

## Cooperative Learning Effectiveness in the Bureaucratic School: Views of Greek Secondary Education Teachers

**Konstantina Koutrouba,**  
Harokopio University, Athens, Greece

**Ioannis Christopoulos**  
Arsakeia-Tositseia Upper High Schools,  
Athens, Greece

**Abstract.** The present questionnaire-based study examines 491 Greek secondary education teachers' perceptions about and attitudes towards cooperative learning (CL) four years after the official introduction of CL in almost all teaching/learning procedures, in order to find out whether minor changes in typical bureaucratic educational systems, may produce major beneficial results for students, teachers, and education per se. According to the results, significant educational outcomes are linked to CL in a highly bureaucratic educational system, such as students' self-understanding and empathy-developing, increasing self-esteem, the attainment of socio-emotional objectives, and providing teachers with incentives to experiment, diversify and individualize the teaching process within mainstream classes. Such positive outcomes, however, seem to be produced only in cases where teachers are provided firstly with clearly defined socio-affective Curricula objectives, teaching guidelines, and educational instructions, and secondly with official authority and entrustment to implement (almost obligatorily) CL in such a way that major academic objectives can be fulfilled and are not downgraded.

**Keywords:** Greece; cooperative learning; secondary education; teachers' views

### **Introduction**

In their widely known work on cooperative learning [CL] and the organization of secondary schools, Shachar and Sharan (1995) have provided a detailed description of the bureaucratic model of school organization; teachers, administrators, and students manifest low levels of active participation in any innovative educational procedures, their behaviour is strictly predetermined by official Curricula, experimentation is avoided, academic achievements are high but affective and social orientations of teaching are vague. In such settings, as

Galton, Gray, and Rudduck (2003), Gillies (2007), Johnson and Johnson (2013) and Kirschner, Paas, and Kirschner (2009) have shown, teachers seem to be more confident about their professional competences though they often report lack of training and confidence as regards differentiation or individualization in the teaching process, high-achieving students dominate in the frontal whole-class teaching/learning process while knowledge transmission-recitation constitutes the cornerstone of education.

Shachar and Sharan (1995) have also described, in contrast to the bureaucratic model, the open-system model of school organization, where cooperation between students, collegiality between teachers, and collaboration between school and family/society are encouraged, free exchange of information on differentiated/alternative teaching practices is allowed and the initiation of creative experimentation within the classroom is enthusiastically welcomed. Moreover, in such schools, curricula objectives embed emotional and social orientations; knowledge, and cognition and regulation of knowledge are considered to be attainments of equal value, while low-achieving students often display a discernible improvement as regards participation, communication, and accountability—something also described by Jacobs, Power, and Lon (2002), Johnson and Johnson (2003), Sharan (2010) and Tan, Sharan, and Lee (2006).

A huge amount of research findings (Freebody, 2003; Gillies, Ashman, & Terwel, 2008; Hmelo-Silver et al., 2013; Kagan & Kagan, 2009; Mayer, 2011; Sharan, 2015) have convincingly shown that if a substantial shift from traditional teaching in the bureaucratic school to the highly participative multi-layered learning in the open-system school occurs, cooperative learning should be considered a linchpin in the educational process. Brody and Davidson's (1998) widely-known definition of CL as a process where students "work in groups towards a common goal or outcome, or share a common problem or task in such a way that they can only succeed in completing the work through behaviour that demonstrates interdependence, while holding individual contributions and efforts accountable" (p. 9), incorporates, in fact, through its words and their connotations the main objectives, features and values of the open-system school that most researchers and education policy-makers envisage. In addition, and regardless of taxonomies suggested and cooperative work models preferred, researchers seem to agree that piecemeal implementations of group work learning should be avoided and overall changes in the education system per se should be attempted (through brave interventions in University education, in curricula, in the society itself), so that CL becomes the cornerstone of modern education (Gillies, 2007; Shachar & Sharan, 1995; Sharan, 2010; Slavin, 2014).

Despite however the undisputed need for an overall change in education, significant positive outcomes have been reported by researchers worldwide for students after the implementation of CL strategies in ordinary classrooms, even in cases where teachers' relative competences, students' awareness, curricula flexibility, and infrastructure adequacy could not be described as ideal. Gillies and Boyle (2011), recording the views of teachers who, for two years, had been embedding in regular school curricula CL strategies in mixed-ability classes

(namely, classes where students with special educational needs, low-, medium-, and high-achievers are co-educated) with 27 to 33 students, reported that even the traditional 'loafers' and the low-achievers manifested a noteworthy degree of accountability and willingness, and developed feelings of self-esteem, albeit only in cases where appointed tasks were clearly defined and evidently interdependent. The same research also confirmed former findings of Johnson and Johnson (2003), Howe and colleagues (2007) and Webb and colleagues (2009) who reported that where the communication and cooperation rules had been clearly taught and explained to students prior to their engagement in cooperative processes, stronger intellectual, meta-cognitive, affective, and social outcomes were obtained, even in schools where cooperative projects covered only a small part of the official curriculum's activities. It is also interesting that, as Davison, Galbraith, and McQueen (2008) have reported, even mainstream school students who presented behavioural or learning problems had been brought into line (as regards academic performance, understanding rules and cooperation protocol) due to the positive influence of their group, after a short-term but substantial training of teachers on the implementation of CL in ordinary schools. As Greany and Rodd (2003), Slavin (2014) and Baudrit (2007) have shown, it is, in fact, the students' personal and collaborative effort to understand rules, expectations, and routines of actions which helps them better understand the others (developing, thus, empathy), describe seminal ideas more precisely (developing resourcefulness) and express personal needs (displaying meta-cognitive awareness), and more effectively avoid misperceptions and bad behaviour (triggering thus feelings of adequacy, usefulness, and acceptance). Baines, Blatchford, and Kutnick (2003), Gillies (2008) and King (2002) have also shown that the abovementioned benefits are further consolidated when teachers play a major role in the structuring of the groups, since they can take into account students' individual skills, needs, and learning or social features.

Teachers' discreet and well-planned supportive interventions in group work have also been considered to help make students feel more secure; teachers are supposed to estimate better the time needed for the completion of the task, the depth and breadth of the content, the expected achievements of each one of the students (Baudrit, 2007; Cohen, Brody, & Sapon-Shevin, 2004; Freebody, 2003; Kagan & Kagan, 2008). However, it should not be taken for granted that all teachers are able to take full advantage of the principles of pedagogy during student grouping, since group forming very often is negatively affected by a non-manageable number of students, by inflexible curricula constraints, by the students' varied ability and maturity, by teachers' lack of training and so forth, as Galton, Gray, and Rudduck (2003), Ireson and Hallam (2001) and Kutnick and colleagues (2005) have shown. Nor should it be taken for granted that high-achievers are willing to work in groups, that parents support the inclusion of 'diverse' students in mainstream classrooms, or that the school administration gives a free hand to enthusiastic teachers, as Cairns, Lawton, and Gardner (2001) and Johnson and Johnson (1999) have shown.

Nevertheless, such restrictions do not eliminate positive outcomes and potentials of CL strategies, as reported by Cohen and colleagues (2002),

Eastman, Newstetter, and McCracken (2000) and Ginsburg-Block and colleagues (2006). Cantwell and Andrews (2002), on examining the attitudes of 290 secondary education students towards cooperative work have confirmed that when students were encouraged (with detailed information provision and positive training support) to develop more sophisticated ways of addressing the complexity of CL, basic cognitive, social, and psychological impediments to effective cooperation (such as feelings of anxiety, discomfort, inadequacy, tendency to alienation), were minimised while positive outcomes (such as higher academic achievement aspirations, knowledge and regulation of cognition, sociability) were further consolidated. Sharan (2010) has also shown that even in cases where difficulties arise from a severe cultural and linguistic gap which separates foreign from native students, obstacles can be surmounted when teachers engage students methodically in activities that promote cultural sensitization and respect of diversity (such as familiarization with the achievements of high-profile individuals from different ethnic groups in some areas, the presentation of historical or cultural achievements, language influence and so forth). Kutnick, Blatchford, and Baines (2005) and Thanh and Gillies (2010) have shown that such a merging or understanding of different values and perspectives could have had a major positive impact on educational practice where social real-life objectives are considered to be equal to strict academic expectations.

An apparent need for modernization, namely the need for adjustment to the requirements of the present and the foreseeable future has driven educational systems around the world to re-orientate educational policies, aims, and techniques (Beese & Liang, 2010; Corner, 2012; Crafton & Kaiser, 2013; Davis, 2013). In Greece, in particular, the educational system has been highly conservative and bureaucratic for decades; teaching has been based mainly on teacher-centred, frontal whole-class instruction restricted by limitations set by official curricula which have inflexibly defined content, pace and, even, methods for teacher and student task allocations and attainments (Kassotakis, 2000; Kazamias, 1990; Koulaidis et al. 2006). Individualization and differentiation during teaching has been rather prohibitive due to the effort of teachers to meet a widely-accepted coercive requirement for students' high academic achievements at the expense of social or emotional objectives (Ifanti, 2007). Even teachers scientifically well-trained and willing to stray from the beaten track have had to personally shoulder the responsibility of a potential failure (in particular as regards the overly demanding upper secondary high school education provided to students aged 15-18 years)—an eventuality unacceptable to administration, students, parents, and colleagues alike (Ifanti & Fotopoulou, 2011; Saiti, 2007; Saiti & Mitosili, 2005). Such discouraging aspects of the system seem to have been further exacerbated by the lack of decentralization of administrative power, the poor funding of pre-service training programmes, the ineffective establishment of learning communities among teachers, parents, and students, and, above all, due to the teachers' and students' impression that 'education' is destabilized, disorientated, undermined and, finally, disintegrated when experimental alterations, modifications and adjustments threaten a

traditionally tested and accepted educational status quo (Anagnostopoulou, 2001; Kaldi, Philippatou, & Onoufriou, 2009; Koutselini, 2008).

However, since 2011, following subsequent minor reforms (Georgiadis, 2007) and probably under long-existing pressure from various directions and demand for more extensive improvements that would follow international educational research findings, reforms, and developments (Koutsourakis, 2007; Traianou, 2009), a few dynamic and optimistic steps to change have been made; new curricula have embedded compulsory cooperative activities in almost all school subjects, while the assessment of teachers' professionalism have incorporated criteria such as instructional individualization and diversification, use of cooperative techniques, utilization of IT, the ability to connect knowledge with real-life experiences, the ability to communicate effectively with students and help students do the same with each other (Greek Government Gazette, 2013; OECD, 2011). At the same time, parallel reforms in administrative hierarchies have motivated younger but well-educated teachers to experiment in their classrooms and to disseminate or share with more hesitant colleagues scientific knowledge on cooperative teaching/learning procedures. It is rather obvious that CL has become the stepping stone of this reform, and, despite hesitations, doubts and even an understandable resistance to change, communication, cooperation, and collaborative association has penetrated (admittedly, somehow audaciously) the core of a highly bureaucratic educational system (Greek Government Gazette, 2013; OECD, 2015).

Research on the educational positive or negative outcomes of this reform in Greece remains limited (Kaldi, Philippatou, & Anthopoulou, 2014). At the same time, the contribution of this 'invasion' of cooperativeness in all learning processes remains unmeasured, despite recent research recording Greek students' views on and attitudes towards CL (Koutrouba, Kariotaki, & Christopoulos, 2012).

The aim of this paper is to examine Greek secondary education teachers' perceptions about and attitudes towards CL four years after the abovementioned reform (which introduced CL in almost all teaching/learning procedures), in order discover positive outcomes, difficulties, and its potential. More specifically it examines whether minor changes (regarding the introduction of CL in learning process) in typical bureaucratic educational systems, may produce major beneficial results for students, teachers, and the educational system per se.

## **Methodology**

The present research was conducted during the academic year 2013-2014 and was based on a distribution of 550 questionnaires addressed to a corresponding number of high school teachers in Athens and its suburbs. A group of 25 University students were provided by the researchers with systematic information in order to personally prompt and help teachers complete a questionnaire comprising 68 close-ended questions. The University students and the researchers proceeded to visit 50 secondary education schools

(i.e., 27 Junior High Schools with students 13-15 years old and 23 Upper High Schools with students 16-18 years old) and distributed the questionnaires after making personal contact with school principals and teachers with the permission of the Greek Ministry of Education. These schools were selected on the basis of criteria regarding teacher and student population in order to ensure that as many teachers and students as possible had already been involved in CL procedures. More specifically, in all the selected schools the ratio of teachers to students and the ratio of teachers to schools exceeded the national ratios of 1:8.5 and 21.1:1 respectively (OECD, 2011; Eurydice, 2014). As a result, a large number of respondents were ascertained to have exercised, to a varied degree, CL in classrooms in order to sensitize students mainly on issues regarding society, environment and culture. Moreover, social and economic features of the school area were taken into account in order to ensure that relevant information would be provided by teachers working in different socio-financial settings, given the fact that, as Gillies (2007), Kagan and Kagan (2009) and Koulaidis and colleagues (2006) have observed, the cultural and social features of the learning environment seem to have a major impact, either positive or negative, on teacher initiative in implementing CL techniques and, in a broader sense, on the overall outcomes of every experiential learning procedure. More specifically, the catchment areas of the schools were divided into three categories (Low, Medium, High) on the basis of their socio-economic characteristics using a property value indicator provided by the Finance Ministry (OECD, 2011; European Commission, 2014). Schools were then allocated to one of three categories: ten schools were identified as serving areas of low socio-economic status, 20 as serving areas of medium socio-economic status, and 20 were considered to serve areas of high socio-economic status. The ratios of the selected students to schools and of schools to each area represented the corresponding national ratios, ensuring, as far as possible, that the sample was representative. It should, yet, be noted that although the researchers ascertained a strong correlation between the socio-financial features of the school and teachers' willingness to use group work or other alternative teaching strategies in their classrooms, the examination of such a correlation belongs not to the aims of the present paper but to the aims of a forthcoming research.

The questionnaire comprised 68 close-ended questions with pre-coded replies: 7 of which required teachers to provide information about personal profile and background (see table 1, variables 1-7), while 61 special questions and their pre-coded replies (which are presented as variables 8-68 in table 2) referred to teachers' perceptions about and attitudes towards CL features and activities. To maximize respondent awareness and internal consistency in answers during questionnaire completion, specific questions were not arranged on the basis of their relation with the ones preceding or following them, though, in general, question relevance was a criterion for question grouping.

The questionnaire, originally written in Greek and then translated into English for the purposes of this paper, was self-administered because it was not possible to identify an instrument from the literature that allowed researchers to capture all the variables involved in this study. For this reason, the synthesis of

the questionnaire was mainly based on the research findings of Cantwell and Andrews (2002), Cohen, Brody, and Sapon-Shevin (2004), Crafton and Kaiser (2011), Davis (2013), Davison, Galbraith, and McQueen (2008), Gillies(2008), Gillies, Ashman, and Terwel (2008), Hmelo-Silver, Chinn, Chan, and O'Donnell (2013), Kagan and Kagan (2009), Kaldi, Philippatou, and Onoufriou (2009), Kutnick, Blatchford, and Baines (2005) and Sharan (2010).

The scoring of the special questions was based on nominal five-point Likert-type scales (1=not at all, 2= slightly, 3=moderately, 4=much, 5=very much), incorporating properties of labelling and classification.

Four hundred and ninety one (491) questionnaires were returned, a response rate of 89.2 per cent. A statistical coding of questions and answers followed the collection of the questionnaires. Data elaboration and statistical analysis was performed using Predictive Analytics Software [PASW] Statistics 21 and factor analysis was employed, using Principal Component Analysis [PCA] with Varimax rotation extraction method, to pinpoint the main factors influencing secondary school teachers' views about and attitudes towards group work. All relevant statistical tests were performed at a significance level  $\alpha = 0.01$ . A broad outline of the more significant results and conclusions of the present research is presented below.

## Analysis of results

### Participants' profile

Of the 491 teachers who participated in the research, 62.7 percent were women, while 37.3 percent were men. The working experience of the majority of them (43.4%) ranged from 0 to 10 years, while 40.1 percent had over 16 years of service in school. Moreover, the overwhelming majority (88.4%) of the participants did not possess any postgraduate degree in Education and 64.4 percent had never taken any further training on the implementation of CL strategies, although the majority of them (68.4%) were aged from 36 to 55 years and the majority of the respondents (61.7%) considered further training on the use of CL strategies to be 'very' to 'extremely' important. Details on the participants' profiles can be seen in Table 1.

**Table 1: Participants' profile (in percentages)**

	1	2	3	4	5
1 Gender (1=women, 2=men)	62.7	37.3			
2 Age (1 = 22-25 years, 2 = 26-35 years, 3 = 36-45 years, 4 = 46-55 years, 5 = over 56 years)	4.5	21.2	34.8	33.6	5.9
3 Teaching experience Age (1 = 0-5 years, 2 = 6-10 years, 3 = 11-15 years, 4 = 16-20 years, 5 = over 20 years)	23.2	20.2	16.5	18.5	21.6
4 Specialty (1 = Humanities, i.e. History, Language, Aesthetic Studies, 2 = Social Studies, i.e. Religion, Sociology, Economics, 3 = Mathematics & Natural Sciences, i.e. Physics, Chemistry, Biology, 4 = Information Technologies, 5 = other)	44.9	18.8	25.2	4.7	6.4
5 Post graduate qualifications on Science of Education (1 =	10.6	1	88.4		

	Master Degree, 2 = PhD, 3 = none)					
6	Frequency of participation in seminars on the use of CL strategies (1 = 0 times, 2 = 1-2 times, 3 = 3-5 times, 4 = 6-10 times, 5 = over 10 times)	64.4	20	9.2	4	2.4
7	Views on importance of further training on the use of CL strategies (1 = not at all important, 2 = slightly important, 3 = moderately important, 4 = very important, 5 = extremely important)	4.5	12	21.8	29.7	32

---

### Special questions

Variables 8-21, 46-49 and 51-52 of Table 2 present teachers' responses to questions regarding their views on positive outcomes for students who participate in CL procedures and group work activities. These responses portray a student who, through CL, develops the ability not only to understand and express his/her personal feelings (variable 8) which during puberty are not yet fully formed and perceived, but also to understand and share his/her schoolmates' experiences and emotions due to empathy developed through cooperative interaction (variable 14). Moreover, such a student is expected by the participants to increase meta-cognitive awareness (variable 10) expressing written and verbal ideas in a more lucid and comprehensible way (variables 18, 19), probably to avoid misunderstandings, and developing non-verbal interaction (variable 16) to facilitate and strengthen effective communication with the members of the group. Teachers also report that due to group work experience students learn how to cooperate harmoniously with the teacher as well (variable 11), while positive outcomes are strengthened when widely accepted rules are established (variable 17), when students take creative initiatives and responsibilities (variable 13) and when they behave in a mature way during all learning procedures (variable 12). Group work is also reported to facilitate the development of student self-esteem (variable 9), without however eliminating the dominance of high-achievers over low-achievers (variable 51), as well as weak students reliance on the high-achievers' performance within the group (variable 52) and despite the fact that reluctant (but not necessarily weak) students are considered to participate more actively in group work activities (variable 47). By jointly examining variables 46, 48 and 49, one could probably say that, irrespective of their cognitive performance, all students feel useful since they contribute, to a varied however extent, to the final outcome of the group through the establishment of interpersonal relationships which are described by the respondents as meaningful rather than superficial. One could also say that this contact between students of different performance, attitudes and learning expectations helps all students develop tolerance towards and cooperativeness with diverse personalities (variable 21), linking this way school experience to real life perceptions (variable 20).

Variables 22-45 and 50 of the same table present teachers' responses to questions regarding their views on their personal role during all stages of the group work process. These responses provide the image of a teacher who, firstly, displays great interest in presenting by himself/herself the content of every new

unit which is afterwards taken into consideration by the students (variable 22), secondly, who presents in detail the method required for the objectives to be attained (variable 33), and, thirdly, who pays heed to students' profound understanding and the attainment of cognitive, affective and social objectives as well (variables 23, 24, 25), though the cognitive accomplishment of the task seems to notably prevail over the social aspect while social achievements seem to be slightly predominant over affective ones. The participants also reported that they have to help students fully realize not only the social skills needed for successful in-group cooperation (variable 29) but also the rules which have to be respected so that communication between members is free of misunderstandings and subsequent conflicts (variable 30). On the other hand, it is apparent that teachers do not feel secure in leaving students to define by themselves the rules of communication and cooperation (variables 31, 32), while the same wavering lack of trust appears as regards students' reliability to define on their own the precise time duration for the task and respect deadlines (variables 34, 35). A similar teachers' lack of trust in luck is also apparent in their responses regarding their attitude towards the way groups are formed; the majority of the respondents do not let students set up groups by themselves, probably because they believe that only teachers can take into account individualized features and traits of every member of a to-be-formed group (variables 26, 27, 28). In addition, teachers hold a major role in task assignment; they allocate duties either to the group as a whole (variable 37) or to each particular member of the group (variable 36), while often they only present anticipated objectives and outcomes, letting students apportion duties among the members of the group (variable 38). As regards assessment, this is closely linked to group work process monitoring; teachers observe carefully the work within the group (variable 39) and intervene either in case of group malfunction or when they want to ensure shared responsibility (variables 41, 42). It is, however, apparent that group outcomes tend to be considered to be more reliable indexes of performance than individual contributions; teachers provide members with individualized support (variable 40) but they prefer assessing the final overall outcome of the group (variable 43), which, in many cases, constitutes a compilation of separate contributions (variable 50), rather than the contribution of every member (variable 44). Nevertheless, many teachers tend to prompt students to evaluate by themselves their personal involvement and contribution in the group (variable 45).

Variables 53-68 of the same table present teachers' responses to questions regarding their views on positive and negative features of CL as an instructional technique. For the majority CL as an instructional technique liberates teaching procedure from platitudinous in-class routines (variable 59), since it reduces conventionality (variable 62), boosts the teacher's feelings of freedom and innovativeness (variable 61) and brings, consequently, to the fore the quality of education instruction instead of its quantity (variable 63). On the other hand, this technique is considered to be time-consuming (variable 53) and tiring as well; the teacher not only has to be prepared for unexpected eventualities and diversified routes during a teaching process which is not controlled solely or primarily by him/her (variables 54, 57), but also to monitor, assist and assess

numerous individuals who work in many different ways (variable 55), even though many teachers feel able to define each student's personal traits and features (variable 65). In addition, the respondents reported that teachers who plan implementing group work in ordinary classrooms have to be qualified with specialized knowledge on the use of alternative teaching strategies (variable 56) and, furthermore, with further experiential training within real-class settings (58). Despite, however, efforts for professional effectiveness, teachers think that many parents would prefer the use of traditional teaching strategies for their children, to ensure maximization of educational outcomes (variable 60). Additionally, as teachers report, the official Curricula and school administration do not give a free hand to the teachers who want to use diversified learning strategies in regular classrooms (variable 68). Finally, according to the participants, the large number of students in the classroom (variable 64), their immaturity (variable 66) and, to a smaller degree, the abortive inclusion of foreigners or students with special educational needs within mainstream classrooms (variable 67) seem to undermine the effectiveness of the teacher who attempts to implement group work.

**Table 2: Teachers' responses (in percentages) to the questions looking at Greek teachers' perceptions about and attitudes towards CL**

<u>CL encourages students to :</u>		<b>Not at all</b>	<b>Slightly</b>	<b>Moderately</b>	<b>Much</b>	<b>Very much</b>
8.	Understand and express intimate feelings	1.4	7.5	28.4	45.1	17.6
9.	Develop self-esteem	0.8	5.1	30.1	44	20
10.	Develop meta-cognitive awareness, correct misperceptions	2	8.8	32.6	44	12.6
11.	Cooperate effectively with the teacher	0.6	3.9	23.4	51.1	21
12.	Engage actively and maturely in the learning process	0.6	5.1	22.4	43	28.9
13.	Take initiatives and responsibilities	1	9	27.3	45.8	16.9
14.	Develop empathy	1.6	13	33	42.6	9.8
15.	Strengthen verbal interaction with schoolmates	1.4	9.6	25.9	45	18.1
16.	Strengthen non-verbal interaction with schoolmates	6.5	19.6	40.9	28.7	4.3
17.	Establish commonly accepted rules	0.6	5.1	22.4	43	28.9
18.	Express ideas unambiguously and consistently	1	9.8	38.2	42.2	8.8
19.	Improve writing skills	2	10.2	40.3	38.3	9.2
20.	Link school experiences to real life perceptions	1.2	10.8	25.1	40.9	22
21.	Display tolerance towards diversity	5.1	13.8	31	35.6	14.5
<u>As a teacher, I:</u>						
22.	Present the contents of the units in question	3.5	10.6	28.5	40.7	16.7
23.	Insist on students' understanding and attaining cognitive objectives	2.4	14.9	33	40.5	9.2
24.	Insist on students' understanding and attaining affective objectives	5.7	18.7	43.4	27.5	4.7

25.	Insist on students' understanding and attaining social objectives	5.1	14.5	45.6	27.9	6.9
26.	Form groups without plan/at random	14.5	23.4	24.8	29.6	7.7
27.	Form groups on the basis of individualized features of the members	8.1	19.3	31.6	32.2	8.8
28.	Let students form groups by themselves	10.8	26.7	30.1	23	9.4
29.	Insist on students' understanding the social skills required during group work (solidarity, mutual trust, tolerance etc.)	5.3	11	29.3	38.9	15.5
30.	Define rules of communication and cooperation to avoid conflicts/misunderstandings	6.5	11.6	33.6	37.7	10.6
31.	Prompt students to define by themselves the rules of communication according to the special features of their group	7.1	25.9	33.8	25.1	8.1
32.	Do not set rules of cooperation so that students find it necessary to do it by themselves	16.3	29.8	28.5	17.7	7.7
33.	Present in detail the method required for the objectives to be attained (research through internet, access to bibliographical resources etc.)	4.9	12	35	38.3	9.8
34.	Define precise time for each work phase completion	2	10.8	30.3	42.8	14.1
35.	Define only deadline for entire work completion	9.2	22.2	33.6	27.5	7.5
36.	Assign specific tasks to each member of every group in order to ensure control of every student's performance	4.5	16.7	32.6	36.7	9.5
37.	Assign general tasks to every group and the group allocates duties to each member	5.7	16.3	33.4	37.9	6.7
38.	Present objectives to all groups and every group chooses specifications and then allocates duties to its members	4.7	18.3	32	36.7	8.3
39.	Monitor working process of each group as a whole	4.1	10.6	26.9	41.3	17.1
40.	Monitor working process of each group member to provide individualized support	4.5	15.3	34.4	35	10.8
41.	Intervene in group work only upon request or in case of malfunction	4.5	14.7	32	35	13.8
42.	Monitor each member's contribution in group work to ensure shared responsibility	2.8	11	24.6	41.8	19.8
43.	Assess every group as a whole after group work completion	2.4	13.6	34.2	36.7	13.1
44.	Assess individually every group member on the basis of specific criteria	5.2	16.3	37.1	33	8.4
45.	Prompt students to assess by themselves personal contribution in group work	5.7	17.9	31	35.6	9.8
<u>During group work:</u>						
46.	Meaningful rather than superficial relationships are developed	1.2	5.1	27.7	40.1	25.9
47.	Reluctant students are encouraged to actively participate in the task	2	7.5	26.9	43.3	20.3

48.	All members contribute to the final outcome	1.6	8.1	28.1	40.9	21.3
49.	All members feel useful	2.2	7.9	27.1	40.9	21.9
50.	Each member works autonomously and, at the end, all members compile individual works	7.5	17.9	37.5	28.9	8.2
51.	The more competent members control the weaker ones	5.1	27.1	40.1	23	4.7
52.	The weaker students take advantage of the stronger ones	5.9	22	45.2	20.2	6.7
<u>As a teacher, I think that CL:</u>						
53.	Is time-consuming	1.8	12.6	32	35	18.6
54.	Fatigues teachers who cannot pre-plan diversifications, alterations and unexpected outcomes during learning process	1.4	11.8	36	35.9	14.9
55.	Is exhausting as regards teacher monitoring, assistance and assessment of members who work in many different ways	2	10.4	34	37.9	15.7
56.	Demands teacher's specialized knowledge in socio-affective objectives' attainment	1.8	7.5	32	38.5	20.2
57.	Enfeebles cognitive outcomes to the advantage of socio-affective objectives	1.4	5.3	26.5	41.3	25.5
58.	Demands further long experiential training of the teacher	1.6	8.1	28.1	37.6	24.6
59.	Liberates teaching procedure from platitudinous in-class routines	4.5	11.8	32.4	36.7	14.6
60.	Makes parents feel reserved as regards academic outcomes when compared to traditional instructional strategies	11.4	24	31.2	23.6	9.8
61.	Boosts teachers' feelings of freedom and innovativeness	2.6	10.2	23.6	39.6	24
62.	Reduces conventionality during learning procedures	1.2	9.4	28.5	39.9	21
63.	Makes quality dominate over quantity	2.2	11.2	30.3	34.7	21.6
64.	Is difficult to be implemented when the number of students is large	3.3	10.7	26.5	32.8	26.7
65.	Is highly dependent on teacher adequacy as regards familiarity with all the personal features of every student	9	20.4	32.6	25.5	12.5
66.	Is highly dependent on the maturity of every group member	3.9	15.5	35	33.4	12.2
67.	Is difficult to be implemented when foreign students are included in the classroom	15.7	22.4	28.9	22.4	10.6
68.	Is supported and facilitated by official Curricula, school administration and educational authorities	15.5	31.6	27.7	16.2	9

### Factor Analysis

Of the above-mentioned variables, thirty three were placed under consideration, related in level of significance  $\alpha = 1\%$  to the beliefs of the 491 secondary education teachers on CL (chi-square independence tests were

performed). All variables used in factor analysis were ordinal numeric ones which represented five distinct categories (e.g. 1 = not at all, 2 = slightly, 3 = moderately, 4 = much, 5 = very much).

These 33 variables were as follows:

CL encourages students to:

1. Develop self-esteem
2. Develop meta-cognitive awareness, correct misperceptions
3. Take initiatives and responsibilities
4. Develop empathy

As a teacher, I:

5. Form groups on the basis of individualized features of the members
6. Let students form groups by themselves
7. Insist on students understanding the social skills required during group work (solidarity, mutual trust, tolerance etc.)
8. Define rules of communication and cooperation to avoid conflicts/misunderstandings
9. Prompt students to define by themselves the rules of communication according to the special features of their group
10. Present in detail the method required for the objectives to be attained (research through internet, access to bibliographical resources etc.)
11. Define precise time for each work phase completion
12. Assign general tasks to every group and the group allocates duties to each member
13. Monitor working process of each group as a whole
14. Monitor working process of each group member to provide individualized support
15. Monitor each member's contribution in group work to ensure shared responsibility
16. Assess individually every group member on the basis of specific criteria
17. Meaningful rather than superficial relationships are developed
18. Reluctant students are encouraged to actively participate in the task
19. All members contribute to the final outcome
20. All members feel useful
21. The more competent members control the weaker ones
22. The weaker students take advantage of the stronger ones

As a teacher, I think that CL:

23. Is time-consuming
24. Fatigues teachers who cannot pre-plan diversifications, alterations and unexpected outcomes during the learning process
25. Is exhausting as regards teacher monitoring, assistance and assessment of members who work in many different ways
26. Demands further long experiential training of the teacher
27. Liberates teaching procedure from platitudinous in-class routines
28. Boosts teachers' feelings of freedom and innovativeness
29. Reduces conventionality during learning procedures
30. Is difficult to be implemented when the number of students is large

31. Is highly dependent on teacher adequacy as regards familiarity with all the personal features of every student
32. Is highly dependent on the maturity of every group member
33. Is difficult to be implemented when foreign students are included in the classroom.

When applying factor analysis, we attempted to ascertain the main factors that affect teachers' views on CL. The value 0.817 of the Kaiser-Meyer-Olkin measure for sampling adequacy as an indicator of comparison in the observed values of correlation coefficients to the partial correlation coefficients implied factor analysis of variables was acceptable as a technique for analysing the data. In addition, Bartlett's test of sphericity showed high statistical significance of the statistic  $\chi^2$  (zero  $p$ -value), rejecting the hypothesis that the correlation matrix is an identity one and, consequently, factor analysis was adequate (see table 3).

**Table 3: KMO and Bartlett's test of sphericity**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.817
	Approx. Chi-Square	4427.235
Bartlett's Test of Sphericity	d.f.	528
	Sig.	0.000

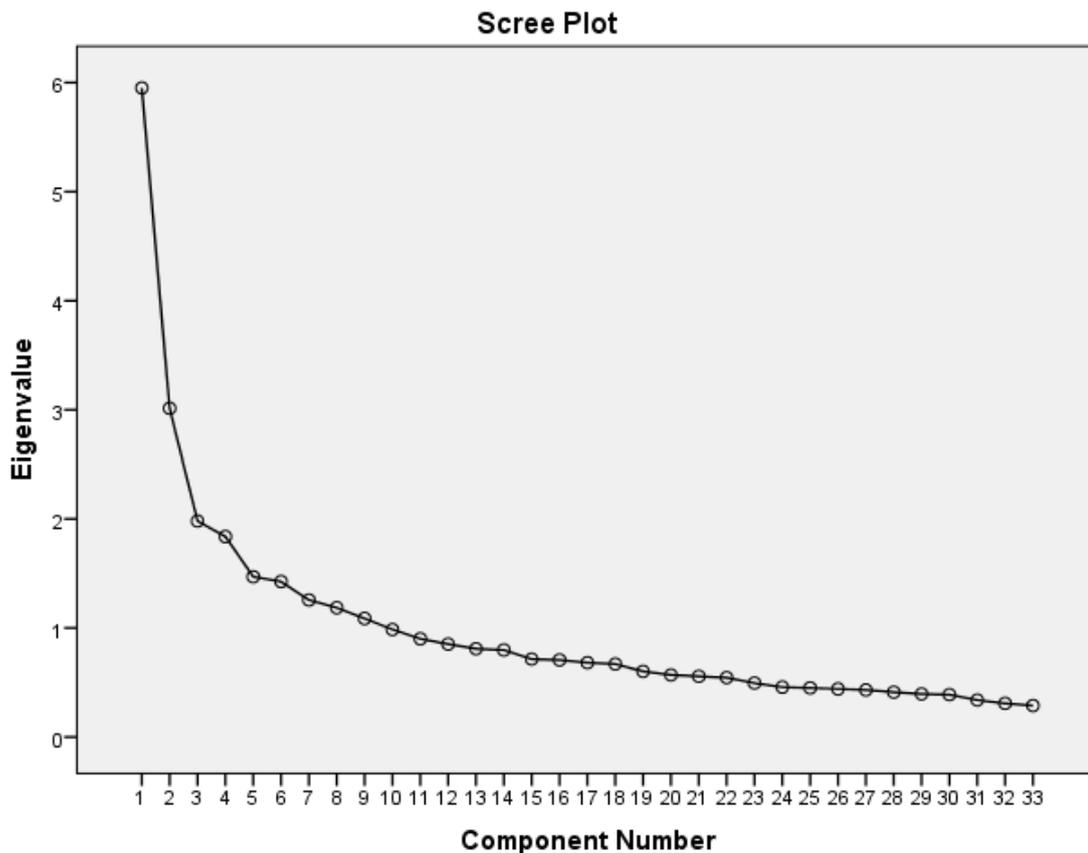
We applied factor analysis to the group of 33 previously mentioned variables (Cattell, 1978; Howitt & Cramer, 2014). Since performance of principal component analysis (PCA) from the first nine components explained 58.198% of the total variance and that only the first nine components had eigenvalues greater than 1, we proceeded by using PCA with Varimax rotation extraction method in nine components that are presented in table 4. Scree Plot (Figure 1) represents the percentage of the total variance explained by each factor.

**Table 4: Factor analysis results**

Variables	Rotated Component Matrix									Communalities
	Component	1	2	3	4	5	6	7	8	
[1]	0.146	<b>0.771</b>	0.007	0.150	0.049	0.057	-0.021	0.093	-0.078	0.660
[2]	0.204	<b>0.734</b>	0.042	0.171	0.044	0.024	0.020	0.073	0.018	0.620
[3]	0.041	<b>0.687</b>	0.113	-0.007	0.190	0.211	-0.093	0.038	0.022	0.577
[4]	0.176	<b>0.651</b>	0.088	0.182	0.162	-0.034	0.024	0.000	0.079	0.530
[5]	0.022	0.144	0.096	<b>0.677</b>	-0.100	0.216	0.054	-0.056	0.058	0.555
[6]	0.128	0.020	0.006	0.270	-0.021	0.008	0.059	<b>0.770</b>	-0.033	0.688
[7]	0.274	0.091	0.003	<b>0.634</b>	0.168	0.056	0.147	0.147	-0.006	0.560
[8]	0.058	0.039	0.085	<b>0.563</b>	0.210	0.264	-0.350	0.102	0.152	0.599
[9]	-0.060	0.053	0.041	-0.142	-0.067	0.136	0.033	<b>0.763</b>	0.126	0.650
[10]	0.039	0.210	0.029	<b>0.512</b>	0.051	-0.007	0.098	0.061	0.011	0.325

[11]	0.169	0.056	0.122	<b>0.463</b>	0.235	0.301	-0.126	-0.096	0.078	0.437
[12]	0.156	0.113	-0.019	0.032	0.197	0.036	0.038	<b>0.557</b>	0.139	0.409
[13]	0.122	0.137	0.047	-0.057	0.029	<b>0.745</b>	0.179	0.089	0.074	0.640
[14]	0.158	-0.102	0.071	0.226	0.258	<b>0.646</b>	-0.100	-0.061	-0.050	0.591
[15]	0.254	-0.004	0.040	0.231	0.138	<b>0.625</b>	-0.108	0.062	0.157	0.569
[16]	-0.071	0.214	0.061	0.186	-0.084	<b>0.591</b>	0.109	0.138	-0.053	0.480
[17]	<b>0.802</b>	0.237	0.025	0.024	0.012	0.084	0.007	0.088	-0.039	0.717
[18]	<b>0.781</b>	0.204	0.046	0.053	-0.057	0.152	-0.027	-0.005	0.007	0.684
[19]	<b>0.685</b>	0.027	0.011	0.281	0.300	0.061	0.051	0.047	-0.018	0.647
[20]	<b>0.665</b>	0.137	0.152	0.111	0.211	0.105	-0.205	0.129	-0.034	0.612
[21]	-0.064	0.065	0.067	0.133	-0.060	-0.007	0.079	0.155	<b>0.803</b>	0.709
[22]	0.001	-0.038	0.058	0.010	0.037	0.102	0.222	0.061	<b>0.778</b>	0.675
[23]	0.043	0.012	<b>0.780</b>	0.094	0.032	0.066	0.220	-0.006	0.098	0.682
[24]	0.066	0.166	<b>0.745</b>	-0.023	0.112	0.091	0.011	0.025	-0.129	0.625
[25]	-0.045	0.015	<b>0.743</b>	0.033	-0.018	0.040	0.261	0.020	0.087	0.633
[26]	0.138	0.055	<b>0.681</b>	0.140	0.213	0.009	-0.047	-0.002	0.098	0.562
[27]	0.217	0.208	0.034	0.099	<b>0.673</b>	0.096	-0.142	0.026	-0.069	0.589
[28]	-0.024	0.100	0.090	0.245	<b>0.606</b>	0.019	0.031	0.188	-0.083	0.489
[29]	0.128	0.243	0.123	-0.072	<b>0.557</b>	0.131	-0.102	-0.028	0.059	0.437
[30]	0.069	-0.035	0.190	0.011	<b>0.487</b>	0.062	0.431	-0.149	0.123	0.507
[31]	-0.074	0.028	0.265	-0.022	-0.066	0.026	<b>0.699</b>	0.037	0.203	0.613
[32]	-0.044	-0.020	0.083	0.020	-0.189	0.052	<b>0.659</b>	0.136	0.100	0.511
[33]	-0.033	-0.085	0.100	0.236	0.427	0.010	<b>0.601</b>	0.022	0.031	0.620
Percentage of total variance explained	7.976	7.496	7.360	6.814	6.471	6.350	5.986	5.207	4.537	

*Note:* Communality or common factor variance: total variance of each variable explained by common factor.



**Figure 1: Scree plot**

### Comments on the factor analysis results

Based on the results of the factor analysis, the nine main factors were as follows:

**Factor 1:** *'Relationships, attitudes and contributions during CL'*: Since the variables 17 [Meaningful rather than superficial relationships are developed], 18 [Reluctant students are encouraged to actively participate in the task], 19 [All members contribute to the final outcome] and 20 [All members feel useful] had the highest factor loadings they identify the first main factor. According to the results, teachers report that unenthusiastic students tend to participate more willingly in CL activities, feeling therefore as useful as the others since all students contribute to the final outcome. Such participatory interaction is, consequently, considered to lead to the development of meaningful rather than superficial relationships between students of different academic performance.

**Factor 2:** *'Students' skill development during CL'*: Since the variables 1 [Develop self-esteem], 2 [Develop meta-cognitive awareness, correct misperceptions], 3 [Take initiatives and responsibilities] and 4 [Develop empathy] had the highest factor loadings they identify the second main factor. According to the results, teachers report that students who participate in CL activities tend to develop a more profound understanding of themselves and of others and become more willing to assume responsibilities and display initiative.

**Factor 3:** *'Counterincentives for teachers using CL':* Since the variables 23 [Is time-consuming], 24 [Fatigues teachers who cannot pre-plan diversifications, alterations and unexpected outcomes during the learning process], 25 [Is exhausting as regards teacher monitoring, assistance and assessment of members who work in many different ways] and 26 [Demands further long experiential training of the teacher] had the highest factor loadings, they identify the third main factor. According to the results, many teachers feel unwilling to implement CL in their classrooms, since CL is considered to be highly demanding and strenuous, with unpredictable or confounding outcomes.

**Factor 4:** *'Teachers' role in group forming and rule defining':* Since the variables 5 [Form groups on the basis of individualized features of the members], 7 [Insist on students' understanding the social skills required during group work (solidarity, mutual trust, tolerance etc.)] 8 [Define rules of communication and cooperation to avoid conflicts/misunderstandings], 10 [Present in detail the method required for the objectives to be attained (research through internet, access to bibliographical resources etc.)] and 11 [Define a precise time for each work phase completion] had the highest factor loadings they identify the fourth main factor. According to the results, teachers feel more secure, regarding the effectiveness of CL, when they precisely define the rules and the prerequisite cooperation skills, the method which has to be used and the time provided for the accomplishment of the task, as well as when they take into account the special traits of each student before they place him/her in a specific group.

**Factor 5:** *'Benefits from CL and the problem of the number of students':* Since the variables 27 [Liberates teaching procedure from platitudinous in-class routines], 28 [Boosts teachers' feelings of freedom and innovativeness], 29 [Reduces conventionality in learning procedures] and 30 [Is difficult to be implemented when the number of students is large] had the highest factor loadings, they identify the fifth main factor. According to the results, teachers believe that CL offers teachers the opportunity to work unconventionally, on condition that the number of students in the classroom and the number of members within the group are limited and, consequently, more manageable.

**Factor 6:** *'Monitoring and assessing CL':* Since the variables 13 [Monitor working process of each group as a whole], 14 [Monitor working process of each group member to provide individualized support], 15 [Monitor each member's contribution in group work to ensure shared responsibility] and 16 [Assess individually every group member on the basis of specific criteria] had the highest factor loadings, they identify the sixth main factor. According to the results, teachers find it necessary to monitor equally the final learning product as an overall outcome and the individualized contribution of each member as well, though assessment should be focused more on each student's personalized and diversified contribution and less on the quality of the final outcome and the group's compliance to the teacher's requirements.

**Factor 7:** *'Factors that CL's success depends on':* Since the variables 31 [Is highly dependent on teacher adequacy as regards familiarity with all the personal features of every student], 32 [Is highly dependent on the maturity of every group member] and 33 [Is difficult to be implemented when foreign students are included in the classroom] had the highest factor loadings, they identify the seventh main factor. According to the results, a teacher's understanding and

exploitation of each student's character, learning traits and maturity constitute a prerequisite if CL has to be implemented successfully, but such understanding should not be taken for granted, especially in cases when students of different nationality are included in mainstream classrooms.

**Factor 8:** *'Assigning responsibilities to the students'*: Since the variables 6 [Let students form groups by themselves], 9 [Prompt students to define by themselves the rules of communication according to the special features of their group] and 12[Assign general tasks to every group and the group allocates duties to each member] had the highest factor loadings, they identify the eighth main factor. According to the results, teachers are willing to assign responsibilities to the students as regards group formation, communication rules and task apportionment.

**Factor 9:** *'Low and high achievers' interaction during CL'*: Since the variables 21 [The more competent members control the weaker ones] and 22 [The weaker students take advantage of the stronger ones] had the highest factor loadings, they identify the ninth main factor. According to the results, teachers believe that during CL an apparent interaction between academically strong and weak students is developed whereby high achievers tend to dominate while low achievers rely on competent students to guarantee a more successful group work outcome.

## Conclusions and discussion

The present study examined Greek teachers' perceptions about CL in a highly bureaucratic educational system, after reform in 2011 which (i) introduced and incorporated CL in all-subject syllabuses as an obligatory instructional technique, (ii) linked CL effective implementation to teachers' assessment and professional development, and (iii) motivated younger teachers to experiment with CL in their classrooms and disseminate relative knowledge to the school community (Greek Government Gazette, 2013; OECD, 2011). It should be noted, however, that, despite this reform, the core character of the Greek educational system remained conservative and bureaucratic (not only due to the traditional resistance of education to radical changes but, also, due to urgent financial restrictions); the content and the pace of knowledge acquisition remained unaltered (albeit slightly reduced), the books did not change, academic orientations remained dominant over socio-affective ones, social expectations from the teachers remained unchanged, classroom size remained unaltered (with up to 27 students per classroom), teacher training was based more on personal motivation than on organized, institutional provision of professional education (Eurydice, 2014; Koutrouba, Kariotaki, & Christopoulos, 2012; OECD, 2015). The researchers have, therefore, the opportunity to examine whether little but targeted shifts in the conservative educational status quo are able to produce major beneficial outcomes.

According to the results of this study, the participants reported noteworthy benefits after the implementation of CL in their classrooms. Overall, according to their teachers, Greek students, similar to their international counterparts (Baudrit, 2007; Greany & Rodd, 2003; Slavin, 2014), seem to try

hard to understand each other; their efforts to express difficulties and define needs, to comprehend rules and routines of actions, to avoid misperceptions, to realize what the others expect from them, is considered by teachers to simultaneously improve the students' self-understanding and generates more reliable empathy-developing (factor 2: 'Students' skill development during CL'). Curricula planners should, therefore, provide students with more time for targeted discussions and communication, in order to enable them to develop and improve relevant cognitive, emotional, and social skills which, as Eastman, Newstetter, and McCracken (2000) and Cairns, Lawton, and Gardner (2001) have shown, substantially facilitate learning/knowledge in its wider sense as a major human value and virtue.

However, the term 'self-esteem', as presented in factor 2, should not be arbitrarily considered as conveying an always-positive meaning. When factor 2 is examined jointly with factor 9 ('Low and high achievers' interaction during CL'), one realizes that the developed 'self-esteem' is not considered to dissuade students from differentiating their personal objectives and subsequent contribution and performance according to their traditional academic labelling as 'low' or 'high' achievers - a remark also reported by Shachar and Sharan (1995), Gillies (2007) and Koutselini (2008). To explain this, one should consider that due to the prevalence of attaining academic objectives in Greek Curricula, teachers and students seem willing to use CL, albeit only as a means for higher academic achievements (Koulaidis et al., 2006; Koutsourakis, 2007). Therefore, if education policy-planners look for a more beneficial impact of CL on education, they could probably embed communicative and collaboration attainments in the very cognitive-academic objectives of each Curriculum. In other words, if teachers are encouraged to consider that the skills described in factor 2 can be pursued, utilized, measured and assessed as clear cognitive achievements, they are likely to help students redefine terms such as 'low-achievers' or 'high-achievers'. In such a case, a traditional 'low-achiever' could then be described as a prominent 'high-achiever', as long as s/he, for example, counterbalances probable weaker content-knowledge with stronger meta-cognition, more effective empathy or more responsible cooperativeness, as Gillies and Boyle (2011) and Davison, Galbraith, and McQueen (2008) have also remarked. And vice versa, traditional 'high-achievers' may be encouraged to stop remaining satisfied with their abilities (derived mainly from a high memorization/recitation ability, as Sharan, 2010, has shown) and to develop new social and communicative skills. One, however, could ask if it is scientifically accepted to include social and communicative skills' acquisition in, literally, academic (i.e. cognitive) attainments. Eastman, Newstetter, and McCracken (2000), Greany and Rodd (2003) and Gillies (2007) have already convincingly shown that, in fact, all skills that facilitate cognition and regulation of knowledge can be taught and developed through training and exercise, being thus, as such, pure knowledge per se. Given, moreover, the fact that Greek teachers, as Ifanti (2007) and Koulaidis and colleagues (2006) have shown, feel more secure in implementing innovative learning techniques when they are officially (and not amateurishly) urged and, almost, obliged to do so, education policy-planners should not have any hesitation in introducing social and

communicative skills' acquisition as a core academic objective of the Curriculum.

Moreover, the official broadening of the meaning of 'academic knowledge', as Kassotakis (2000), Kagan and Kagan (2009), Johnson and Johnson (2013) and Hmelo-Silver and colleagues (2013) have already recommended, will probably encourage teachers who consider CL as a highly demanding teaching process to address more effectively the discouraging difficulties reported in factor 3 ('Counter incentives for teachers using CL') (lack of specialized training, lack of time, lack of standardized measurable objectives) which are also described by Galton, Gray, and Rudduck (2003), Ireson and Hallam (2001) and Kutnick and colleagues (2005). When one compares such faltering with the teachers' recorded aspirations for a fresh approach to education as pictured in factor 5 ('Benefits from CL and the problem of the number of students'), one may reasonably deduce, as international research has shown (Gillies, 2008; Gillies & Boyle, 2011; Ifanti & Fotopoulou, 2011; Kaldi, Philippatou, & Onoufriou, 2009), that teachers are not really afraid of professional exhaustion but of professional inadequacy which is likely to emerge when the teaching process is not carefully controlled by they themselves. Teachers should be, therefore, officially assured that when they help their students firstly develop meaningful relationships, and secondly hold individual and shared accountability, as factor 1 ('Relationships, attitudes and contributions during CL') implies, they do attain high educational objectives, as confirmed by Cohen and colleagues (2002), Eastman, Newstetter, and McCracken (2000) and Ginsburg-Block and colleagues (2006). Factor 1 together with factor 6 ('Monitoring and assessing CL') imply that teachers are willing to support this orientation if the Curricula planners entrust them with the duty to assess equally individual and collaborative learning outcomes. For a bureaucratic educational system like the Greek one, the development of a scientifically defined set of criteria with which teachers would be able to assess both individual and group attainments and performances would not be very difficult, given the fact that the international research has already provided education policy-planners with such criteria (Jacobs, Power, & Loh, 2002; Mayer & Alexander, 2011; Slavin, 2014).

Moreover, the present study shows that Greek teachers' hesitations are also linked to the large student population in the classrooms, which hinders their effort to understand all the varied traits of each student and successfully allocate, therefore, individually designed learning tasks to each one of them (factor 7: 'Factors that CL's success depends on'). This problem becomes more complicated due to the often unplanned inclusion of large numbers of foreign students within the mainstream classrooms. However, as factor 8 ('Assigning responsibilities to the students') implies, teachers are more willing to allocate general tasks to every group and then to let students divide the general task in sub-tasks and assign every sub-task to each one of the group members, as long as the group has clearly defined, understandable and established rules of communication. It is rather apparent that by decentralizing the process of duty allocation, teachers tend to believe that every student who actively participates in the process of task apportionment will undertake that facet/aspect of duty

that better corresponds to his/her personal interests, abilities, and needs. In fact, factor 8 ('Assigning responsibilities to the students') shows how Greek teachers encourage the classroom to 'self-regulate' itself, in order to address two major problems of CL implementation, that are reported in factor 7; the large number of students in the classrooms and the diversity of the students' learning profiles. They are actually the same problems which, as shown in the introduction of the present study, have been reported (and, also, rather successfully addressed) by Gillies and Boyle (2011), Johnson and Johnson (2003), Howe and colleagues (2007) and Webb and colleagues (2009), who reported more successful outcomes in large-population mixed-ability classrooms in cases where teachers decentralized the task allocation (keeping however a watchful eye on every process that followed this allocation). In addition, as regards the diversity of student personalities which is linked to national, linguistic, religious, and cultural differences, Sharan's (2010) intervention (who proposed students' engagement in activities that promote cultural sensitization and respect of diversity, as they are described in the present Introduction), could be a solution for Greek teachers as well; the diversity could be turned into an advantage and help students become more familiarized with and tolerant of different aspects, views, attitudes to life, as Kutnick, Blatchford, and Baines (2005) and Thanh and Gillies (2010) have also recommended.

It, however, should be noted that, according to factor 4 ('Teachers' role in group formation and rule defining'), teachers insist on keeping under their personal control all processes regarding firstly the precise definition of content and objectives, rules of cooperation, prerequisite skills, and the time provided for the accomplishment of the task, and secondly the placement of each student in a specific group after taking into account the student's special traits and learning features. Such an attitude is also encouraged by students themselves, who feel more secure when their teachers have a discreet but also active intervening role in such relevant processes as Koutrouba, Kariotaki, and Christopoulos (2012), Cohen, Brody, and Sapon-Shevin (2004) and Freebody (2003) have confirmed. These feelings of security seem to further trigger students' resourcefulness, cognitive awareness, and feelings of adequacy, usefulness, and acceptance, as Baines, Blatchford, and Kutnick (2003), Gillies (2008) and King (2002) have already shown. The present work also confirms Cantwell and Andrews's findings (2002) that when students were carefully trained, with the positive intervention of the teacher, to address difficulties arising during CL, various cognitive and socio-affective obstacles to effective cooperation (feelings of discomfort, insufficiency, and tendency to estrangement) were removed while positive outcomes (such as the development of higher rank cognitive skills, and sociability) were maximized. Continual interventions by teachers seem also to render all CL procedures more reliable and accepted by students, parents, and colleagues, who all cooperate in the framework of a bureaucratic educational system where the teacher remains the cornerstone of education and deposes, with moderation, a part of his/her 'power' to the students, as described in the above introduction (Baines, Blatchford, & Kutnick, 2003; Gillies, 2008; King, 2002). It is rather interesting to note that Greek teachers and students were thoroughly informed about CL

(techniques and rules, stages of implementation, expected outcomes, process of assessment among others) during the summer of 2011 and the first two months (September-October) of the new school year 2011-2012, and that time was considered as sufficient for them to welcome this new approach to knowledge, to introduce it in the classroom, to experiment with it, to provide feedback and necessary modifications (Matsagouras, 2011). Moreover, the first year of CL implementation was officially characterised as a 'year of experimental implementation of CL'; students were literally taught everything about CL as a separate school subject in the official Syllabus, their relative knowledge was assessed at the end of the year but the marks they got were not included in the final overall grade which appears in the students' 'Certificate of Overall Performance'. In other words, a bureaucratic system introduced to teachers and students an innovative teaching method in a traditional way – a way, however, fully accepted by the Greek educational community. Education policy-planners should, therefore, not hesitate to use traditional ways to introduce modern teaching/learning strategies, as long as the objectives, the teachers' and the students' tasks, and the social expectations are clearly defined, explained and officially justified to all the members of the educational community (Baudrit, 2007; Cohen et al., 2002; Gillies & Ashman, 2003; Greany & Rodd, 2003; Kaldi, Philippatou, & Onoufriou, 2009).

The present research shows that even piecemeal changes in bureaucratic educational systems can produce significant outcomes, when education policy planners officially guide teachers to implement innovative learning strategies with carefully designed, scheduled and clearly defined steps. Teachers working in bureaucratic educational systems want to feel secure and have officially assigned tasks that serve major academic objectives. One could probably say that it is, in fact, the teachers' acquaintance with rules and conventions that helps them adopt, support, and utilize innovation as long as these innovations are introduced in the form of officially imposed rules, guidelines and Curricula and as long as teachers are convinced that such a stance is really academically worthy, officially imposed and educationally justified.

## References

- Anagnostopoulou, S. M. (2001). *Cooperative learning in teaching*. Thessaloniki: Kyriakidis (in Greek).
- Baines, E., Blatchford, P., & Kutnick, P. (2003). Changes in grouping practices over primary and secondary school. *International Journal of Educational Research*, 39(1/2), 9-34.
- Baudrit, A. (2007). *L'apprentissage collaboratif: Plus qu'une méthode collective?* Paris: Edition de Boeck, Collection Pédagogies en Développement.
- Beese, J., & Liang, X. (2010). Do resources matter? PISA science achievement comparisons between students in the United States, Canada and Finland. *Improving Schools*, 13(3), 266-279.
- Brody, C., & Davidson, N. (1998). Introduction: Professional development and cooperative learning. In C. Brody and N. Davidson (Eds.), *Professional development for cooperative learning: Issues and approaches*, (pp. 3-24). Albany, NY: Suny Press.
- Cairns, J., Lawton, D., & Gardner, R. (Eds.) (2001). *Values, culture and education*. London: Kogan Page.

- Cantwell, R., & Andrews, B. (2002). Cognitive and psychological factors underlying secondary school students' feelings towards group work. *Educational Psychology*, 22(1), 75-91.
- Cattell, R.B. (1978). *The scientific use of factor analysis in behavioral and life sciences*. New York: Plenum Press.
- Cohen, E.G., Lotan, R.A., Abram, P.L., Scarloss, B.A., & Schultz, S.E. (2002). Can groups learn? *Teachers College Record*, 104(6), 1045-1068.
- Cohen, E.G., Brody, C., & Sapon-Shevin, M. (Eds.) (2004). *Teaching cooperative learning: The challenge for teacher education*. Albany, NY: Suny Press.
- Corner, C. (2012). Into another world: From creativity to creative learning. *Improving Schools*, 15(2), 116-129.
- Crafton, L., & Kaiser, E. (2011). The language of collaboration: Dialogue and identity in teacher professional development. *Improving Schools*, 14(2), 104-116.
- Davis, J. M. (2013). Supporting creativity, inclusion and collaborative multi-professional learning. *Improving Schools*, 16(1), 5-20.
- Davison, L., Galbraith, I., & McQueen, M. (2008). Cooperative learning: A partnership between an EPS and a school. *Educational Psychology in Practice*, 24(4), 307-317.
- Eastman, C., Newstetter, W., & McCracken, M. (Eds.) (2000). *Design knowing and learning: Cognition in design education*. New York: Elsevier Science Press.
- European Commission (2014). *European economy: The second economic adjustment programme for Greece, fourth review*. Directorate-General for Economic and Financial Affairs, Occasional Papers 192, April 2014, Publications Office of the European Union, Luxembourg. Available online: [http://ec.europa.eu/economy\\_finance/publications/occasional\\_paper/2014/pdf/ocp192\\_en.pdf](http://ec.europa.eu/economy_finance/publications/occasional_paper/2014/pdf/ocp192_en.pdf) [Accessed: 1-5-2015]
- Eurydice (2014). *The structure of the European education systems 2014/15: Schematic diagrams*. Eurydice: European Commission, EACEA. Available online: [http://eacea.ec.europa.eu/education/eurydice/documents/facts\\_and\\_figures/education\\_structures\\_EN.pdf](http://eacea.ec.europa.eu/education/eurydice/documents/facts_and_figures/education_structures_EN.pdf) [Accessed: 1-5-2015]
- Freebody, P. (2003). *Qualitative research in education: Interaction and practice*. London: Sage.
- Galton, M., Gray, J., & Rudduck, J. (2003). *Transfer and transitions in the middle years of schooling (7-14): Continuities and discontinuities in learning*. London: DfES.
- Georgiadis, M.N. (2007). Educational reforms in Greece (1959-1997) and human capital theory. *Journal for Critical Education Policy Studies*, 5(2), 342-368.
- Gillies, R. (2007). *Cooperative learning: Integrating theory and practice*. Thousand Oaks, CA: Sage.
- Gillies, R. (2008). The effects of cooperative learning on junior high school students' behaviours, discourse and learning during a science-based learning activity. *School Psychology International*, 29(3), 328-347.
- Gillies, R., & Ashman, A. (Eds.) (2003). *Cooperative learning: The social and intellectual outcomes of learning in groups*. London: RoutledgeFalmer.
- Gillies, R., Ashman, A., & Terwel, J. (Eds.) (2008). *The teachers' role in implementing cooperative learning in the classroom*. New York: Springer.
- Gillies, R., & Boyle, M. (2011). Teachers' reflections of cooperative learning (CL): A two-year follow-up. *Teaching Education*, 22(1), 63-78.
- Ginsburg-Block, M. D., Rohrbeck, C. A., & Fantuzzo, J. W. (2006). A meta-analytic review of social, self-concept, and behavioral outcomes of peer-assisted learning. *Journal of Educational Psychology*, 98(4), 732-749.
- Greany, T., & Rodd, J. (2003). *Creating a learning to learn school: Research and practice for raising standards, motivation and morale*. London: Campaign for Learning.
- Greek Government Gazette (2013). I. Ministerial Decision 30972/Γ1/5-3-2013 (614/B/15-3-2013): *Evaluation of school units' educational work and self-evaluation process*. II. Law 4142/2013 (83/A/9-4-2013): *Authority for quality assurance in primary and*

- secondary education. III. Law 4186/2013 (193/A/17-9-2013): *Restructuring of secondary education and other provisions*. III. Presidential Decree 152/1-11-2013 (240/A/5-11-2013): *Evaluation of teachers of primary and secondary education*. Athens: National Printing House. Available online: [https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Greece:Legislation#anchor6\\_4186](https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Greece:Legislation#anchor6_4186) [Accessed: 1-5-2015] (in Greek).
- Hmelo-Silver, C., Chinn, C., Chan, C., & O'Donnell, A. (Eds.) (2013). *The international handbook of collaborative learning*. New York: Routledge.
- Howe, C., Tolmie, A., Thurston, A., Topping, K., Christie, D., Livingston, K., Jessiman, E., & Donaldson, C. (2007). Group work in elementary science: Towards organisational principles for supporting pupil learning. *Learning and Instruction*, 17(5), 549-563.
- Howitt, D., & Cramer, D. (2014). *Introduction to Statistic Psychology*. 6th ed. Harlow: Pearson.
- Ifanti, A. (2007). Policy and curriculum development in Greece. The case of secondary school curriculum. *Pedagogy, Culture and Society*, 15(1), 71-81.
- Ifanti, A., & Fotopoulou, V. (2011). Teachers' perceptions of professionalism and professional development: A case study in Greece. *World Journal of Education*, 1(1), 40-51.
- Ireson, J., & Hallam, S. (2001). *Ability grouping in education*. London: Paul Chapman.
- Jacobs, G.M., Power, M.A., & Loh, W.I. (2002). *The teacher's sourcebook for cooperative learning: Practical techniques, basic principles, and frequently asked questions*. Thousand Oaks, CA: Corwin Press.
- Johnson, R. D., & Johnson, R. T. (1999). *Learning together and alone: Cooperative, competitive and individualistic learning* (5<sup>th</sup> ed.). Boston: Allyn and Bacon.
- Johnson, D., & Johnson, R. (2003). Student motivation in cooperative groups: Social interdependence theory. In R. Gillies & A. Ashman (Eds.), *Cooperative learning: The social and intellectual outcomes of learning in groups*, (pp. 136-176). London: RoutledgeFalmer.
- Johnson, D., & Johnson, F. (2013). *Joining together: Group theory and group skills*. 11<sup>th</sup> ed. Boston, MA: Allyn and Bacon.
- Kagan, S., & Kagan, M. (2009). *Cooperative Learning*. San Clemente, CA: Kagan.
- Kaldi, S., Philippatou, D., & Onoufriou, M. (2009). Co-operative group teaching and learning in the Greek and Cypriot primary education. *The International Journal of Learning*, 16(11), 407-422.
- Kaldi, S., Philippatou, D., & Anthopoulou, B. (2014). The effectiveness of structured co-operative teaching and learning in Greek primary school classrooms. *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, 42(6), 621-636.
- Kassotakis, M. (2000). Greece. In C. Brock and W. Tulasiewicz (Eds.), *Education in a single Europe*, (pp. 184-205) (2<sup>nd</sup> ed.) London: Routledge.
- Kazamias A. (1990). The curse of Sisyphus in Greek educational reform: A sociopolitical and cultural interpretation. *Modern Greek Studies Yearbook*, 6, 33-53.
- King, A. (2002). Structuring peer interaction to promote high-level cognitive processing. *Theory into Practice*, 41(1), 33-40.
- Kirschner, F., Paas, F., & Kirschner, P. (2009). A cognitive load approach to collaborative learning: United brains for complex tasks. *Educational Psychology Review*, 21(1), 31-42.
- Koulaidis, V., Dimopoulos, K., Tsatsaroni, A., & Katsis, A. (2006). Young people relationship to education: The case of Greek youth. *Educational Studies*, 32(4), 343-59.
- Koutrouba, K., Kariotaki, M., & Christopoulos, I. (2012). Secondary education students' preferences regarding their participation in group work: The case of Greece. *Improving Schools*, 15(3), 245-259.

- Koutselini, M. (2008). Teacher misconceptions and understanding of cooperative learning: An intervention study. *Journal of Classroom Interaction*, 43(2), 34-44.
- Koutsourakis, G. (2007). The new educational policy for the reform of the curriculum and the change of school knowledge in the case of Greek compulsory education. *International Studies of Sociology of Education*, 17(1-2), 131-46.
- Kutnick, P., Blatchford, P., & Baines, E. (2005). Grouping of pupils in secondary school classrooms: Possible links between pedagogy and learning. *Social Psychology of Education*, 8(4), 349-374.
- Kutnick, P., Blatchford, P., Clark, H., MacIntyre, H., & Baines, E. (2005). Teachers' understandings of the relationship between within-class (pupil) grouping and learning in secondary schools. *Educational Research*, 47(1), 1-24.
- Matsagouras, E. (Ed.) (2011). *The innovation of project in Upper High-school: A guide for teachers' educators. Teachers' book. Students' book*. Athens: Ministry of Education - Institute for Educational Policy (in Greek).
- Mayer, R., & Alexander, P. (Eds.) (2011). *Handbook of research on learning and instruction (Educational Psychology Handbook Series)*. New York: Routledge.
- OECD [Organisation for Economic Cooperation and Development] (2011). *Education policy advice for Greece. Strong performers and successful reformers in education*. OECD Publishing. Available online: <http://www.oecd.org/greece/48407731.pdf> [Accessed: 1-5-2015]
- OECD (2015). *Education policy outlook: Making reforms happen*. OECD Publishing. Available online: <http://www.oecd.org/publications/education-policy-outlook-2015-9789264225442-en.htm> [Accessed: 1-5-2015]
- Saiti, A. (2007). School leadership and educational equality: Analysis of Greek secondary school data. *School Leadership and Management*, 27(1), 65-78.
- Saiti, A., & Mitosili, E. (2005). Parental perception of the education of their adolescent children: Evidence from Greek secondary education. *Journal of Career and Technical Education*, 22(1), 9-30.
- Shachar, H., & Sharan, S. (1995). Cooperative learning and the organization of secondary schools. *School Effectiveness and School Improvement*, 6 (1), 47-66.
- Sharan, Y. (2010). Cooperative learning for academic and social gains: Valued pedagogy, problematic practice. *European Journal of Education*, 45(2), 300-313.
- Sharan, Y. (2015). Meaningful learning in the cooperative classroom. *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, 43(1), 83-94.
- Slavin, R. E. (2014). *Educational Psychology. Theory and practice* (11th ed.). Boston: Pearson/Allyn and Bacon.
- Tan, I., Sharan, S., & Lee, C. (2006). *Group investigation and student learning*. Singapore: Marshall Cavendish.
- Thanh, P. T. H., & Gillies, R. (2010). Group composition of cooperative learning: Does heterogeneous grouping work in Asian classrooms? *International Education Studies*, 30(3), 12-19.
- Traianou, A. (2009). The uncertain character of recent educational reform in Greece. *Forum*, 51(2), 131-142.
- Webb, N., Franke, M., De, T., Chan, A., Freund, D., Shein, P., & Melkonian, D. (2009). 'Explain to your partner': Teachers' instructional practices and students' dialogue in small groups. *Cambridge Journal of Education*, 39(1), 49-70.