

Small Steps, Giant Leaps: Project-based Learning in a Conservative Educational System. Greek Students' Views

Konstantina Koutrouba

PhD, Associate Professor, Harokopio University, Athens, Greece

Lydia-Eleni Alexaki

MSc, High School Teacher, Harokopio University, Athens, Greece

Abstract

The present questionnaire-based study examines 170 Greek upper secondary public and private education students' perceptions about the factors that facilitate or undermine project-based learning within the framework of the highly conservative Greek educational system, about the cognitive, affective and social skills they developed during the carrying-out of project procedures, and about the levels of satisfaction they experienced during their cooperation with their supervising teachers. According to the results, project-based learning is more effectively implemented in private schools due to infrastructure provided, due to effective coordination of well-defined and pre-planned activities, and due to higher levels of teachers' professional commitment and students' learning objectives and expectations. The research also shows that project-based learning, even when embedded in and restricted by traditional educational environments, is considered to produce higher academic attainments for low-achievers, and to facilitate the development of high-ranked cognitive and social skills through students' involvement in real-life situations, and active participation in problem-solving and decision-making procedures. It also indicates that for the majority of the participants the role of the supervising teacher is crucial since s/he defines the rules of communication, the techniques and the stages of the project carrying-out, and the assessment procedures. It finally shows that Greek students, despite apparent satisfaction experienced due to their participation in project procedures, remain skeptical as regards traditional teachers' ability to assess reliably group performance, to provide effectively individualized assistance to low-performing group members, and to encourage high-achievers who have never before worked in unfamiliar learning situations.

Keywords: project-based learning, secondary education, students' views, Greece.

Introduction

Extensive research over the past years has persuasively shown that if education is expected to have a major positive impact on the development of integrated personalities, a huge shift regarding not only the definition and the content of knowledge per se but also the scientific strategies for the dissemination of knowledge in everyday school life should be considered as necessary (Bransford et al., 2000; Cairns et al., 2001; Cornelius-White, 2007; Corner, 2012; Littky & Grabelle, 2004). For decades, traditional education around the world, despite modern theoretical progress, has been focused on the achievement of high-quality academic attainments and, subsequently, on the development of high-ranked cognitive skills by the students who are educated to become, after school, successful professionals in a society where knowledge seems to be the most beneficiary, the utmost social value (Greany & Rodd, 2003; Mayer & Alexander, 2011; OECD, 2015). School life has been heavily constructed and steadily consolidated around this fundamental orientation of traditional education systems in a way that educational policy-makers, teachers, and students as well, all being conveyors of the same traditional educational and social values, seem to feel safer when the content of the transmitted knowledge (not the knowledge as a whole, but only domains and sub-domains of widely appreciated and long accepted or tested knowledge) remains unaltered for long time, when the methods of dissemination are compactly defined and reliably implementable, when students'

behaviours, attitudes, skills, and achievements are easily monitored, guided, and assessed (Ryan & Cooper, 2007; Sharan, 2010; Slavin, 2014; Van Ryzin & Newell, 2009).

These restrictions, however, lately have started to get loosen. New trends in educational research have confirmed that even the accomplishment of academic objectives is further facilitated when teachers and students are willing and supported to work more systematically on the development of affective and social skills which are now highly considered to contribute to the formation of a more integrated, balanced, mature personality (Paulson, 2011; Pearce & Doh, 2005; Ravitz, 2010). Scientifically designed cross-thematic approaches of the so-far traditionally disseminated content seem to enrich more and more the daily life of students around the world, while cooperative learning procedures are more often used to promote, *inter alia*, students' sociability, cooperativeness, and persistence, accountability and willingness, resourcefulness and creativity, empathy and tolerance/understanding, and feelings of self-esteem, adequacy, usefulness, and acceptance (Kaldi et al., 2009; Mergendoller et al., 2007; Nadler et al., 2003; Strobel et al., 2008). In addition, the contemporary principles of experiential learning seem to gradually impel teachers to seek for discernible and usable links between what they up to now theoretically taught and what their students experience, need, are attracted from in their daily real life, reasonably believing that knowledge is more valuable when it is useful, meaningful and justifies its importance by itself (Gillies & Ashman, 2003; Gillies et al., 2008; Hedberg, 2009; Johnson & Johnson, 2003; Kagan & Kagan, 2009).

In educational settings that evolve towards such directions, project-based learning activities (PBLAs) are widely considered to address in a very effective way the demands for innovations in daily school life (Davis, 2013; Dochy et al., 2003; Frame, 2002; Geier et al., 2008). PBLAs cover a wide range of educational activities regarding every school subject and almost all aspects of human activity and communication, e.g., environmental issues, cultural and social life (civilization, arts, human relations, individual or ethnic or other group identities), multidimensional aspects and problems of everyday life (health, science, research, history, technology, communication) and so on (Cohen, et al., 2004; Gillies, 2007; Gray & Larson, 2008; Kaldi et al., 2011). Despite PBLAs' almost borderless scope of interest, all of them are considered to contribute to the display of high-ranked cognitive, meta-cognitive, emotional, and social skills, to capture students' interest, and excite their imagination, initiative, and creativity in a framework where students are co-educated as members of larger groups and receive, at the same time, individualised support and assistance in order to effectively meet personal, group and social requirements (Newell, 2003; Polman, 2000; Railsback, 2002). Therefore, PBLAs seem to constitute very promising alternative choices for teachers who want to experiment with fresh practices, to challenge their own professional limitations in order to expand their students' potential (Roper & Phillips, 2007). However, such challenges seem to be quite risky, especially for teachers who deeply wish to safeguard their professional authority, who prefer well-known teaching routines and measurable (in terms of numerical marks and grades) assessments of students' achievements and performances. PBLAs are based mainly on student-centred inquiry-orientated non-frontal cooperative procedures where teacher's role remains supportive or guiding but not controlling or authoritative. PBLAs require a highly-demanding level of scheduling, preparing, anticipating, and assisting (Hmelo-Silver et al., 2013; Sharan, 2015; Smith et al., 2008). Teachers who implement PBLAs in their classrooms are expected to provide students with multileveled wide information about many different, intriguing subjects (which are supposed to be attractive for students with different interests, skills, potential, needs, and expectation), to acquaint them with research methods, to establish functional rules of cooperation and effective communication, to intervene appeasingly before conflicts break out, to provide individual support to low-achievers or reluctant students, to sooth high-achievers' aspirations, to coordinate the work of members who 'walk' in their own pace, to assess, finally, individual contributions *and* collective outcomes in a fair, valid, balanced way (Schaufeli & Bakker, 2004; Stoeber & Rennert, 2008; Volkema, 2010; Wurdinger & Enloe, 2011).

All these requirements seem to make PBLAs challenging and, at the same time, risky. Traditional, conventional educational systems, like Greece's, seem to be reluctant to incorporate in official Curricula teaching and learning practices that may undermine the controlling role of the teacher and the well-known method of teacher-centred frontal lecturing (Saiti, 2007; Traianou, 2009; Vouyoukas, 2007). The content of knowledge has remained unchanged for decades, the academic orientations of all school procedures dominate over the social and affective objectives of education, while the teachers who would like to experiment, to try new approaches to knowledge in their classrooms are rather discouraged, due to the restrictions of Curricula which define in detail what, when, in what pace, and how a teacher, especially in secondary education, has to teach every day of the school year (Koutrouba et al., 2012; Koutselini, 2008).

Since 2011-2012, however, some significant changes have been made in Greek education, incorporating PBLAs in the weekly Syllabus as a separate, autonomous school subject, which resulted in outcomes not yet fully examined, described or assessed (Matsagouras, 2011; Taratori-Tsalkatidou, 2007; Traianou, 2009). To clearly realize how difficult and important is for students who grow and are educated within a strictly traditional and unbending educational system to compare, collect, elaborate, assimilate, assess, and utilise fruitfully experiences deriving from completely unknown learning procedures, as PBLAs are, one must keep in mind that for PBLAs in Greece only 2 school hours (i.e. 90 minutes) out of a total of 35 hours weekly are provided in the first year and 1 school hour (i.e. 45 minutes) weekly is provided in the second year of the Upper High School, while for the rest of the traditionally accessed (namely, through teacher-centred frontal lecturing) school subjects 33 (i.e. 1485 minutes) and 34 (i.e. 1530 minutes) school hours weekly are provided respectively in the first and the second year of the Upper High School in Greece (Greek Government Gazette, 2013). It should also be added that in the final, third year of the Upper High School such activities are not provided for in the Syllabus and the relevant Curricula. Therefore, it should not be an exaggeration to speak of an educational system where traditionalism and conventionality create a suffocating learning environment where PBLAs seem like 'injections' infusing refreshing, innovative, breath-taking experiences.

The present study aims at examining Greek Upper High School students' experiences from and views about the project-based learning activities they participated in, two years after such activities were officially introduced in the Greek secondary education system, in order to find out whether such activities could be fruitful even when developed within the frame of bureaucratic, conservative educational systems.

Methodology

The present research was conducted during the academic year 2014-2015 and was based on a distribution of 200 questionnaires addressed to a corresponding number of high school students in Athens. The researchers visited 10 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. The researchers were present in the classrooms during the completion of the questionnaires in order to provide the students with all relevant information which was necessary to explain the objectives of the research, and to ensure comprehensibility of the questions and of the completion process. These schools were selected on the basis of criteria regarding teacher and student population in order to ensure that as students as possible had already been involved in PBLA. 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 (Eurydice, 2015; OECD, 2011). As a result, a large number of respondents were ascertained to have experience in PBLA and mainly on issues regarding society, environment, culture, and science.

The questionnaire comprised 22 close-ended questions with pre-coded replies: 3 of which required students to provide information about personal and academic profile (gender, school and class, academic performance of the current year), while 19 special questions and their pre-coded replies referred to students' perceptions about and attitudes towards PBLA.

The questionnaire 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), Davis (2013), Gillies (2007), Hmelo-Silver, Chinn, Chan, and O'Donnell (2013), Kagan and Kagan (2009), Kaldi, Philippatou, and Onoufriou (2009), 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.

One hundred and seventy (170) questionnaires were returned, a response rate of 85 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. Spearman's *rho* correlations were performed with ranked scores, in order to reveal associations between students' perceptions about PBLAs' usefulness and students' experiences from their active involvement in the carrying-out of PBLAs. In an attempt to assess whether the type of school, the behaviour and the objectives of the teacher, the content of the PBLA and the expectations of the students may be good predictors of students' positive attitudes towards PBLAs, regression analysis was conducted on students' satisfaction from

their participation in PBLAs and on views of the importance of PBLAs as the outcome measure, with the explanatory variables assessing students' experiences from their involvement in PBLAs. A broad outline of the more significant results and conclusions of the present research is presented below.

Analysis of results

Participants' profile

Of the 170 students who participated in the research, 55.3 percent were girls, while 44.7 percent were boys. The 33.5 percent of the participants were students in the first class of Upper High School (i.e., aged 16 years old), while the rest 66.5 percent were students in the second class of Upper High School (i.e., aged 17 years old). The 75.3 percent of the respondents were students in public schools, while 24.7 percent were students in private schools. Regarding participants' academic performance, 46.5 percent had an 'excellent academic performance' (i.e. grades ranging from 91 to 100), 40 percent had a 'very good academic performance' (i.e. grades ranging from 76 to 90), 11.2 percent had a 'good academic performance' (i.e. grades ranging from 61 to 75) while the rest 2.3 percent had a 'moderate academic performance' (i.e. grades ranging from 50 to 60).

Special Questions

The participants were asked to provide information about teacher and students' roles, attitudes and behaviours during PBLA which are not usually discernible during the traditional teaching/learning procedures. The majority of the respondents reported that they 'much' to 'very much' participated actively, after extended in-class consideration and student-to-student interaction, in the selection of the PBLA, which was included in a list of activities proposed by the teacher who, in most cases, displayed evident interest in presenting a broad outline of the content of each proposed PBLA. For the majority of the respondents the subjects proposed were 'much' to 'very much' interesting, intriguing or mind-provoking, though 'moderately' to 'much' connected to real-life situations while, in many cases, the accomplishment of the subject proposed seemed to demand interdisciplinary or cross-curricular thematic approaches not easily perceived and understood by the students.

The majority, also, of the participants noted their teacher's effort to present not only the academic and socio-affective objectives of the activity that had to be carried out but also the methods and strategies that were required for the accomplishment of the project. The respondents reported that 'much' to 'very much' the expected academic outcomes and stages and steps of each activity were clearly-defined, while the social and affective objectives, though well-described and explained by the teacher, were 'moderately' to 'much' perceived as regards comprehensibility, unambiguousness and their potential applicability and effectiveness. Finally, the majority of the respondents reported that the precise time for the completion of each stage of the PBLA was 'much' to 'very much' defined by the members of the group who carried out the activity, while the deadline for the completion of the entire work was defined by the teacher.

In addition, the participants reported that their teachers 'much' to 'very much' provided them in advance with detailed information about the rules of teacher-to student and student-to-student communication, behaviour and cooperation and paid great attention to students' conscious commitment to these rules. According to students' reports, most teachers paid great concern so that these rules were clearly defined, coherently hierarchized, and widely accepted, while, for the majority of the respondents, it was obvious that these rules were as important as the content of the PBLA itself. Moreover, the participants reported that their teachers focused 'much' to 'very much' on providing in advance information on how cooperation problems, misunderstandings or conflicts should be addressed and on how communication between the members should be effective, meaningful and fruitful. Finally, ample information was reported to have been provided regarding criteria, methods and practices for the assessment of individualised and group performance and outcomes, especially in cases where students were unfamiliar with such evaluation procedures.

As regards students' display of initiative and personal engagement in PBLA, the majority of the participants reported a 'much' to 'very much' positive experience. Students were prompted to take creative initiatives and responsibilities and to behave maturely during all learning processes of the PBLA. The majority of the students were asked to form the groups without teacher's apparent intervention, although the teachers were reported to play a major role in duties allocation in the group as a whole. The assignment of tasks, however, in each member of the group was made, for the majority of the

participants, through interactive student-to-student cooperation and with discreet intervention of the teacher, while a lot of time was spent so that personal interests, potential and expected contributions of each member to the overall outcome would be clearly defined and recorded.

For the majority of the respondents the role of the teacher remained crucial during the entire progress of the PBLA. The teachers 'much' to 'very much' monitored the working process of each group as a whole and of each group member, and provided individualized support. In addition, 'much' to 'very much' s/he intervened more determinatively in cases of group malfunction to promote shared responsibility, to encourage reluctant students, to settle differences or disputes, and to smooth out hindrances, although such interventions were reported to 'slightly' to 'moderately' be effective when problems had to do with interpersonal relationships and 'much' to 'very much' when they had to do with academic, content-related issues.

The participants were also asked to report whether their involvement in project-based learning procedures facilitated the development of cognitive, affective and social skills which are considered to be underdeveloped when the teaching/learning process is carried out through the traditional teacher-centred frontal dissemination of knowledge. For the majority of the respondents, their participation in project-based learning activities (PBLA) provided them with the opportunity to access knowledge in a more integrated and coherent way, and work more responsibly and methodically with the learning material per se, using in a more 'professional' way computers, networks, databases, electronic libraries and sources of information, social media, electronic applications and so on. For a great, also, majority of the respondents PBLA facilitated reflective thinking and encouraged them to develop and express more critical or discerning views towards information sources and data that were vague, insufficient, contradicting, false, or unconvincingly substantiated. In addition, for the majority of the respondents, this process helped them not only express their ideas unambiguously and consistently and correct misperceptions but also improve writing skills and, in many cases, strengthen verbal and non-verbal interaction with their schoolmates. The developing ability to elaborate complicated data in a more seminal way is also reported by the majority of the participants to have further strengthened their feelings of confidence, self-esteem, adequacy and efficiency, regarding similarly low- and high-achievers as well.

Moreover, participants were asked to provide information about the contribution of PBLA to the development of skills of cooperation during interpersonal communication. The majority of them reported that 'much' to 'very much' they strengthened already existing bonds of friendship and cooperativeness with their classmates and, in many cases, they developed friendly emotions for and meaningful relations with more distant classfellows, especially in cases where the members of the groups had been selected randomly. The majority of the respondents also reported that during PBLA process they were encouraged to understand and express intimate feelings which further strengthened bonds of friendship. On the contrary, for almost the one third of the respondents, their participation in PBLA 'slightly' to 'not at all' facilitated the development of communicative skills, while in some cases pre-existing friendly relationships seemed to weaken or deteriorate due to emerging collaboration and communication difficulties during the carrying-out of the project. In addition, the majority of the respondents reported that interpersonal student-to-student (and, in some cases, teacher-to-student) conflicts, loafing, and unequal contributions to the overall effort undermined 'much' to 'very much' the performance of group, having a major negative impact on the quality of the final outcome.

As regards PBLA assessment procedures, the majority of the respondents described them as vague and stressful. Most students reported that 'much' to 'very much' they developed a vague perception of how individualized and group performance will be balanced, described and assessed, of how different contributions to a commonly designed and carried-out learning outcome will fairly, reliably, objectively evaluated. The majority of the participants reported that they 'much' to 'very much' would feel more secure if each student worked and, therefore, was assessed autonomously and the final work was just a compilation of individual contributions. The majority also of the participants reported that during the process of the PBLA the more competent members seemed to control the weaker ones while, in many cases, the low-achievers seemed to take advantage of the high-achievers, especially in cases where the groups had been formed after the intervention of the teacher and not on the basis of students free will and consent. A majority also of the participants described the public presentation of his/her individual contribution to the final product as a 'much' to 'very much' stressful procedure which significantly reduced the positive feelings of pleasure and satisfaction that were supposed to derive from the participation in such an innovative learning process. For these students, the insufficient contribution of the other members had a negative impact on their individual performance, while in many cases the time provided for the

accomplishment of each phase of the work or for the completion of the entire work was highly insufficient, especially in cases where the product of each member was highly dependent on the responsibility, reliability and efficiency of other members. For almost the one third of the participants the final overall outcome was 'slightly' to 'not at all' representative of the individual contribution and performance of each member who had to be evaluated and assessed, given the fact that responsibility was 'slightly' to 'not at all' shared, groups were not formed on the basis of members' academic performance and achievements, but with the criterion of friendly relations which poorly contributed to a product of high academic quality, and commitment, determination, assiduity, diligence, cooperativeness, adaptedness, and flexibility of each member should not have been taken for granted.

Spearman's *rho* correlations performed with ranked scores showed significant positive associations between most variables regarding students' perceptions about PBLAs' usefulness and variables regarding students' experiences from their active involvement in the carrying-out of PBLAs. In addition, regression analysis showed, *inter alia*, that high levels of reported constructive communication with teachers and fellow-students, careful preparation and presentation of the PBLA, linking to real-life experiences, and promotion of the socio-affective objectives of the PBLA contribute significantly to the prediction firstly of positive students' views regarding the importance and usefulness of PBLAs and, secondly, of satisfaction deriving from the participation in such activities. More specifically, the present study revealed significant positive associations between the type of school (public or private) where the survey took place and the degree of students' satisfaction regarding teachers' professional attitudes and behaviours during the PBLA. Private schools' students were more satisfied from the guiding role of their teachers, considering them as well-prepared, experienced and highly supportive. In addition, the more supportive the teachers were, the more active students' participation in all phases of the PBLA was, while students who were provided with clear, comprehensible, explicit instructions about why, what and how they have to do, tended to be much more satisfied and effective than others who received insufficient information about the objectives, the techniques, the rules, and the expected outcomes of the PBLA. Moreover, students who presented remarkable academic improvement during the PBLA tended to believe that the skills they developed (not only the academic, but also the affective and social ones) would be highly necessary and utilizable in real-life situations, while the more ITs were used the more interesting the activity was considered and the more active the students' participation was. Furthermore, PBLAs which drove students to find solutions in real-life problems and make decisions regarding complicated situations were considered as more useful and contributing to the development of high-ranked cognitive, affective and social skills, while, for the majority of the participants, the more pleasant and friendly the atmosphere was during the PBLA, the more fruitful and meaningful the outcome of and the experience from the entire process were.

Conclusions and Discussion

The present study examined Greek Upper High School students' experiences from and views about the project-based learning activities they participated in, two years after such activities were officially introduced in the highly conservative and inflexible Greek secondary education system, in order to find out whether such activities could be fruitful even when developed within the frame of bureaucratic, conservative educational systems.

The results reveal that, for the majority of the respondents, learning through multileveled active participation in well-designed mind-provoking projects which, firstly, require the development and display of high-ranked cognitive and socioemotional skills, secondly, are carried out through cooperative problem-solving and decision-making procedures and, thirdly, are expected to be linked to real-life situations produces strong positive experiences. Greek students are unfamiliar with and significantly disrupts consolidated educational routines, bringing about a noteworthy shift in traditional teaching/learning values, attitudes and behaviours (Cantwell & Andrews, 2002; Cohen et al., 2004; Cornelius-White, 2007).

The present study shows that PBLAs, even in 'small quantities', had a significant impact on students' learning effort. The majority of the respondents participated actively and motivated by personal interest in these procedures, considering them as being challenging, stimulating and thought-provoking (Tan et al., 2006; Taratori-Tsalkatidou, 2007; Vitto, 2003). Of course, students may consider many traditional school subjects as being interesting, especially if they attain high academic achievements in these subjects. Given the fact that in the traditional settings of the Greek educational system, all school subjects are accessed and presented in almost the same way, students do not have the opportunity to intervene actively in the learning process (Georgiadis, 2007; Ifanti, 2007). They are not allowed to select the content of the knowledge they are provided with, they are not clearly aware of the objectives of the subject, while they are accustomed to consider the value of a school subject according to the academic knowledge it produces (Koutrouba & Christopoulos, 2015; Koutselini,

2008). The attainment of affective objectives and the development of social skills are not typically expected in the traditional educational reality and, therefore, students are more passive learners than active producers of knowledge. In other words, for students educated in a conventional school system, PBLAs provide opportunities for real learning adventures, where minds are robustly exercised, characters and personalities are energetically developed and refreshing feelings are experienced (Newell, 2003; Railsback, 2002; Sharan, 2015).

The present study also reveals, through the responses of Greek students, Greek teachers' willingness to answer the requirements of PBLAs, although no special training has been provided to them for attainment of such a task (Taratori-Tsalkatidou, 2007). The students who participated in the survey reported that their teachers make apparently conscious efforts to promote and display the usefulness of PBLAs, mainly focusing on the academic and cognitive objectives of such activities, although they do not seem to ignore their importance as regards the socio-affective expectations and outcomes of all these procedures (Gillies & Ashman, 2003; Greany & Rodd, 2003). The obvious obsession of teachers with the academic achievements of their students and their apparent lack of confidence as regards the accomplishment of non-academic objectives is related to the core character of the Greek educational system. In Greece, education as a whole, and even more upper secondary education, has been designed and developed, decades ago, in a way that serves major social objectives; Greek students are expected to develop high-ranked cognitive, academic skills, to assimilate great 'quantities' of knowledge disseminated to them in a rapid pace, to enforce their professional qualifications and become, therefore, well-equipped in a highly competitive and demanding job market, in a country where rich educational provisions are considered to ensure the transition of knowledgeable people from the almost underdeveloped rural economy to the most challenging, middle class or bourgeois (Koulaidis et al., 2006; Koutrouba, 2012). Educational policy-makers, teachers, parents, and students as well, seem to feel socially obliged to satisfy youth's inmost will for social advancement and for the subsequent financial empowerment that derives from it (Wurdinger & Rudolph, 2009). In such a framework, educational activities which are not clearly connected with these utilitarian orientations are naturally expected to be used in a constraint way, to make teachers and students feel somehow inconvenient and produce scepticism (Kaldi et al., 2009; Koutselini, 2008). The answers of the participants in this survey seem to confirm that PBLAs which produce clear-cut, reliably measurable academic achievements, such as the development of language and verbal skills, the proficient use of ITs and the skilful elaboration of information data, the reflective thinking, in other words, the professional qualifications of the students are more likely to gain wide acceptance by teachers and students as well. In addition, as this research has shown, PBLAs which are connected with real-life situations are more widely accepted than activities where the theory dominates over the practice, obviously because such activities do not produce a measurable outcome useful for student's after-school professional life (Frame, 2002; Gillies & Ashman, 2003; Gillies et al., 2008). Teachers should, therefore, select subjects which apparently prepare students for their future life, as long as they convince them that, besides academic attainments, sentimental maturity and integration, and flexible and widely-developed communication and social skills are, in fact, strong valuable qualifications for almost every successful professional (Cairns et al., 2001; Corner, 2012; Wurdinger & Enloe, 2011).

The present research also shows that although high- and low-achievers as well describe PBLAs as interesting and refreshing, they do not really know how to cooperate efficiently with others in order to achieve the desired outcomes, and this probably explains why the majority of the participants prefer individualised assessment to group assessment, in other words, prefer to work autonomously and then just compile individual contributions to produce an overall outcome (Mayer & Alexander, 2011; Tan et al., 2006). Academic achievements (regarding skills and products) and individual work can be more easily and evenly planned, monitored, carried out, and assessed than group cooperation, communication skills, emotional behaviours and so on (Dochy et al., 2003; Geier et al., 2008; Gillies, 2007). This also explains why high-achievers (namely, the most demanding students of the classrooms and, therefore, the most promising future professionals in the job market) feel more insecure when they have to be assessed with criteria they are not acquainted with, during learning procedures where the 'competitive' low-achievers could probably display communicative features that high-achievers do not possess (Cohen et al., 2004; Davis, 2013). Greek teachers, to facilitate smooth, undisturbed cooperation within students groups, tend to let students form the groups by themselves (apparently on the base of pre-existing interpersonal friendly relationships), and at the same time they avoid allocating individualised duties in each member of the group (Gray & Larson, 2008; Greany & Rodd, 2003). Such a strategy, however, does not encourage students to cooperate with different characters, undermining that way the substantial social objectives of almost every PBLA (Hansen, 2006; Hmelo-Silver et al., 2013; Strobel et al., 2008). In fact, teachers and students should be encouraged to cooperate within various diversified mixed-ability groups where different performances, learning styles, and behaviours co-exist just like they co-exist in real-

life after-school situations (Gillies & Ashman, 2003). It is also rather obvious that students' familiarization with diversity and flexible cooperation must not commence for the first time during their Upper High School education, when characters, beliefs and values have already been long consolidated (Kagan & Kagan, 2009; Koulaidis et al., 2006; Savery, 2006). If a huge shift in teachers' and students' attitudes towards communication and cooperation has to be achieved, such interventions must be planned and introduced by policy-makers in the first years of children's school life (Mergendoller et al., 2007; Newell, 2003).

The present study also shows that in private schools, probably due to higher degree of professionalization and infrastructure provided, teachers and students are more efficiently experimenting with innovative learning strategies and activities, as long as these activities do not disrupt, but, on the contrary, strengthen and serve the abovementioned social objectives and expectations (King, 2002; Kutnick et al., 2005). Students who participated in the present research paid great interest in the rules of cooperation and communication within their groups during the PBLAs probably because harmonious cooperation is a prerequisite for the attainment of high marks, given the fact that their assessment is based not only on individual contribution but also on the final collective outcome (Johnson & Johnson, 2003; Kagan & Kagan, 2009). On the other hand, it is obvious that the majority of the respondents experienced positive feelings of pleasure and satisfaction, especially in cases where the teachers were able to push forward the importance of cooperation and communication skills for the development of students' personalities, and for their social advancement as well (Kaldi et al., 2011; Mayer & Alexander, 2011). It is rather apparent that where teachers insufficiently link such skills to students' social expectations, scepticism regarding the effectiveness of such innovative practices significantly and understandably grows.

This study shows that innovative practices, such as PBLAs, can have a major positive impact even when they are introduced in extremely conservative educational systems and even when they are implemented in a limited, restrain way. Teachers and students seem to enjoy and make full advantage of rich, refreshing experimentations, as long as they are convinced that they do not pointlessly 'waste their time' within their over-demanding educational reality (Johnson & Johnson, 2003; Matsumura & Pascal, 2003). PBLAs which are intriguing, meaningful and obviously useful are more likely to gain students' respect and promote their active participation in every learning procedure (Hansen, 2006; Hedberg, 2009; Johnson & Johnson, 2013). Teachers must receive specialized training during post-graduate studies and through further education programmes to feel confident to implement diversified teaching strategies within their classrooms and to be given a free hand to experiment, individualize, guide, monitor, support, and assess learning procedures which internationally are expected to produce valuable educational outcomes (Dochy et al., 2003; Frame, 2002; Gillies et al., 2008). Policy-makers, teachers, and parents who want their children to be educated in an integrated way (namely in order to be academically and emotionally and socially successful) seem to have strong incentives to promote PBLAs in the modern school in order to create more knowledgeable and happier students and more successful future professionals as well.

References

- [1] Bransford, J.D., Brown, A.L., & Cocking, R.R. (2000). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academies Press.
- [2] Cairns, J., Lawton, D., & Gardner, R. (Eds.) (2001). *Values, culture and education*. London: Kogan Page.
- [3] Cantwell, R., & Andrews, B. (2002). Cognitive and psychological factors underlying secondary school students' feelings towards group work. *Educational Psychology, 22*(1), 75-91.
- [4] Cohen, E.G., Brody, C., & Sapon-Shevin, M. (Eds.) (2004). *Teaching cooperative learning: The challenge for teacher education*. Albany, NY: Suny Press.
- [5] Comelius-White, J. (2007). Learner-centered teacher-student relationships are effective: A meta-analysis. *Review of Educational Research, 77*(1), 113-143.
- [6] Comer, C. (2012). Into another world: From creativity to creative learning. *Improving Schools, 15*(2), 116-129.
- [7] Davis, J.M. (2013). Supporting creativity, inclusion and collaborative multi-professional learning. *Improving Schools, 16*(1), 5-20.
- [8] Dochy, R., Segers, M., Van Den Bossche, P., & Gijbels, D. (2003). Effects of problem-based learning: A metanalysis. *Learning and Instruction, 13*(5), 533-568.

- [9] Eurydice (2015). *The structure of the European education systems 2014/15: Schematic diagrams*. Eurydice: European Commission, EACEA. Available online: <https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/images/0/05/192EN.pdf> [Accessed: 1-7-2016].
- [10] Frame, J.D. (2002). *The new project management: Tools for an age of rapid change, complexity and other business realities*. 2nd edn. San Francisco: Jossey-Bass.
- [11] Geier, R., Blumenfeld, P.C., Marx, R.W., Krajcik, J.S., Fishman, B., Soloway, E., & Clay-Chambers, J. (2008). Standardized test outcomes for students engaged in inquiry-based science curricula in the context of urban reform. *Journal of Research in Science Teaching*, 45(8), 922-939.
- [12] Georgiadis, M.N. (2007). Educational reforms in Greece (1959-1997) and human capital theory. *Journal for Critical Education Policy Studies*, 5(2), 342-368.
- [13] Gillies, R. (2007). *Cooperative learning: Integrating theory and practice*. Thousand Oaks, CA: Sage.
- [14] Gillies R., & Ashman, A. (Eds.) (2003). *Cooperative learning: The social and intellectual outcomes of learning in groups*. London: RoutledgeFalmer.
- [15] Gillies R. Ashman A. & Terwel, J. (Eds.) (2008). *The teachers' role in implementing cooperative learning in the classroom*. New York: Springer.
- [16] Gray, C.F., & Larson, E.W. (2008). *Project management: The managerial process*. 4th edn. New York: McGraw-Hill/Irwin.
- [17] Green, T. & Rodd, J. (2003). *Creating a learning to learn school: Research and practice for raising standards, motivation and morale*. London: Campaign for Learning.
- [18] Greek Government Gazette (2013) I Ministerial Decision 30972/C1/5-3-2013 (614/R/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*. IV. 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 [Accessed: 1-7-2016] [in Greek].
- [19] Hansen, R.S. (2006). Benefits and problems with student teams: Suggestions for improving team projects. *Journal of Education for Business*, 82(1), 11-19.
- [20] Hedberg, P.R. (2009). Learning through reflective classroom practice: Applications to educate the reflective manager. *Journal of Management Education*, 33(1), 10-36.
- [21] Hmelo-Silver C. Chinn C. Chan, C., & O'Donnell, A. (Eds.) (2013). *The international handbook of collaborative learning*. New York: Routledge.
- [22] Ifanti, A. (2007). Policy and curriculum development in Greece. The case of secondary school curriculum. *Pedagogy, Culture and Society*, 15(1), 71-81.
- [23] Johnson, D., & Johnson, F. (2013). *Joining together: Group theory and group skills*. 11th edn. Boston, MA: Allyn and Bacon.
- [24] 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.
- [25] Kagan, S., & Kagan, M. (2009). *Cooperative Learning*. San Clemente, CA: Kagan.
- [26] Kaldi, S., Philippatou, D., & Govaris, C. (2011). Project-based learning in primary schools: effects on pupils' learning and attitudes. *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, 39(1), 35-47.
- [27] 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.
- [28] King, A. (2002). Structuring peer interaction to promote high-level cognitive processing. *Theory into Practice*, 41(1), 33-40.
- [29] Koulidis, V., Dimopoulos, K., Tsatsaroni, A., & Katsis, A. (2006). Young people's relationship to education: The case of Greek youth. *Educational Studies*, 32(4), 343-59.

- [30] Koutrouba K (2012). A profile of the effective teacher: Greek secondary education teachers' perceptions. *European Journal of Teacher Education*, 35(3), 359-374.
- [31] Koutrouba K & Christonoulos I (2015). Cooperative learning effectiveness in the bureaucratic school: Views of Greek secondary education teachers. *International Journal of Learning, Teaching and Educational Research*, 12(2), 64-88.
- [32] 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.
- [33] Koutselini, M. (2008). Teacher misconceptions and understanding of cooperative learning: An intervention study. *Journal of Classroom Interaction*, 43(2), 34-44.
- [34] Kutnick P Blatchford P Clark H MacIntyre H & Raines F (2005) Teachers' understandings of the relationship between within-class (pupil) grouping and learning in secondary schools. *Educational Research*, 47(1), 1-24.
- [35] Littky, D., & Grabelle, S. (2004). *The big picture: Education is everyone's business*. Alexandria, VA: Association for Supervision and Curriculum Development.
- [36] Matsouras F (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].
- [37] Matsumura, L.C., & Pascal, J. (2003). *Teachers' assignments and student work: Opening a window on classroom practice*. Los Angeles: National Center for Research on Evaluation, Standards, and Student Testing, University of California at Los Angeles.
- [38] Mayer R & Alexander P (Eds.) (2011). *Handbook of research on learning and instruction. Educational Psychology Handbook Series*. New York: Routledge.
- [39] Mergendoller, J.R., Maxwell, N., & Bellisimo, Y. (2007). The effectiveness of problem based instruction: A comparative study of instructional methods and student characteristics. *Interdisciplinary Journal of Problem-Based Learning*, 1(2), 49-69.
- [40] Nadler, J., Thompson, L., & van Boven, L. (2003). Learning negotiation skills: Four models of knowledge creation and transfer. *Management Science*, 49(4), 529-540.
- [41] Newell, R. (2003). *Passion for learning: How project based learning meets the needs of 21st-century students*. Lanham, MD: The Scarecrow Press.
- [42] 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: 1-7-2016].
- [43] 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: 1-7-2016].
- [44] Paulson, E. (2011). Group communication and critical thinking competence development. *Business Communication Quarterly*, 74(4), 399-411.
- [45] Pearce, J.A., & Doh, J.P. (2005). The high impact of collaborative social initiatives. *MIT Sloan Management Review*, 46(3), 30-39.
- [46] Polman, J.L. (2000). *Designing project-based science: Creating learning through guided inquiry*. New York: Teachers College Press.
- [47] Railsback, J. (2002). *Project-based instruction: Creating excitement for learning*. Portland, OR: Northwest Regional Educational Laboratory.
- [48] Ravitz, J. (2010). Beyond changing culture in small high schools: Reform models and changing instruction with project-based learning. *Peabody Journal of Education*, 85(3), 290-312. .
- [49] Roper, K.O., & Phillips, D.R. (2007). Integrating self-managed work teams into project management. *Journal of Facilities Management*, 5(1), 22-36.
- [50] Ryan, K., & Cooper, J.M. (2007). *Those who can, teach*. 11th edn. Boston, MA: Houghton Mifflin Company.
- [51] Saiti, A. (2007). School leadership and educational equality: Analysis of Greek secondary school data. *School Leadership and Management*, 27(1), 65-78.

- [52] Savery, J. (2006). Overview of problem-based learning: Definitions and distinctions. *Interdisciplinary Journal of Problem-Based Learning*, 1(1), 9-20.
- [53] Schaufeli, W.B., & Bakker, A.B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25(3), 293-315.
- [54] Sharan, Y. (2010). Cooperative learning for academic and social gains: Valued pedagogy, problematic practice. *European Journal of Education*, 45(2), 300-313.
- [55] 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.
- [56] Slavin, R.E. (2014). *Educational psychology. Theory and practice*. 11th edn. Boston: Pearson/Allyn and Bacon.
- [57] Smith, H.III, Smarkusky, D., & Corrigan, E. (2008). Defining projects to integrate evolving team fundamentals and project management skills. *Journal of Information Systems Education*, 19(1), 99-110.
- [58] Stoeber, J., & Rennert, D. (2008). Perfectionism in school teachers: Relations with stress appraisals, coping styles, and burnout. *Anxiety, Stress, and Coping. An International Journal*, 21(1), 37-53.
- [59] Strobel, J., & van Barneveld, A. (2008). When is PBL more effective? A meta-synthesis of meta-analyses comparing PBL to conventional classrooms. *Interdisciplinary Journal of Problem-based Learning*, 3(1), 44-58.
- [60] Tan, I., Sharan, S., & Lee, C. (2006). *Group investigation and student learning*. Singapore: Marshall Cavendish.
- [61] Taratori-Tsalkatidou, E. (2007). *The project method in theory and practice*. 2nd edn. Thessaloniki: Kyriakidis [in Greek].
- [62] Traianou, A. (2009). The uncertain character of recent educational reform in Greece. *Forum*, 51(2), 131-142.
- [63] Van Ryzin, M., & Newell, R. (2009). *Assessing what really matters in schools: Building hope for the future*. Lanham, MD: Rowman & Littlefield.
- [64] Vitto, J.M. (2003). *Relationship-driven classroom management: Strategies that promote student motivation*. Thousand Oaks, CA: Corwin Press.
- [65] Volkema, R.J. (2010). Designing effective projects: Decision options for maximizing learning and project success. *Journal of Management Education*, 34(4), 527-550.
- [66] Vouyoukas, A.C. (2007). An analysis of equality, legislation, attitudes and values in education: The case of Greece. *Mediterranean Journal of Educational Studies*, 12(2), 115-134.
- [67] Wurdinger, S., & Enloe, W. (2011). Cultivating life skills at a project-based charter school. *Improving Schools*, 14(1), 84-96.
- [68] Wurdinger, S., & Rudolph, J. (2009). A different type of success: teaching important life skills through project based learning. *Improving Schools*, 12(2), 115-129.