.142	.115	.193	.319	.019	.151	.281	-.023	.240	.001	.020	.115	.143	.201	.670	.166	.118	.515	.382	-.079	-.111	.000
	14	-.071	-.017	-.176	.020	-.051	-.076	.820	-.003	-.109	.143	-.147	-.108	-.075	.018	.662	-.161	.019	.005	-.171	.052	-.023	.007
	15	-.008	.001	-.031	.786	-.166	.029	.199	-.062	.094	.172	-.353	.044	.051	-.002	.100	-.045	.024	.517	//	.057	-.117	.116
	16	.112	.080	.173	.306	.040	.123	.565	.026	.174	.120	.029	-.007	.142	.226	.391	.125	.098	.754	.176	.021	.089	.297
	17	.005	.078	-.136	.088	.132	.012	.542	.016	.016	.999	-.080	-.060	.010	-.020	.949	-.089	.098	.112	-.029	.061	-.003	.793
COOPINVO		-.053	-.030	-.098	.069	-.109	-.044	.275	-.048	-.047	.984	-.089	-.063	-.050	-.041	.903	-.064	-.042	.533	-.087	-.004	-.048	.116
N		447	295	152		44	374		132	274		55	85	236	45		220	224		218	145	81	

**Table 8.1. Determinants of classroom climate.**

	Mean	St. Dev.	N	Legenda:	
CLIMACL	3,9898	1,2579	1637	CLIMACL	Classroom climate
VOLENTIERI	1,20	,40	1637	VOLENTIERI	Willingly to school
DISEGNO	1,42	,49	1637	DISEGNO	Research Design
ONDATA	2,29	,78	1637	ONDATA	Phase of Survey
PROFITTO	2,0800	,7253	1637	PROFITTO	Achievement
COOPINV	3,2439	,3680	1637	COOPINV	Cooperative involvement
RLIVEL	2,8387	1,3308	1637	RLIVEL	School level
SODDISF	3,6887	,9493	1637	SODDISF	Student's satisfaction

Correlations

	CLIMACL	VOLENT.	DISEGNO	ONDATA	PROFITTO	COOPINV	RLIVEL	SODDISF
CLIMACL	1,000	-,295	,022	-,070	,257	,388	-,312	,682
VOLENT.	-,295	1,000	,027	,065	-,177	-,206	,115	-,338
DISEGNO	,022	,027	1,000	-,174	,129	-,046	-,212	,062
ONDATA	-,070	,065	-,174	1,000	-,082	-,106	,108	-,117
PROFITTO	,257	-,177	,129	-,082	1,000	,171	-,522	,347
COOPINV	,388	-,206	-,046	-,106	,171	1,000	-,218	,433
RLIVEL	-,312	,115	-,212	,108	-,522	-,218	1,000	-,391
SODDISF	,682	-,338	,062	-,117	,347	,433	-,391	1,000

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,695(a)	,482	,480	,9070

a Predictors: (Constant), SODDISF, DISEGNO, Ondata di appartenenza, Vai volentieri a scuola?, PROFITTO, COOPINV, RLIVEL

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1248,746	7	178,392	216,858	,000(a)
	Residual	1340,054	1629	,823		
	Total	2588,800	1636			

a Predictors: (Constant), SODDISF, DISEGNO, Ondata di appartenenza, Vai volentieri a scuola?, PROFITTO, COOPINV, RLIVEL  
 b Dependent Variable: CLIMACL

Model		Unstand.	Stand.	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	,317	,299	1,058	,290	
	VOLENTIERI	-,207	,060	-,066	-,3471	,001
	DISEGNO	-,041	,047	-,016	-,881	,378
	ONDATA	,029	,029	,018	1,010	,312
	PROFITTO	-,011	,037	-,007	-,311	,756
	COOPINV	,360	,068	,105	5,260	,000
	RLIVEL	-,053	,021	-,056	-2,555	,011
	SODDISF	,792	,029	,598	27,075	,000

a Dependent Variable: CLIMACL

**Table 8.2. Determinants of student's satisfaction.**

	Mean	St. Dev.	N	Legenda:
SODDISF	3,6887	,9493	1637	SODDISF Student's satisfaction
VOLENTIERI	1,20	,40	1637	VOLENTIERI Willingly to school
DISEGNO	1,42	,49	1637	DISEGNO Research Design
ONDATA	2,29	,78	1637	ONDATA Phase of Survey
PROFITTO	2,0800	,7253	1637	PROFITTO Achievement
COOPINV	3,2439	,3680	1637	COOPINV Cooperative involvement
RLIVEL	2,8387	1,3308	1637	RLIVEL School level
CLIMACL	3,9898	1,2579	1637	CLIMACL Classroom climate

Correlations

	SODDISF	VOLENT.	DISEGNO	ONDATA	PROFITTO	COOPINV	RLIVEL	CLIMACL
SODDISF	1,000	-,338	,062	-,117	,347	,433	-,391	,682
VOLENT.	-,338	1,000	,027	,065	-,177	-,206	,115	-,295
DISEGNO	,062	,027	1,000	-,174	,129	-,046	-,212	,022
ONDATA	-,117	,065	-,174	1,000	-,082	-,106	,108	-,070
PROFITTO	,347	-,177	,129	-,082	1,000	,171	-,522	,257
COOPINV	,433	-,206	-,046	-,106	,171	1,000	-,218	,388
RLIVEL	-,391	,115	-,212	,108	-,522	-,218	1,000	-,312
CLIMACL	,682	-,295	,022	-,070	,257	,388	-,312	1,000

Model Summary

Model	R	R Square	Adj. R Square	SE Estimate
1	,742(a)	,550	,549	,6378

a Predictors: (Constant), CLIMACL, DISEGNO, ONDATA, PROFITTO, VOLENTIERI, COOPINV, RLIVEL

ANOVA(b)

Model	SSQ	df	Mean Sq	F	Sig.
1 Regression	811,532	7	115,933	284,994	,000(a)
Residual	662,663	1629	,407		
Total		474,196	1636		

a Predictors: (Constant), CLIMACL, DISEGNO, Ondata di appartenenza, PROFITTO, Vai volentieri a scuola?, COOPINV, RLIVEL  
 b Dependent Variable: SODDISF

Model		Unstandard.	Stand.	t	Sig.
	B	SE	Beta		
1 (Constant)	1,140	,209		5,463	,000
VOLENTIERI	-,280	,041	-,119	-6,754	,000
DISEGNO	,033	,033	,017	,998	,318
ONDATA	-,038	,021	-,032	-1,868	,062
PROFITTO	,127	,026	,097	4,901	,000
COOPINV	,416	,047	,161	8,780	,000
RLIVEL	-,087	,015	-,123	-6,017	,000
CLIMACL	,392	,014	,519	27,075	,000

a Dependent Variable: SODDISF

**Table. 8.3. Determinants of social support orientation.**

	Mean	St. Dev.	N	Legenda:	
COOPINV	3,2439	,3680	1637	COOPINV	Cooperative involvement
VOLENTIERI	1,20	,40	1637	VOLENTIERI	Willingly to school
DISEGNO	1,42	,49	1637	DISEGNO	Research Design
ONDATA	2,29	,78	1637	ONDATA	Phase of Survey
PROFITTO	2,0800	,7253	1637	PROFITTO	Achievement
RLIVEL	2,8387	1,3308	1637	RLIVEL	School level
CLIMACL	3,9898	1,2579	1637	CLIMACL	Classroom climate
SODDISF	3,6887	,9493	1637	SODDISF	Student's satisfaction

	COOPINV	VOLENT.	DISEGNO	Correlations ONDATA	PROFITTO	RLIVEL	CLIMACL	SODDISF
COOPINV	1,000	-,206	-,046	-,106	,171	-,218	,388	,433
VOLENT.	-,206	1,000	,027	,065	-,177	,115	-,295	-,338
DISEGNO	-,046	,027	1,000	-,174	,129	-,212	,022	,062
ONDATA	-,106	,065	-,174	1,000	-,082	,108	-,070	-,117
PROFITTO	,171	-,177	,129	-,082	1,000	-,522	,257	,347
RLIVEL	-,218	,115	-,212	,108	-,522	1,000	-,312	-,391
CLIMACL	,388	-,295	,022	-,070	,257	-,312	1,000	,682
SODDISF	,433	-,338	,062	-,117	,347	-,391	,682	1,000

Model Summary				
Model	R	R Square	Adj. R Square	SE of est.
1	,467(a)	,219	,215	,3260

a Predictors: (Constant), SODDISF, DISEGNO, Ondata di appartenenza, Vai volentieri a scuola?, PROFITTO, RLIVEL, CLIMACL

ANOVA(b)						
Model		Sum of Squares	df	Mean Sq.	F	Sig.
1	Regression	48,423	7	6,918	65,080	,000(a)
	Residual	173,152	1629	,106		
	Total	221,575	1636			

a Predictors: (Constant), SODDISF, DISEGNO, Ondata di appartenenza, Vai volentieri a scuola?, PROFITTO, RLIVEL, CLIMACL

b Dependent Variable: COOPINV

Model		Unstandard. B	Standard. Std. Error	Standard. B	Unstandard. B	Sig.
1	(Constant)	2,941	,079		37,118	,000
	VOLENTIERI	-4,653E-02	,021	-,051	-2,168	,030
	DISEGNO	-6,782E-02	,017	-,091	-3,992	,000
	ONDATA	-3,189E-02	,011	-,068	-3,021	,003
	PROFITTO	-2,585E-03	,013	-,005	-,194	,846
	RLIVEL	-1,872E-02	,007	-,068	-2,496	,013
	CLIMACL	4,646E-02	,009	,159	5,260	,000
	SODDISF	,109	,012	,280	8,780	,000

a Dependent Variable: COOPINV

## Appendix 2. THE ASSESSMENT INSTRUMENTS

### *The Questionnaire "Classroom Life" (D. Johnson and R. Johnson, 1996).*

Cf. : Johnson D.W. Johnson R.T.(1996), *Meaning and Manageabe ASSESSMENT Through Cooperative Learning*. Edina, Interaction Book Company, Pag. 10:19 – 10:23)

(Johnson & Johnson/Chiari)

*(Italian version submitted to students of the research)*

### LA VITA DELLA CLASSE (Studenti)

*Istruzioni:* sul foglio di risposte, vicino a ciascuna frase, scrivete il numero che esprime quanto l'affermazione in essa contenuta è vera per voi.

falsa sempre 1	falsa qualche volta 2	né falsa né vera 3	vera qualche volta 4	vera sempre 5
----------------------	-----------------------------	--------------------------	----------------------------	---------------------

01. Gli altri studenti in questa classe vogliono che io faccia del mio meglio a scuola..... \_\_\_\_\_
02. I miei migliori amici sono in questa classe ..... \_\_\_\_\_
03. Non sto facendo bene a scuola come mi piacerebbe ..... \_\_\_\_\_
04. Trovo difficile esprimere chiaramente i miei pensieri quando sono in questa classe ..... \_\_\_\_\_
05. In questa classe, agli altri studenti piace aiutarmi ad apprendere ..... \_\_\_\_\_
06. Il lavoro scolastico è abbastanza facile per me ..... \_\_\_\_\_
07. Gli altri studenti in questa classe pensano sia importante essere miei amici ..... \_\_\_\_\_
08. Quando lavoriamo assieme in piccoli gruppi, cerchiamo di assicurarci che tutti nel gruppo imparino il materiale assegnato ..... \_\_\_\_\_
09. Imparo di più dagli studenti che sono simili a me ..... \_\_\_\_\_
10. A scuola faccio i compiti per far felice il mio insegnante ..... \_\_\_\_\_
11. In questa classe è importante che impariamo le cose da soli ..... \_\_\_\_\_
12. Mi piace lavorare con gli altri studenti in questa classe ..... \_\_\_\_\_
13. Con gli altri studenti mi trovo meglio che da solo ..... \_\_\_\_\_
14. A scuola io lavoro perché è quello che i miei compagni si aspettano da me ..... \_\_\_\_\_
15. Il mio insegnante si interessa veramente a me ..... \_\_\_\_\_
16. Quando lavoriamo assieme in piccoli gruppi, il nostro lavoro non è terminato finché ciascuno del gruppo non ha completato il suo compito ..... \_\_\_\_\_
17. In questa classe, noi lavoriamo assieme ..... \_\_\_\_\_
18. In questa classe, passiamo molto tempo a lavorare nei nostri banchi ..... \_\_\_\_\_
19. Imparo nuove cose discutendo con gli altri studenti ..... \_\_\_\_\_
20. Il mio insegnante pensa che essere mio amico è una cosa importante ..... \_\_\_\_\_
21. In questa classe, ognuno ha uguali probabilità di successo se fa del suo meglio ..... \_\_\_\_\_
22. In questa classe, gli altri studenti si interessano di quanto io imparo ..... \_\_\_\_\_
23. Ogni volta che faccio un test ho paura di fallire ..... \_\_\_\_\_
24. Quando lavoriamo assieme in piccoli gruppi, tutti riceviamo dei punti in più se ciascuno di noi del gruppo supera un certo criterio ..... \_\_\_\_\_
25. In questa classe, io piaccio agli altri studenti per quello che sono ..... \_\_\_\_\_
26. Quando lavoriamo assieme in piccoli gruppi, tutti riceviamo lo stesso voto ..... \_\_\_\_\_
27. Il mio insegnante si interessa di quanto io imparo ..... \_\_\_\_\_
28. A scuola faccio i compiti per far felici i miei genitori ..... \_\_\_\_\_
29. Preferirei lavorare da solo piuttosto che discutere ..... \_\_\_\_\_
30. In questa classe, ognuno è mio amico ..... \_\_\_\_\_
31. Gli altri studenti in questa classe vogliono che io venga a scuola ogni giorno ..... \_\_\_\_\_
32. A scuola faccio i compiti per evitare che l'insegnante si arrabbi con me ..... \_\_\_\_\_
33. In questa classe, gli studenti controllano le risposte con gli altri ..... \_\_\_\_\_
34. In questa classe, non parliamo con gli altri studenti quando lavoriamo ..... \_\_\_\_\_
35. Quando lavoriamo assieme in piccoli gruppi, il nostro voto dipende da quanto imparano tutti i membri del gruppo ..... \_\_\_\_\_
36. Al mio insegnante piace vedere il mio lavoro ..... \_\_\_\_\_
37. Gli altri studenti in questa classe si interessano ai miei sentimenti ..... \_\_\_\_\_
38. Spesso sono scoraggiato a scuola ..... \_\_\_\_\_
39. Gli altri studenti in questa classe apprezzano me tanto quanto apprezzano gli altri ..... \_\_\_\_\_
40. In questa classe, ci aiutiamo a vicenda nel lavoro scolastico ..... \_\_\_\_\_
41. Mi piace stare in un gruppo dove gli studenti spesso non sono d'accordo fra loro ..... \_\_\_\_\_
42. In questa classe, se uno studente lavora sodo può sicuramente avere successo ..... \_\_\_\_\_
43. Al mio insegnante piace aiutarmi a imparare ..... \_\_\_\_\_
44. Quando lavoriamo assieme in piccoli gruppi, devo assicurarci che gli altri studenti imparino se voglio far bene il compito ..... \_\_\_\_\_
45. In questa classe, noi lavoriamo da soli ..... \_\_\_\_\_
46. In questa classe, gli altri studenti sono interessati veramente a me ..... \_\_\_\_\_
47. Ho una quantità di domande che non ho mai avuto la possibilità di porre in classe ..... \_\_\_\_\_
48. A scuola faccio i compiti per piacere agli altri studenti ..... \_\_\_\_\_
49. In questa classe, impariamo di più quando lavoriamo con gli altri ..... \_\_\_\_\_
50. Il mio insegnante vuole che io faccia del mio meglio a scuola ..... \_\_\_\_\_

<b>falsa sempre</b>	<b>falsa qualche volta</b>	<b>né falsa né vera</b>	<b>vera qualche volta</b>	<b>vera sempre</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

- 51. Quando lavoriamo assieme in piccoli gruppi, non riusciamo a portare a termine un compito senza il contributo di tutti .....
- 52. Al mio insegnante io piaccio quanto gli piacciono gli altri (il mio insegnante apprezza me quanto apprezza gli altri studenti) .....
- 53. Sono spesso solo in questa classe .....
- 54. In questa classe, gli studenti prendono i voti che meritano, né più né meno .....
- 55. Il mio insegnante si interessa dei miei sentimenti .....
- 56. Tutti gli studenti in questa classe si conoscono bene .....
- 57. Io merito i voti che ottengo in questa classe .....
- 58. Sono un buon studente .....
- 59. Quando lavoriamo assieme in piccoli gruppi, l'insegnante divide il materiale in modo tale che ciascuno ne abbia una parte e debba così dividerla con gli altri .....
- 60. Mi piace stare in un gruppo di lavoro con studenti che sono diversi da me .....
- 61. Mi sento spesso turbato a scuola .....
- 62. Discutere con gli altri studenti mi fa sentire infelice .....
- 63. Mi diverto di più quando lavoro con studenti che sono diversi da me .....
- 64. Imparo di più dagli studenti che sono diversi da me .....
- 65. A volte penso che il modo di dare i voti in questa classe non è giusto .....
- 66. Quando lavoriamo assieme in piccoli gruppi, dobbiamo dividerci i materiali per poter completare il compito .....
- 67. Mi piace condividere le mie idee e i materiali con gli altri studenti .....
- 68. Mi annoio quando devo fare tutto da solo .....
- 69. Il lavoro mi piace di più quando lo faccio tutto da solo .....
- 70. Mi piace la sfida di vedere chi è il migliore .....
- 71. Non mi piace essere secondo .....
- 72. Quando lavoriamo assieme in piccoli gruppi, le idee di ciascuno sono necessarie se vogliamo avere successo .....
- 73. Sono felicissimo quando sono in competizione con altri studenti .....
- 74. Competere con altri studenti è un buon modo di lavorare .....
- 75. Non mi piace lavorare con altri studenti a scuola .....
- 76. Posso imparare cose importanti dagli altri studenti .....
- 77. Lavoro per ottenere voti migliori degli altri studenti .....
- 78. Mi piace aiutare gli altri studenti a imparare .....
- 79. Mi piace competere con gli altri studenti per vedere chi sa fare il lavoro migliore .....
- 80. Lavorare in piccoli gruppi è meglio che lavorare da solo .....
- 81. Cerco di condividere le mie idee e i materiali con gli altri studenti quando penso che ciò li potrà aiutare .....
- 82. Quando lavoriamo assieme in piccoli gruppi, devo scoprire che cosa fanno gli altri se voglio riuscire a fare il compito .....
- 83. E' una buona idea che gli studenti si aiutino l'un l'altro per imparare .....
- 84. Mi piace far meglio degli altri studenti .....
- 85. Mi piace cooperare con gli altri studenti .....
- 86. Mi piace lavorare con gli altri studenti .....
- 87. Faccio meglio quando lavoro da solo .....
- 88. Gli studenti imparano una quantità di cose importanti gli uni dagli altri .....
- 89. Sul lavoro scolastico preferisco lavorare da solo che con altri studenti .....
- 90. Mi piace essere lo studente migliore della classe .....
- 91. Sto facendo un buon lavoro di apprendimento in classe (In classe sto imparando un sacco di cose) .....

First and Last Name -----  
 School -----  
 Class -----  
 Sex M ( ) F ( )  
 Today's date -----

**The Questionnaire "Classroom Life"** (D. Johnson and R. Johnson, 1996).

(Cf. : Johnson D.W. Johnson R.T.(1996), *Meaning and Manageable ASSESSMENT Through Cooperative Learning*. Edina, Interaction Book Company, Pag. 10:19 – 10:23)

**Directions:** *On the answer sheet, next to each statement, write the number which tells how true each of these statements is of you.*

<b>False All The Time</b>	<b>False Some Of The Time</b>	<b>Neither False Nor True</b>	<b>True Some Of The Time</b>	<b>True All The Time</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1. Other students in this class want me to do my best school work.				_____
2. My best friends are in this class.				_____
3. I am not doing as well in school as I would like to.				_____
4. I find it hard to speak my thoughts clearly when I am in this class.				_____
5. In this class, the other students like to help me learn.				_____
6. Schoolwork is fairly easy for me.				_____
7. Other students in this class think it is important to be my friend.				_____
8. When we work together in small groups, we try to make sure that everyone in the group learns the assigned material.				_____
9. I learn more from students who are similar to me.				_____
10. I do schoolwork to make my teacher happy.				_____
11. In this class it is important that we learn things by ourselves.				_____
12. I like to work with other students in this class.				_____
13. I should get along with other students better than I do.				_____
14. I do schoolwork because my classmates expect it of me.				_____
15. My teacher really cares about me.				_____
16. When we work together in small groups, our job is not done until everyone in the group has completed the assignment.				_____
17. In this class, we work together.				_____
18. In this class, we spend a lot of time working at our own desks.				_____
19. I learn new things from arguing with other students.				_____
20. My teacher thinks it is important to be my friend.				_____
21. In this class, everyone has an equal chance to succeed if they do their best.				_____
22. In this class, other students care about how much I Team.				_____
23. Whenever I take a test I am afraid I will fail.				_____
24. When we work together in small groups, we all receive bonus points if everyone's criteria.				_____
25. In this class, other students like me the way I am.				_____
26. When we work together in small groups, we all receive the same grade.				_____
27. My teacher cares about how much I learn.				_____
28. I do schoolwork to make my parents happy.				_____
29. I would rather work alone than argue.				_____
30. In this class, everybody is my friend.				_____
31. Other students in this class want me to come to class every day.				_____
32. I do schoolwork to keep my teacher from getting mad at me.				_____
33. In this class, students check answers with other students.				_____
34. In this class, we do not talk to other students when we work.				_____
35. When we work together in small groups, our grade depends on how much all members learn.				_____
36. My teacher likes to see my work.				_____
37. Other students in this class care about my feelings.				_____
38. I often get discouraged in school.				_____
39. Other students in this class like me as much as they like others.				_____
40. In this class, we help each other with our schoolwork.				_____
41. I like being in a group where students often disagree with each other.				_____
42. If a student works hard, he or she can definitely succeed in this class.				_____
43. My teacher likes to help me learn.				_____
44. When we work together in small groups, I have to make sure that the other members learn if I want to do well on the assignment.				_____
45. In this class, we work by ourselves.				_____
46. In this class, other students really care about me.				_____
47. I have a lot of questions I never get a chance to ask in class.				_____
48. I do schoolwork to be liked by other students.				_____
49. In this class, we learn more when we work with others.				_____
50. My teacher wants me to do my best schoolwork.				_____
51. When we work together in small groups, we cannot complete an assignment unless everyone contributes.				_____
52. My teacher likes me as much as he or she likes other students.				_____
53. I am often lonely in this class.				_____
54. In this class, students get the scores they deserve, no more and no less.				_____
55. My teacher cares about my feelings.				_____

False All The Time 1	False Some Of The Time 2	Neither False Nor True 3	True Some Of The Time 4	True All The Time 5
-------------------------	-----------------------------	-----------------------------	----------------------------	------------------------

- 56. All the students in this class know each other well. \_\_\_\_\_
- 57. I deserve the scores I get in this class. \_\_\_\_\_
- 58. I am a good student. \_\_\_\_\_
- 59. When we work together in small groups, the teacher divides up the material so that everyone has a part and everyone has to share. \_\_\_\_\_
- 60. I like being in a learning group with students who are different from me. \_\_\_\_\_
- 61. I often feel upset in school. \_\_\_\_\_
- 62. Arguing with other students makes me feel unhappy. \_\_\_\_\_
- 63. I have more fun when I work with students who are different from me. \_\_\_\_\_
- 64. I learn more from students who are different from me. \_\_\_\_\_
- 65. Sometimes I think the scoring system in this class is not fair. \_\_\_\_\_
- 66. When we work together in small groups, we have to share materials in order to complete the assignment. \_\_\_\_\_
- 67. I like to share my ideas and materials with other students. \_\_\_\_\_
- 68. It bothers me when I have to do it all myself. \_\_\_\_\_
- 69. I like my work better when I do it all myself. \_\_\_\_\_
- 70. I like the challenge of seeing who's best. \_\_\_\_\_
- 71. I don't like to be second. \_\_\_\_\_
- 72. When we work together in small groups, everyone's ideas are needed if we are going to be successful. \_\_\_\_\_
- 73. I am happiest when I am competing with other students. \_\_\_\_\_
- 74. Competing with other students is a good way to work. \_\_\_\_\_
- 75. I do not like working with other students in school. \_\_\_\_\_
- 76. I can learn important things from other students. \_\_\_\_\_
- 77. I work to get better grades than other students do. \_\_\_\_\_
- 78. I like to help other students learn. \_\_\_\_\_
- 79. I like to compete with other students to see who can do the best work. \_\_\_\_\_
- 80. Working in small groups is better than working alone. \_\_\_\_\_
- 81. I try to share my ideas and materials with other students when I think it will help them. \_\_\_\_\_
- 82. When we work together in small groups, I have to find out what everyone else knows if I am going to be able to do the assignment. \_\_\_\_\_
- 83. It is a good idea for students to help each other learn. \_\_\_\_\_
- 84. I like to do better work than other students. \_\_\_\_\_
- 85. I like to cooperate with other students. \_\_\_\_\_
- 86. I like to work with other students. \_\_\_\_\_
- 87. I do better work when I work alone. \_\_\_\_\_
- 88. Students learn a lot of important things from each other. \_\_\_\_\_
- 89. I would rather work on schoolwork alone than with other students. \_\_\_\_\_
- 90. I like to be the best student in the class. \_\_\_\_\_
- 91. I am doing a good job of learning in class. \_\_\_\_\_

Nome e Cognome -----  
 Scuola -----  
 Classe -----  
 Sesso M ( ) F ( )  
 Data di compilazione -----

### LA MIA CLASSE

(Les Brown and Robert C. Goodall, The J. Of Classroom Interaction, 16, 2, 1981)

Siamo interessati a sapere come ti trovi nella tua classe. Questo non è un "test". Dovresti rispondere con sincerità. I tuoi insegnanti non leggeranno le tue risposte.

Per ogni risposta dovresti seguire questo metodo:

1. Leggere attentamente le frasi
2. Pensare quanto esse siano adatte alla tua classe
3. Mettere una crocetta sul numero corrispondente alla risposta che meglio descrive ciò che tu pensi.

Per cortesia rispondi ad ogni frase.



1. Penso di essere un membro importante della mia classe.	1	2	3	4	5
2. I miei insegnanti si arrabbiano ingiustamente.	1	2	3	4	5
3. Io vado d'accordo quasi con tutti nella mia classe.	1	2	3	4	5
4. Gli alunni della mia classe sono gentili ed educati fra loro.	1	2	3	4	5
5. Io riesco a parlare con il mio insegnante dei miei problemi.	1	2	3	4	5
6. I nostri insegnanti danno ascolto alle nostre idee.	1	2	3	4	5
7. Io sono contento di far parte di questa classe.	1	2	3	4	5
8. Io mi trovo bene con i miei compagni di classe.	1	2	3	4	5
9. Gli insegnanti si arrabbiano quando gli alunni in questa classe cercano di aiutarsi fra di loro.	1	2	3	4	5
10. Gli insegnanti ascoltano con più attenzione alcuni alunni piuttosto che altri.	1	2	3	4	5
11. I nostri insegnanti sono disponibili a parlare con noi dei problemi che ci riguardano.	1	2	3	4	5
12. Io sento di non essere una persona molto importante in questa classe.	1	2	3	4	5

Hai mai ripetuto?    Sì     No

Vai volentieri a scuola?    Sì     No

Come vai a scuola?    insufficiente     sufficiente     discreto     buono     ottimo

*Ti ringraziamo per la tua cortese collaborazione.*

First and Last Name -----  
 School -----  
 Class -----  
 Sex M ( ) F ( )  
 Today's date -----

### **CLASSROOM CLIMATE**

(Les Brown and Robert C. Goodall, *The J. Of Classroom Interaction*, 16, 2, 1981)

We are interested in finding out how you feel about your class. This is *not* a "test." You should answer as honestly as you can. Your teacher will *not* see these sheets, only a summary of what everyone says as a group.

Please go through the following steps in answering each question.

1. Read the statement carefully.
2. Think about how well the statement tells about your class.
3. Circle the choice which most accurately describes your feeling about that statement. For example:  
 If you feel the statement is always true, circle "Always."  
 If you feel the statement is often true, circle "Often."  
 If you feel the statement is not often true, circle "Not Often."  
 If you feel the statement is never true, circle "Never."

You will have as much time as you need. Please answer each statement.

- |  |        |       |           |       |
|--|--------|-------|-----------|-------|
| 1. I think I am an important member of this class.                               | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 2. My teacher gets upset when I help anyone who is stuck with a problem.         | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 3. I get along with almost everyone in this class.                               | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 4. Most students in this class are kind and polite to each other.                | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 5. I can talk to my teacher about things that upset me.                          | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 6. Our teacher listens to ideas from the students.                               | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 7. I feel good about being a member of this class.                               | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 8. I feel comfortable being with the other students in this class.               | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 9. The teacher gets upset when students in this class try to help each other.    | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 10. The teacher listens <i>more</i> carefully to some students than to others.   | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 11. Our teacher is willing to talk with students about problems that upset them. | ALWAYS | OFTEN | NOT OFTEN | NEVER |
| 12. I feel I am <i>not</i> a very important person in this class.                | ALWAYS | OFTEN | NOT OFTEN | NEVER |

Nome e Cognome -----  
Scuola -----  
Classe -----  
Sesso M ( ) F ( )  
Data di compilazione -----

### REATTIVO DI MORENO

1. CHI VORRESTI NEL TUO GRUPPO PER FARE UNA RICERCA QUI IN CLASSE?  
(Indica 3 nomi e cognomi di tuoi compagni o compagne della tua classe, senza dimenticare gli assenti)

1. ....  
2. ....  
3. ....

2. CHI INVITERESTI A CASA TUA AD UNA FESTA?  
(Indica 3 nomi e cognomi di tuoi compagni o compagne della tua classe, senza dimenticare gli assenti)

1. ....  
2. ....  
3. ....

---

*Project "Cooperative Learning: apprendimento e democrazia"*  
(G. Chiari & coll., University of Trento, Italy)

First and Last Name -----  
School -----  
Class -----  
Sex M ( ) F ( )  
Today's date -----

### MORENO'S TEST

1. WITH WHOM WOULD YOU LIKE TO DO GROUP RESEARCH IN YOUR CLASS ?  
(name three of your classmates -including their surnames-, even the absentees are valid)

1. ....  
2. ....  
3. ....

2. WHO WOULD YOU INVITE TO A PARTY ?  
(name three of your classmates -including their surnames-, even the absentees are valid)

1. ....  
2. ....  
3. ....

First and Last Name .....

School .....

Class .....

Sex M ( ) F ( )

Today's date .....

### STUDENT NEEDS ASSESSMENT QUESTIONNAIRE

Check the appropriate box.



<i>Your Thoughts about Our Class</i>	<i>Always</i>	<i>Most of the Time</i>	<i>Sometimes</i>	<i>Seldom</i>	<i>Never</i>
<i>Physiological Needs</i>					
1. Do you eat a good breakfast each morning?					
2. Does your teacher touch you enough?					
3. Can you see the blackboard and screen from where you are sitting?					
4. Do I talk loud and clear enough for you to hear?					
5. Do you have time to relax during the day?					
6. Do you have enough time to complete your assignments?					
7. Do we go slow enough in class?					
8. Do you need a study period at the end of the day?					
9. Is the room a quiet place to work?					
<i>Safety and Security</i>					
10. Are your grades fair?					
11. Does each day in this class seem organized?					
12. Do you follow the school and classroom rules?					
13. Is the discipline used in this classroom fair?					
14. Can you say what you'd like to in this class?					
15. Do you feel free enough to ask me questions?					
16. Can you trust your teacher?					
17. Can you get help when you need it?					
18. Are you calm when you take your report card home?					

<i>Your Thoughts about Our Class</i>	<i>Always</i>	<i>Most of the Time</i>	<i>Sometimes</i>	<i>Seldom</i>	<i>Never</i>
<i>Love and Belonging</i>					
19. Is the room a happy place to be?					
20. Do you think that the students in this class like you?					
21. Am I friendly and do I smile at you?					
22. Do I take time with you each day?					
23. Does your teacher show that she likes you?					
24. Do you feel that I listen to you when you have a problem?					
25. Do I praise you when you deserve it?					
26. Do other students respect your property?					
27. Do people praise you when you do well?					
28. Do I listen to your suggestions?					
<i>Self-Esteem</i>					
29. Do you feel involved in this class?					
30. Do you feel proud when you share a project with the class?					
31. Do you take part in class discussions?					
32. What subject area do you feel most successful at? _____					
33. What subject area could you improve in? _____					
<i>Self-Actualization</i>					
34. Are you able to study things that interest you?					

Source: From Vernon F. Jones & Louise S. Jones, *Comprehensive Classroom Management: Motivating and Managing Students*, 3rd. ed., copyright © 1990 by Allyn and Bacon. Reprinted with permission.

Nome e Cognome -----  
 Scuola -----  
 Classe -----  
 Sesso M ( ) F ( )  
 Data di compilazione -----

**LA SODDISFAZIONE DEGLI STUDENTI (Jones V. F. Jones L.S./G. Chiari)**

*Che cosa pensi della tua classe?*

	Sempre	Spesso	Qualche volta	Raramente	Mai
<i>Bisogni fisiologici</i>					
1. Fai una buona colazione ogni mattina?	1	2	3	4	5
2. I tuoi insegnanti ti insegnano abbastanza?	1	2	3	4	5
3. Puoi vedere la lavagna (e lo schermo) da dove sei seduto?	1	2	3	4	5
4. Gli insegnanti parlano chiaro ed ad alta voce in modo tale che tu possa sentire?	1	2	3	4	5
5. Hai tempo per rilassarti durante il giorno?	1	2	3	4	5
6. Hai abbastanza tempo per fare i compiti?	1	2	3	4	5
7. Andiamo abbastanza lenti in classe?	1	2	3	4	5
8. Hai bisogno di un periodo di studio alla fine della giornata?	1	2	3	4	5
9. L'aula è un luogo tranquillo per lavorare?	1	2	3	4	5
<i>Sicurezza</i>					
10. I tuoi voti sono belli?	1	2	3	4	5
11. Nella tua classe ogni giorno sembra organizzato?	1	2	3	4	5
12. Segui le regole della scuola e della classe?	1	2	3	4	5
13. La disciplina adottata nella tua classe è buona?	1	2	3	4	5
14. Puoi dire che cosa vorresti fare in questa classe?	1	2	3	4	5
15. Ti senti abbastanza libero di fare domande ai tuoi insegnanti?	1	2	3	4	5
16. Puoi fidarti dei tuoi insegnanti?	1	2	3	4	5
17. Puoi avere aiuto quando ne hai bisogno?	1	2	3	4	5
18. Sei calmo quando porti a casa la tua scheda di valutazione?	1	2	3	4	5
<i>Affettività e appartenenza</i>					
19. L'aula è un luogo dove si sta bene?	1	2	3	4	5
20. Pensi di piacere ai tuoi compagni di classe?	1	2	3	4	5
21. I tuoi insegnanti sono amichevoli e sorridenti con te?	1	2	3	4	5
22. I tuoi insegnanti ti dedicano un po' di tempo ogni giorno?	1	2	3	4	5
23. I tuoi insegnanti ti dimostrano simpatia?	1	2	3	4	5
24. Senti che i tuoi insegnanti ti danno ascolto quando hai qualche problema?	1	2	3	4	5
25. I tuoi insegnanti ti lodano quando te lo meriti?	1	2	3	4	5
26. I tuoi compagni rispettano le tue cose?	1	2	3	4	5
27. Vieni lodato quando fai bene?	1	2	3	4	5
28. I tuoi insegnanti danno ascolto ai tuoi suggerimenti?	1	2	3	4	5
<i>Autostima</i>					
29. Ti senti coinvolto in questa classe?	1	2	3	4	5
30. Ti senti orgoglioso quando condividi un progetto con la tua classe?	1	2	3	4	5
31. Prendi parte alla discussione in classe?	1	2	3	4	5
32. In quale materia ti senti più bravo?					
.....					
33. In quale materia potresti migliorare?					
.....					
.....					
<i>Autorealizzazione</i>					
34. A scuola riesci a studiare cose che ti interessano?	1	2	3	4	5

### Appendix 3. THE GENERAL CORRELATION MATRIX.

	COOPINV	SESSO	CLIMACL	BFISIOI	SICUR	AFFAPP	AUTOSTI	AUTOREA	SODDISF	RIPETUTO	VOLENTIERI	IDENTITA	COMPAGNI	INSEGNAN
COOPINV	1,000	-0,059	0,419	0,316	0,389	0,506	0,347	0,289	0,478	0,140	-0,244	0,247	0,193	0,386
SESSO	-0,059	1,000	0,056	-0,074	-0,011	-0,035	0,005	-0,043	-0,040	0,011	-0,118	0,002	0,077	0,044
CLIMACL	0,419	0,056	1,000	0,515	0,638	0,697	0,526	0,339	0,686	0,140	-0,283	0,654	0,591	0,832
BFISIOI	0,316	-0,074	0,515	1,000	0,596	0,572	0,368	0,364	0,700	0,052	-0,236	0,273	0,235	0,493
SICUR	0,389	-0,011	0,638	0,596	1,000	0,716	0,484	0,438	0,808	0,181	-0,351	0,358	0,252	0,618
AFFAPP	0,506	-0,035	0,697	0,572	0,716	1,000	0,545	0,431	0,829	0,126	-0,321	0,411	0,310	0,650
AUTOSTI	0,347	0,005	0,526	0,368	0,484	0,545	1,000	0,334	0,722	0,100	-0,212	0,476	0,372	0,346
AUTOREA	0,289	-0,043	0,339	0,364	0,438	0,431	0,334	1,000	0,745	0,106	-0,201	0,183	0,105	0,346
SODDISF	0,478	-0,040	0,686	0,700	0,808	0,829	0,722	0,745	1,000	0,149	-0,336	0,436	0,322	0,617
RIPETUTO	0,140	0,011	0,140	0,052	0,181	0,126	0,100	0,106	0,149	1,000	-0,159	0,088	-0,011	0,164
VOLENTIERI	-0,244	-0,118	-0,283	-0,236	-0,351	-0,321	-0,212	-0,201	-0,336	-0,159	1,000	-0,135	-0,066	-0,304
IDENTITA	0,247	0,002	0,654	0,273	0,358	0,411	0,476	0,183	0,436	0,088	-0,135	1,000	0,459	0,237
COMPAGNI	0,193	0,077	0,591	0,235	0,252	0,310	0,372	0,105	0,322	-0,011	-0,066	0,459	1,000	0,152
INSEGNAN	0,386	0,044	0,832	0,493	0,618	0,650	0,346	0,346	0,617	0,164	-0,304	0,237	0,152	1,000
COOP01	0,625	0,050	0,434	0,355	0,435	0,503	0,320	0,294	0,488	0,141	-0,251	0,196	0,055	0,498
COOP02	0,620	-0,033	0,472	0,374	0,476	0,585	0,274	0,284	0,504	0,141	-0,267	0,166	0,021	0,584
COOP03	0,610	-0,061	0,350	0,261	0,334	0,448	0,294	0,223	0,401	0,066	-0,151	0,257	0,231	0,265
COOP04	0,533	0,103	0,416	0,165	0,276	0,378	0,405	0,130	0,349	0,056	-0,137	0,405	0,428	0,198
COOP05	0,580	0,157	0,404	0,260	0,364	0,369	0,377	0,234	0,415	0,161	-0,214	0,292	0,258	0,313
COOP06	0,541	0,052	0,250	0,141	0,175	0,241	0,237	0,133	0,242	0,079	-0,137	0,190	0,201	0,170
COOP07	0,641	0,017	0,313	0,211	0,301	0,298	0,259	0,196	0,327	0,121	-0,183	0,191	0,141	0,286
COOP08	0,622	0,064	0,301	0,214	0,264	0,260	0,246	0,195	0,306	0,124	-0,173	0,189	0,110	0,286
COOP09	0,110	-0,075	-0,389	-0,223	-0,311	-0,306	-0,353	-0,169	-0,350	-0,063	0,130	-0,369	-0,262	-0,256
COOP10	0,349	-0,197	-0,034	0,015	-0,057	0,104	-0,045	0,040	0,019	-0,033	0,088	0,025	-0,062	-0,033
COOP11	0,464	-0,008	0,364	0,219	0,238	0,316	0,238	0,163	0,301	0,195	-0,146	0,238	0,324	0,253
COOP12	0,394	0,026	0,157	0,179	0,174	0,193	0,125	0,135	0,206	0,053	-0,141	0,008	0,066	0,189
COOP13	0,471	0,007	0,250	0,199	0,244	0,240	0,168	0,159	0,258	0,121	-0,112	0,085	0,075	0,282
COOP14	0,274	-0,100	0,010	0,055	0,052	0,074	-0,025	0,080	0,063	-0,036	-0,052	-0,045	-0,002	0,038
COOP15	0,298	-0,256	-0,038	0,024	-0,001	0,061	0,008	0,087	0,055	0,007	-0,048	0,000	-0,080	-0,017
COOP16	0,252	-0,089	-0,162	-0,075	-0,094	-0,074	-0,075	0,007	-0,071	-0,032	0,012	-0,129	-0,075	-0,135
COOP17	0,398	-0,055	-0,002	0,003	0,020	0,033	0,092	-0,005	0,038	-0,002	-0,086	0,021	0,049	-0,038
PROFITTO	0,234	-0,049	0,302	0,267	0,480	0,382	0,247	0,252	0,415	0,319	-0,217	0,215	0,006	0,325
SOCIOMR	0,021	0,079	0,039	0,046	0,106	0,007	0,101	0,087	0,095	0,128	-0,003	0,094	0,058	-0,015
SOCIOMG	-0,031	0,073	0,060	-0,019	0,031	-0,009	0,075	0,000	0,022	0,055	0,063	0,125	0,101	-0,022
SOCIOPR	0,005	0,084	0,065	0,041	0,135	0,041	0,105	0,098	0,114	0,117	0,005	0,112	0,053	0,017
SOCIOPG	-0,034	0,062	0,061	-0,018	0,051	0,011	0,082	-0,008	0,031	0,069	0,042	0,138	0,099	-0,025
RLIVEL	-0,272	0,183	-0,328	-0,350	-0,377	-0,450	-0,175	-0,282	-0,415	-0,268	0,137	-0,130	0,090	-0,446
ZONA	-0,113	-0,025	-0,140	-0,142	-0,174	-0,160	-0,067	-0,179	-0,191	0,002	0,053	-0,076	-0,061	-0,135
DISEGNO	0,026	-0,033	0,081	0,119	0,124	0,162	0,109	0,062	0,144	-0,042	-0,019	0,045	0,042	0,074

	COOP01	COOP02	COOP03	COOP04	COOP05	COOP06	COOP07	COOP08	COOP09	COOP10	COOP11	COOP12	COOP13	COOP14	COOP15	COOP16
COOPINV	0,625	0,620	0,610	0,533	0,580	0,541	0,641	0,622	0,110	0,349	0,464	0,394	0,471	0,274	0,298	0,252
SESSO	0,050	-0,033	-0,061	0,103	0,157	0,052	0,017	0,064	-0,075	-0,197	-0,008	0,026	0,007	-0,100	-0,256	-0,089
CLIMACCL	0,434	0,472	0,350	0,416	0,404	0,250	0,313	0,301	-0,389	-0,034	0,364	0,157	0,250	0,010	-0,038	-0,162
BFISIOL	0,355	0,374	0,261	0,165	0,260	0,141	0,211	0,214	-0,223	0,015	0,219	0,179	0,199	0,055	0,024	-0,075
SICUR	0,435	0,476	0,334	0,276	0,364	0,175	0,301	0,264	-0,311	-0,057	0,238	0,174	0,244	0,052	-0,001	-0,094
AFFAPP	0,503	0,585	0,448	0,378	0,369	0,241	0,298	0,260	-0,306	0,104	0,316	0,193	0,240	0,074	0,061	-0,074
AUTOSTI	0,320	0,274	0,294	0,405	0,377	0,237	0,259	0,246	-0,353	-0,045	0,238	0,125	0,168	-0,025	0,008	-0,075
AUTOREA	0,294	0,284	0,223	0,130	0,234	0,133	0,196	0,195	-0,169	0,040	0,163	0,135	0,159	0,080	0,087	0,007
SODDISF	0,488	0,504	0,401	0,349	0,415	0,242	0,327	0,306	-0,350	0,019	0,301	0,206	0,258	0,063	0,055	-0,071
RIPETUTO	0,141	0,141	0,066	0,056	0,161	0,079	0,121	0,124	-0,063	-0,033	0,195	0,053	0,121	-0,036	0,007	-0,032
VOLENTIERI	-0,251	-0,267	-0,151	-0,137	-0,214	-0,137	-0,183	-0,173	0,130	0,088	-0,146	-0,141	-0,112	-0,052	-0,048	0,012
IDENTITA	0,196	0,166	0,257	0,405	0,292	0,190	0,191	0,189	-0,369	0,025	0,238	0,008	0,085	-0,045	0,000	-0,129
COMPAGNI	0,055	0,021	0,231	0,428	0,258	0,201	0,141	0,110	-0,262	-0,062	0,324	0,066	0,075	-0,002	-0,080	-0,075
INSEGNAN	0,498	0,584	0,265	0,198	0,313	0,170	0,286	0,286	-0,256	-0,033	0,253	0,189	0,282	0,038	-0,017	-0,135
COOP01	1,000	0,591	0,345	0,291	0,463	0,314	0,395	0,422	-0,112	0,016	0,250	0,262	0,351	0,061	0,040	-0,020
COOP02	0,591	1,000	0,449	0,278	0,322	0,265	0,330	0,302	-0,112	0,123	0,295	0,201	0,310	0,095	0,057	-0,008
COOP03	0,345	0,449	1,000	0,523	0,299	0,313	0,284	0,192	-0,128	0,238	0,309	0,136	0,123	0,103	0,062	0,071
COOP04	0,291	0,278	0,523	1,000	0,406	0,361	0,280	0,271	-0,299	0,065	0,363	0,093	0,157	0,026	-0,043	0,013
COOP05	0,463	0,322	0,299	0,406	1,000	0,440	0,475	0,526	-0,186	-0,070	0,317	0,231	0,282	-0,044	-0,056	-0,092
COOP06	0,314	0,265	0,313	0,361	0,440	1,000	0,379	0,355	-0,090	0,061	0,262	0,120	0,207	-0,071	-0,051	0,065
COOP07	0,395	0,330	0,284	0,280	0,475	0,379	1,000	0,771	-0,047	-0,001	0,261	0,227	0,347	0,011	0,082	0,022
COOP08	0,422	0,302	0,192	0,271	0,526	0,355	0,771	1,000	-0,041	0,000	0,245	0,235	0,369	0,028	0,033	-0,005
COOP09	-0,112	-0,112	-0,128	-0,299	-0,186	-0,090	-0,047	-0,041	1,000	0,195	-0,043	0,347	0,068	0,264	0,225	0,250
COOP10	0,016	0,123	0,238	0,065	-0,070	0,061	-0,001	0,000	0,195	1,000	0,104	-0,012	-0,032	0,263	0,282	0,190
COOP11	0,250	0,295	0,309	0,363	0,317	0,262	0,261	0,245	-0,043	0,104	1,000	0,117	0,208	0,034	0,007	-0,050
COOP12	0,262	0,201	0,136	0,093	0,231	0,120	0,227	0,235	0,347	-0,012	0,117	1,000	0,253	0,158	0,138	0,005
COOP13	0,351	0,310	0,123	0,157	0,282	0,207	0,347	0,369	0,068	-0,032	0,208	0,253	1,000	0,113	0,035	0,069
COOP14	0,061	0,095	0,103	0,026	-0,044	-0,071	0,011	0,028	0,264	0,263	0,034	0,158	0,113	1,000	0,240	0,189
COOP15	0,040	0,057	0,062	-0,043	-0,056	-0,051	0,082	0,033	0,225	0,282	0,007	0,138	0,035	0,240	1,000	0,144
COOP16	-0,020	-0,008	0,071	0,013	-0,092	0,065	0,022	-0,005	0,250	0,190	-0,050	0,005	0,069	0,189	0,144	1,000
COOP17	0,083	0,062	0,114	0,134	0,211	0,227	0,232	0,220	0,107	0,091	0,041	0,055	0,120	0,071	0,076	0,235
PROFITTO	0,234	0,288	0,146	0,125	0,218	0,059	0,211	0,162	-0,169	0,027	0,190	0,133	0,155	0,040	0,035	-0,065
SOCIOMR	-0,003	-0,056	-0,011	0,121	0,113	0,050	0,093	0,077	-0,149	-0,058	0,060	-0,028	0,075	-0,029	-0,066	-0,065
SOCIOMG	-0,020	-0,054	-0,011	0,151	0,083	-0,014	-0,004	-0,007	-0,140	-0,049	0,031	-0,070	0,008	-0,030	-0,082	-0,096
SOCIOPR	-0,009	-0,046	-0,024	0,098	0,075	0,025	0,083	0,068	-0,160	-0,048	0,063	-0,026	0,076	-0,044	-0,036	-0,071
SOCIOPG	-0,027	-0,083	-0,020	0,119	0,034	-0,031	0,013	0,002	-0,126	-0,053	0,038	-0,046	0,016	-0,012	-0,029	-0,099
RLIVEL	-0,288	-0,411	-0,215	0,004	-0,109	0,000	-0,155	-0,098	0,062	-0,219	-0,262	-0,133	-0,141	-0,089	-0,175	0,091
ZONA	-0,111	-0,130	-0,066	-0,052	-0,075	-0,070	-0,112	-0,042	0,094	-0,013	-0,044	-0,036	-0,109	-0,009	0,000	-0,084
DISEGNO	0,019	0,134	0,037	0,021	-0,050	-0,101	-0,070	-0,059	0,008	0,098	0,091	0,049	0,020	0,106	0,016	-0,042

	COOP17	PROFITTO	SOCIOMR	SOCIOMG	SOCIOPR	SOCIOPG	RLIVEL	ZONA	DISEGNO
COOPINV	0,398	0,234	0,021	-0,031	0,005	-0,034	-0,272	-0,113	0,026
SESSO	-0,055	-0,049	0,079	0,073	0,084	0,062	0,183	-0,025	-0,033
CLIMACL	-0,002	0,302	0,039	0,060	0,065	0,061	-0,328	-0,140	0,081
BFISIOI	0,003	0,267	0,046	-0,019	0,041	-0,018	-0,350	-0,142	0,119
SICUR	0,020	0,480	0,106	0,031	0,135	0,051	-0,377	-0,174	0,124
AFFAPP	0,033	0,382	0,007	-0,009	0,041	0,011	-0,450	-0,160	0,162
AUTOSTI	0,092	0,247	0,101	0,075	0,105	0,082	-0,175	-0,067	0,109
AUTOREA	-0,005	0,252	0,087	0,000	0,098	-0,008	-0,282	-0,179	0,062
SODDISF	0,038	0,415	0,095	0,022	0,114	0,031	-0,415	-0,191	0,144
RIPETUTO	-0,002	0,319	0,128	0,055	0,117	0,069	-0,268	0,002	-0,042
VOLENTIERI	-0,086	-0,217	-0,003	0,063	0,005	0,042	0,137	0,053	-0,019
IDENTITA	0,021	0,215	0,094	0,125	0,112	0,138	-0,130	-0,076	0,045
COMPAGNI	0,049	0,006	0,058	0,101	0,053	0,099	0,090	-0,061	0,042
INSEGNAN	-0,038	0,325	-0,015	-0,022	0,017	-0,025	-0,446	-0,135	0,074
COOP01	0,083	0,234	-0,003	-0,020	-0,009	-0,027	-0,288	-0,111	0,019
COOP02	0,062	0,288	-0,056	-0,054	-0,046	-0,083	-0,411	-0,130	0,134
COOP03	0,114	0,146	-0,011	-0,011	-0,024	-0,020	-0,215	-0,066	0,037
COOP04	0,134	0,125	0,121	0,151	0,098	0,119	0,004	-0,052	0,021
COOP05	0,211	0,218	0,113	0,083	0,075	0,034	-0,109	-0,075	-0,050
COOP06	0,227	0,059	0,050	-0,014	0,025	-0,031	0,000	-0,070	-0,101
COOP07	0,232	0,211	0,093	-0,004	0,083	0,013	-0,155	-0,112	-0,070
COOP08	0,220	0,162	0,077	-0,007	0,068	0,002	-0,098	-0,042	-0,059
COOP09	0,107	-0,169	-0,149	-0,140	-0,160	-0,126	0,062	0,094	0,008
COOP10	0,091	0,027	-0,058	-0,049	-0,048	-0,053	-0,219	-0,013	0,098
COOP11	0,041	0,190	0,060	0,031	0,063	0,038	-0,262	-0,044	0,091
COOP12	0,055	0,133	-0,028	-0,070	-0,026	-0,046	-0,133	-0,036	0,049
COOP13	0,120	0,155	0,075	0,008	0,076	0,016	-0,141	-0,109	0,020
COOP14	0,071	0,040	-0,029	-0,030	-0,044	-0,012	-0,089	-0,009	0,106
COOP15	0,076	0,035	-0,066	-0,082	-0,036	-0,029	-0,175	0,000	0,016
COOP16	0,235	-0,065	-0,065	-0,096	-0,071	-0,099	0,091	-0,084	-0,042
COOP17	1,000	-0,016	0,042	0,017	0,004	0,025	0,121	0,009	-0,076
PROFITTO	-0,016	1,000	0,217	0,120	0,244	0,142	-0,540	-0,116	0,194
SOCIOMR	0,042	0,217	1,000	0,621	0,858	0,583	0,019	-0,058	-0,004
SOCIOMG	0,017	0,120	0,621	1,000	0,583	0,820	0,006	-0,023	0,044
SOCIOPR	0,004	0,244	0,858	0,583	1,000	0,624	-0,016	-0,078	0,038
SOCIOPG	0,025	0,142	0,583	0,820	0,624	1,000	-0,008	-0,036	0,052
RLIVEL	0,121	-0,540	0,019	0,006	-0,016	-0,008	1,000	0,142	-0,308
ZONA	0,009	-0,116	-0,058	-0,023	-0,078	-0,036	0,142	1,000	0,165
DISEGNO	-0,076	0,194	-0,004	0,044	0,038	0,052	-0,308	0,165	1,000