Special Issue.- Cooperative Learning

Introduction: Cooperative Learning

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Título: Introducción: aprendizaje cooperativo.
Resumen: El objetivo principal de esta revisión es la defensa del aprendizaje cooperativo como una estrategia altamente efectiva para el logro de las metas generales del aprendizaje. Las investigaciones analizadas vienen a confirmar la potencialidad que una organización cooperativa del aula presenta para el logro académico, la autoestima, la atracción interpersonal o el apoyo social. La robustez de la investigación existente contribuye a su validez externa e interna y, por lo tanto, a concluir que los resultados son consistentes y generalizables a distintas culturas, etnias o países.
Palabras clave: aprendizaje cooperativo, rendimiento; incidentes críticos, plataforma digital, habla comunicativa, conocimientos previos.

Abstract: The principal objective of this revision is the recognition of cooperative learning as a highly effective strategy for the accomplishment of the general goals in learning. The different investigations assessed validate the potential that a cooperative organization of the classroom could entail for academic achievement, self-esteem, interpersonal attraction or social support. The solidity of the existing research contributes to its external and internal validity and, thus, to conclude that the results are consistent and can be extrapolated to different cultures, ethnic groups or countries.
Key words: cooperative learning; achievement; critical incidents: e-learning platform; communicative talk; prior knowledge.

With the beginning of the constructivist paradigm in education, the student has acquired an equal status to that of the teacher's in the development of teaching and learning processes and the interaction processes within the classroom have become an ingredient as inevitable as essential for an optimal teaching management. In this way, peer interaction process has acquired a predominant role in planning and carrying out the educational practices.

On the other hand, but in a similar context, the introduction of the concept of "competence" in the curriculum leads us to models where interaction within heterogeneous groups and the use of tools in an interactive way (key competences) become two key principles for classroom work and, thus, the ability to cooperate turns out a basic instrument for the achievement of the former (Rychen & Salganik, 2001).

Therefore, cooperative work, where individuals work together in order to achieve interdependent goals, is a novel, expanding concept which has permeated and altered the general structure of our classrooms, in such a way that talking about teaching and learning processes today involves talking about processes cooperatively organized contexts.

The teaching and learning processes elaborated and developed under the paradigm of cooperation are given the generic name of "*cooperative learning*". Cooperative learning encompasses a series of systematic teaching strategies characterized by the division of the class/group into small teams of variable heterogeneity which tend to be representative of the complete spectrum of the class as regards performance, gender, ethnic group, culture, and where the purpose of the process lies in fostering the maintenance of a positive interdependence among the members of these teams by means of specific principles of group reward and/or a particular task organization to be carried out for the accomplishment of the goals set.

Traditionally, it has been highlighted that the different learning methods of cooperative learning underlie different perspectives championed by an equal number of hypothetical conjectures which provide a theoretical backup of validation for cooperative learning.

Robert Slavin's article, which introduces this monograph, conducts an analysis on the four most relevant perspectives (motivationalist, social cohesion, cognitive-developmental and cognitive- elaboration) and while favoring the motivational perspective, it acknowledges that, under certain conditions all of these perspectives can contribute equally to the students' academic achievement, a reason why the author aspires to develop a unified theory which may shed light on the positive effects of cooperative learning in a global manner.

The different theories which back up cooperative learning, particularly the cognitive-developmental ones, highlight that the notion of cooperation implies an effort to achieve common goals by raising awareness that, for this process to be successful, it is necessary to coordinate one's viewpoints with those of the rest of the participants. For these theories, the underlying premise is that when people cooperate, emerges a socio-cognitive conflict which causes disequilibrium. In an attempt to restore the equilibrium, one of the basic capacities for development and learning is stimulated: the relativity of the proper point of view (Piaget, 1965). In this tradition, emanating from the School of Geneva, cooperative learning is a basic instrument so as to accelerate intellectual development and foster learning, as it forces people to reach a consensus with others holding a different and sometimes, opposite, viewpoint on the answers to what is, how is done and what purpose serves a particular school activity.

In line with this very tradition, the socio-cultural school posits that knowledge is social by nature, and is constructed

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on the basis of the cooperative efforts towards learning, understanding and problem-solving. For the *Cultural-Historical Psychology School*, a key concept to understand the cooperation processes is the **Zone of Proximal Development**, defined as the distance existing between what a student can do individually and what they can do provided they work under the supervision of instructors or in collaboration with more capable peers (Vygotsky, 2007).

All of this lets us conclude that, within these conceptions, both peer-interaction and teacher-student interaction are the basic ingredients which support the learning process.

However, for a highly-efficient academic achievement, interaction processes occurring in the classroom context should meet certain requirements. Is, for that reason, advisable to examine the factors leading to success in a process of cooperative learning, and that is the underlying idea of the second article of this monograph, developed by Robyn Gillies. The author, after undertaking revision in research on cooperative learning, examines the factors which determine and intervene in its success, focusing on the key role that classroom talk plays on students' learning.

In effect, there is enough empirical evidence supporting the conclusion that high quality talk originated in certain contexts of problem-solving, not only fosters learning and communication abilities in students but also their thinking skills. From this perspective and paraphrasing Simpson, Mercer, & Majors (2010), we should put forward the following hypothesis: if learning floats on a sea of talk, then, which type of conversation should we promote? And in order to foster which type of learning?

Ever since the first couple of works of Douglas Barnes (Barnes & Todd, 1977), we are aware that when students approach the curricular contents, they do so in very different ways, and when they try to communicate their knowledge to the others, they use different means of communicative talk (cumulative, presentational, exploratory, etc.), depending, as much on the moment and instructional situation as on their previous knowledge (Barnes, 2008). Regarding this process we have to distinguish between two frames of reference: **interaction frame** and **interactivity frame** (content-centered interaction). The interactivity frame has to do with what the subject is speaking about (their ideas, their reasoning logic, etc.), and within this frame, participants give evidence of what they think (or of what they want others to believe they think). The interaction frame deals with how the constituting elements within the group socialize with each other and in it, participants give evidence of their attitudes towards the others and of the relationships established between them. The main problem we have found in the classroom is that, during group discussions, there is not simultaneous interaction between these two frameworks (Edward & Westgate, 1987) and this interaction would be necessary to achieve a "countable talk" in the sense that Lauren Resnick (1995) gives it. It would be the teacher's duty to carry out the necessary actions to facilitate the confluence between these two frames.

Therefore, if talk within the student-to-student interaction process is a potent factor for learning, talk produced in the course of teacher-student interactions developed along the teaching process is equally as important. Research carried out on the use of talk between teachers and students lets us postulate the existence of an educational discourse which reveals different types of talk existing in teacher-student interactions and which follow other forms of participation in students (Mercer, 1995). Gilles' article lays out the guidelines on how teachers can use efficiently cooperative learning in order to foster effective teaching and learning processes in their classrooms.

Expanding this particular point, Alessio Surian and Marialuisa Damini present a general vision regarding the challenges that for the teachers involve the implementation of cooperative learning, highlighting the necessity of a specific training in this type of methodology.

The methodology employed by the authors for the training of teachers in Cooperative Learning Methods is that of critical incidents, which focus on the Group Investigation (Sharan & Sharan, 1994). This methodology, which could be categorized as part of the paradigm of the reflexive teacher, posits that the "*critical incident*" is an event located in time and space that, after exceeding a specific emotional threshold in the teacher, sparks off a crisis or destabilizes this one's traditional ways. The "incident" unleashes in this way the urge to revise the conventions, strategies and feelings in the teacher, turning this way into a tool capable of precipitating significant changes or revisions in their professional identity (Everly & Mitchell, 1999), being this understood as "the sum of the representations in relation to teaching that a teacher has about himself/herself, which happen to be stable over time and quite limited with regard to their content" (Monereo, 2010, p. 157). The authors conclude that critical incidents constitute a highly effective methodology to carry out teachers' training activities on cooperative learning methods.

However, if it is not easy to teach from the perspective of a cooperative organization in the classroom, learning to learn cooperatively is not easy, either. In the beginnings of the 20th century, Baldwin (1909) stated that cooperation was only possible if the individual was willing to cooperate and was capacitated to cooperate.

> In the qualities of the *socius* or socialized individual, we have the type of personal fitness upon which the qualifications of the group for survival will depend. Only so far as the individuals of the group are *socii*, members capable of cooperation and willing to cooperate with their fellows, will the group hold together effectively. (Baldwin, 1909, p. 43).

Yael Sharan's article is especially illustrative about this point. In her essay, the author describes the different ways that, along several decades of research and educational praxis, have been developed in order to train both students and teachers so as to adapt the teaching and learning processes to the demands necessary for an efficient cooperative organization of the classroom. In this work Sharan describes the necessary resources to learn to cooperate and reminds us that

learning cooperatively implies a vast number of changes that affect both social conducts in students (how to behave) and cognitive ones (how to learn), which leads us, without any solution of continuity, to the two aforementioned frame: interaction frame and interactivity frame.

In line with this view is the work by Cesar Coll and Anna Engel, where the authors examine the relationships between these two frameworks in four situations of on-line cooperative learning, two of them following the **CSILE** (*Computer Supported Intentional Learning Environments*) approach, making use of the **Knowledge Forum** software, and the other two employing **LCMS** (*Learning Content Management System*), using the technological platform **Moodle**. The results obtained allow them to suggest an analysis proposal which contemplates the participants' talk in each one of the dimensions and in each of the technological tools, while determining the weight of the discourse in each one of the proposed learning situations.

If the works described so far, mostly take as a relevant independent variable for a successful cooperative learning the directionality, depth, connectivity and quality of the communicative transactions (**parameter of mutuality**) existing between the participants in a situation of cooperative learning, the work carried out by Rosa María Pons, María Dolores Prieto, Clotilde Lomeli, María Rosario Bermejo y Sefa Bulut focuses its attention towards a different parameter involved in the cooperation and which makes reference to group formation: **the parameter of equality**. The authors of said job hypothesize that the success of learning in the three cooperative situations likely to be occur in the classroom (Damon & Phelps, 1989), depend on the characteristics of content and on its relationship with students' previous knowledge. In this way, their work concludes that there is an inversely proportional relationship between the parameter of equality and the **distance** towards the zone of proximal development. Therefore, when the distance between previous knowledge and the content to be learned is short, the most effective group structure responds to a situation of collaboration (groups with high level of equality), but, as this distance increases, the parameter of equality is bound to decrease until getting to situations where the situation of peer-tutoring (low level of equality) proves more effective than the rest of relationships.

Finally, and centering on the social frame of reference for the classroom, we can affirm that from the decade of the 1950's on, a series of social changes have occurred which have forced humans to live closer and closer to each other, forming a complex and sophisticated social structure, where interpersonal relationships day by day acquire a greater importance, in such a way that a member of this type of society who considers himself/herself integrated in it, must develop as a basic competence, the capacity to solve problems and tensions which, inevitably, arise between individuals, groups or nationalities. This way, we could state that cooperation is, in a broad sense, one of the keys for the improvement in social relationships and material progress in individuals. In effect, one of the causes of human progress is the capacity that the individual has to put their intelligence at the disposal of a collective in search of a common objective and, in this sense, the article which ends this monograph informs about the virtues of cooperative learning as an instrument for the effective accomplishment of these goals. David and Roger Johnson undertake a revision on the nature of cooperative learning, which takes as its framework of reference the theory of social interdependence and conclude with the analysis of results derived from the research on this topic carried out along the last decades, in order to determine the positive effects that this methodology has on certain variables deemed essential for learning, like academic achievement, self-esteem, interpersonal attraction, social support, etc. In situations of cooperation there is more productivity, relationships are more positive, there is a higher social adaptation and better aptitudes than in more competitive or individualistic situations. Furthermore, the solidity of this research contributes to its validity and the possibility to extend this type of methodology to other cultures, countries or ethnic groups.

Cooperation emerges this way as a teaching instrument extremely adapted to today's educational necessities and, at the same time, represents a powerful tool charged with future which, in words of the distinguished mathematician Johann Carl Friedrich Gauss, the key in cooperative learning is not knowledge *per se*, but the act of learning; the key is not the possession of said knowledge, but the sum of those actions which enable us to accomplish that possession.

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