Proceedings of the International Conference

Quality and Equity in Education: Theories, Applications and Potentials

Organized under the ERASMUS+ Key Action 2 project:
"Promoting Quality and Equity: A Dynamic Approach to School Improvement (PROMQE)"

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"Quality and Equity in Education: Theories, Applications and Potentials"

organized under the ERASMUS+ Key Action 2 project* entitled *"Promoting Quality and Equity: A Dynamic Approach to School Improvement (PROMQE)"*

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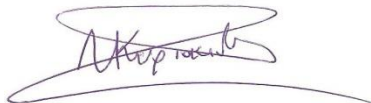
INFORMATION ON THE PROMQE RESEARCH PROGRAM

International evaluation studies reveal that in Europe approximately 20% of children are not equipped with the basic skills in mathematics and that the great majority of them can be found in socially disadvantaged areas.

The PROMQE project aimed at establishing links between theory, research and practice, supporting primary schools in socially disadvantaged areas to help them become more effective. Through PROMQE, schools in four European countries (i.e., Cyprus, Greece, England and Ireland) are trained to use DASI and develop, implement and evaluate school-based policies and action plans which promote not only student achievement gains in mathematics (quality) but also reduce the impact that the socioeconomic status (SES) can have on student achievement (equity).

The improvement efforts target the schools' policy for teaching and the schools' learning environment (SLE), two factors that have been found to be associated with student learning outcomes. An advisory and research team supported schools to help them identify their priorities of improvement and develop strategies and action plans that consider the knowledge-base of educational effectiveness research and each school's specific context and challenges.

A sample of 72 primary schools in the four European countries participating in the project was selected at the beginning of the school year 2015-2016. The school sample was randomly split into the experimental and the control group. Both groups were asked to develop school improvement strategies and action plans. The experimental group received support to use DASI. A handbook for designing improvement strategies and action plans for promoting quality and equity was provided. The research team provided feedback to the control group about the results that emerged from the pre-measure however, school stakeholders were asked to develop their own strategies and action plans without making use of DASI.

Results showed that the intervention had a positive impact on both quality and equity in all countries participating in the project, since students of the experimental group had a greater progress in their mathematics achievement than the control group (quality dimension). At the end of the intervention, the impact of SES on student achievement in mathematics was also smaller in schools implementing DASI (equity dimension).

Prof. Leonidas Kyriakides
Project Coordinator

CONFERENCE SCHEDULE

08:30 – 09:00 **Registrations**

09:00 – 09:30 **Welcome**

09:30 – 10:30 **Keynote presentation (in English): Professor Pamela Sammons, University of Oxford, United Kingdom**

10:30 – 11:00 **Coffee Break**

11:00 – 12:00 ***Symposium session for the research program PROMQE (in English and Greek)**

12:00 – 13:15 **Roundtable discussion (in Greek) with:**

- Representative of Ministry of Education and Culture
- Representative of Organization of Inspectors of Primary Education
- Representative of Head teachers' association of Primary Education – POED
- Representative of Cyprus Pedagogical Association
- Representative of Pancyprian Confederation of Parents Associations of Primary Education Cyprus

13:15 – 13:30 **Conclusion of roundtable discussion (in Greek)**

13:30 – 14:30 **Lunch Break**

14:30 – 16:00 **Parallel workshops**

- Workshop 1 (in Greek): *Improving learning outcomes for all students: school level practices*
- **Workshop 2 (in Greek): *From theory to practice in school improvement: Making the connections by drawing on successful school practices*
- ***Workshop 3 (in Greek): *The role of the Advisory and Research Team in supporting school stakeholders to use the dynamic approach to school improvement: A professional development program*
- Workshop 4 (in English): *Developing theoretically driven and empirically based educational policies: Needs and challenges*

16:00 – 16:15 **Coffee Break**

16:15 – 18:00 **Parallel paper sessions**

The schedule includes presentations of the research Intellectual Outputs of the research program «*Promoting Quality and Equity: a dynamic approach to school improvement-PROMQE»* as follows:

**Presentation of Intellectual Output 2: Assessment instruments measuring basic skills in mathematics, Intellectual Output 7: The impact of intervention on promoting quality and equity και Intellectual Output 8: Drawing implications of findings for policy and practice

**Presentation of Intellectual Output 3: Guidelines to schools for promoting quality and equity

***Presentation of Intellectual Output 1: Identifying improvement priorities

KEYNOTE PRESENTATION

How Educational Effectiveness and Improvement Research Can Promote Better Outcomes for Disadvantaged Groups

Professor Pamela Sammons, Department of Education, University of Oxford

This keynote will highlight the contributions and potential of educational effectiveness research (EER) for the promotion of quality and enhancement of equity in educational outcomes. It will consider the knowledge base of EER and school improvement (SI) research and note some of the developments in thinking over the last two decades (see Reynolds et al, 2014; Chapman et al 2016) including theoretical developments that focus explicitly on the concept of change and improvement in education as exemplified in the Dynamic Model of Educational Effectiveness and Improvement (Creemers & Kyriakides 2008; 2010; 2012; Antoniou & Kyriakides, 2011) It will examine some definitions of quality and of equity (Sammons, 2010) drawing on a review of methodological and scientific properties of EER (Sammons, Davis & Gray 2016) and of teacher effects/effective teaching research (Muijs, Reynolds and Kyriakides, 2016). It will explore 'within school variation' (WSV) and equity in terms of consistency, stability and differential effectiveness and approaches to conceptualising and measuring the equity gap. It will argue that researchers, policy makers and practitioners seeking to promote equity and school improvement need to focus more clearly on the implications of such WSV by focusing more directly on questions concerning the 'who' (which student groups), the 'what' (which outcomes, both cognitive and socio-emotional) and the 'when' (trends over time of school trajectories) in measuring effectiveness and improvement and planning for change to promote equity.

It is suggested that the DASI model has much to offer by promoting a theory driven approach to school improvement interventions due to its explicit focus on EER based findings and ways of promoting change. In addition, new approaches to develop quantitative indices to measure equity in school performance such as Kelly's Gini-Based Attainment Equity Index (Kelly, 2015) will be outlined.

The presentation will consider some of the main drivers of educational outcomes and the background characteristics that are most relevant in considering the equity gap in achievement. The size of such equity 'gaps' may differ in different contexts, for different outcomes and across time. Examples of student or family background characteristics that are often cited in relation to educational equity gaps include student gender, ethnicity/race, parents' education level, and family socio-economic status and/or income measures of disadvantage. The potential of neighbourhood as well as school effects and the notion of 'place poverty' that may compound the adverse effects of individual and family disadvantage will be considered. How does living in a disadvantaged neighbourhood and attending a school with a high proportion of disadvantaged students shape student outcomes and measures of school effectiveness? The possibilities of such compositional effects have important implications for

educational policy makes, the measurement of school performance in EER and the study of school and classroom processes which may also be influenced by compositional effects (Harker & Tymms, 2004; Dumay, & Dupriez, 2008; Danhier & Martin, 2014; Sammons, Toth & Sylva, 2015a & b).

While studies of school compositional effects often suggest adverse effects on attainment outcomes for those students attending schools where there are higher concentrations of disadvantaged students, other research testing the 'big fish little pond effect ' (BFLPE) theory has indicated that both academic attainment and non-academic outcomes such as academic self-concept are negatively affected by being taught in schools or classes with relatively more students that have high attainment. Marsh and colleagues' BFLP research has been found to be generalizable across different student characteristics and diverse contexts (Marsh et al. 2007; 2008a&b). Their research indicates that being taught in academically selective schools leads to negative effects on both academic self- concept and attainment. OECD and other research has also indicated that selective education systems tend to exacerbate equity gaps in students' educational outcomes and that disadvantaged students are less likely to obtain places in selective schools. The BFLPE research adds to the evidence base about selective schooling and has important implications for policy and practice to enhance equity and promote school improvement given the emphasis on retaining or increasing academic selection in many systems.

The multifaceted nature of disadvantage also needs to be considered in relation to the measurement and promotion of equity. Single measures such as eligibility for free school meals while easier to measure are insufficient in controlling for contextual influences of school intake. Few EER studies have investigated the role of the home learning environment explicitly. Studies that have indicate it is a powerful predictor of children's attainment outcomes at school, especially the early years HLE, and can play a separate role in shaping outcomes that is distinct from other measures of disadvantage such as family SES or income (Sammons et al, 2004; 2008; 2015; Melhuish et al, 2008a).

The keynote will address the concepts of 'risk' and 'resilience' in education drawing on some research that highlights the importance of different combinations of educational experiences that may help to reduce the adverse effects of disadvantage. Examples from the longitudinal Effective Provision of Pre-school, Primary and Secondary Education (EPPSE 3+-16) research programme highlight the importance of children's early years' experiences, including the role of the early years home learning environment (HLE), and of pre-school experiences in England. High quality pre-school, in particular, has been shown to help protect against the adverse influences of disadvantage in the early years (Anders et al, 2011; Hall et al; 2009; 2010; 2013; Melhuish et al, 2008b; Sammons et al, 2008; 2011; Sylva et a, 2011).

The EPPSE research also points to the importance of attending an academically more effective primary school especially for disadvantaged children (Sammons et al, 2008; 2013; Anders et al; 2011). The combination of protective experiences is found to be important across different phases of education in order to promote better outcomes for more disadvantaged groups. Both pre-school quality and primary school academic

effectiveness are also shown to reduce the likelihood of SEN identification in later primary education (Anders et al, 2011; Taggart et al, 2006). Anders & Sammons (2015) provide examples of quantitative research in different contexts based on pre-school research in Germany and the EPPSE study in England to illustrate the way equity issues can be addressed in educational research.

The keynote will discuss findings from EPPSE and how the results have informed policy, particularly the use of pre-school to address disadvantage and promote equity. The importance of high quality pre-school for disadvantaged children is a particular finding with implications for enhancing equity through providing young children with a better start to primary school and promoting better outcomes cross different phases of education (Melhuish et al, 2008a; Sammons et al, 2004; 2008; 2011; Siraj-Blatchford et al, 2008; Sylva et al, 2010, 2011). High quality pre-school has the potential to ameliorate the adverse effects of a poor early HLE and to offer some protection against the effects of moving on into an academically less effective primary school. The EPPSE research thus points to the need to consider both the quality and combination of educational experiences for disadvantaged students as they progress through different phases of education. To promote greater equity disadvantaged children need high quality experiences in both pre-school and primary school and supportive environments in secondary school.

Finally, the presentation will use an example to highlight the role of different approaches to teaching mathematics for primary classes in England. It will discuss the notion of 'quality' in relation to new mastery mathematics approaches (based on the Singapore mastery methods) that have been adapted for the 'Inspire Maths' Oxford University Press (OUP) resources and professional development and outline findings from an RCT evaluation of an intervention in Grade 1 classes. Modest but significant positive effects have been identified for children in the intervention group. The mixed methods evaluation also provides evidence based on quantitative and qualitative observations of teachers' classroom practice and from observations of the professional development provided for teachers as well as teachers' perspectives obtained via interviews (Hall, Lindorff and Sammons, 2016). It has been argued that mastery maths approaches are likely to be especially beneficial in ensuring a secure grounding in maths and that this may be especially important for children from disadvantaged backgrounds to help narrow the equity gap in attainment. The evaluation was not able to collect data about the year 1 children's backgrounds, but further investigations may be able to test whether mastery approaches are associated with a narrowing of the equity gap as well as promoting better attainment overall.

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PRESENTATIONS FOR THE SYMPOSIUM OF THE PROMQE RESEARCH PROGRAM

Promoting Quality and Equity: a European Experimental Study

University House "Anastasios G. Leventis"

Seminar Room B108

Paper 1

A Dynamic Approach to School Improvement: The Theoretical Framework of the Study

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Introduction

- International evaluation studies reveal that the performance of students from disadvantaged background, both within and across countries, differs substantially from other students.
- PISA 2012 study revealed that across the OECD countries, approximately 20% of the youth is not equipped with the basic skills in mathematics.
  - 40% of the variation in student performance in mathematics is found **between schools** within a country.
- Students with low socio-economic status (SES) are twice as likely as their advantaged peers to be poor performers (Schleicher, 2014).
- Interventions aiming to improve the quality of underperforming schools are needed.

- Research shows that interventions supporting primary school students who are at risk have stronger effects than those addressing students at secondary school level (Scheerens & Bosker, 1997; Townsend, 2007).
- Various syntheses of effectiveness programs aiming to improve the attainment of primary students with low basic skills reveal that whole school interventions are more effective (e.g., Borman, Hewes, Overman, & Brown, 2003; Hattie, 2009).

The Dynamic Approach to School Improvement (DASI) – Main Features
- The DASI promotes the design of school improvement projects that are based on a theory which has been tested.
- The DASI has its own theoretical framework, ***the dynamic model of educational effectiveness*** (Creemers & Kyriakides, 2008) which refers to ***school factors*** that need to be considered in introducing a change since they are associated with student achievement.
- School stakeholders are those who take decisions on which improvement actions and tasks should be carried out.
- The ***Advisory and Research Team (A&Rteam)*** is expected to share its expertise and knowledge with practitioners and help them develop strategies and action plans that are in line with the knowledge-base.
- DASI emphasizes the role of school evaluation (especially its formative function) in improving the effectiveness status of the school.

The Dynamic Approach to School Improvement (DASI) (Creemers & Kyriakides, 2012)


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│  │  School Stakeholders         │◄──────►│  The Advisory and Research   │ │
│  │  (Teachers, Students,        │        │  Team (A&R Team)             │ │
│  │  Parents)                    │        │                              │ │
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┌─────────────────────────────────────────────────────────────────────────┐
│  A. Establishing clarity and consensus about the general aim of school    │
│     improvement: promoting student learning                               │
│                                                                           │
│  B. Establishing clarity and consensus about the aims of school           │
│     improvement: addressing school factors associated with learning       │
│                                                                           │
│  C. Conducting School Self Evaluation (SSE)                               │
│     • Collecting evaluation data                                          │
│     • Analysing evaluation data                                           │
│     • Identifying priorities for improvement                              │
│                                                                           │
│  D. Designing improvement strategies and action plans by considering the  │
│     knowledge base about the factors addressed                            │
│                                                                           │
│  E. Monitoring the implementation:      F. Measuring the impact of DASI:  │
│     formative evaluation                   summative evaluation           │
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The Dynamic Approach to School Improvement (DASI) – Main Steps

1. *Establishing clarity and consensus about the general aim of school improvement: considering student learning as the main function of the school*

   - It is important to start with a clear understanding of the destination and how improvement of quality in education will be achieved.
     - Student learning should be considered as the ultimate aim of any school improvement effort (Chapman & Fullan, 2007).

- Commitment to collaborative work needs to be established but it should be taken into account that it is difficult to reach consensus among all the participants.

2. *Establishing clarity and consensus about the aims of school improvement by addressing school factors which influence learning and teaching*
   - Presenting the dynamic model can assist school stakeholders' understanding of the necessity of developing a School Self-Evaluation (SSE) mechanism, which will collect data about each school factor and its dimensions.
   - School stakeholders should not only be aware of the factors that need to be addressed but they should also understand that addressing them can help them achieve better learning outcomes.

3. *Collecting evaluation data and identifying priorities for improvement*
   - Drawing on the expertise of the A&RTeam, analysis of the data can be conducted and its results will help school stakeholders identify priorities for improving the functioning of specific factors.
   - The improvement area has to be announced to the whole school community and comments/reactions should be considered in defining the area in a way that helps not only the teachers but also parents and students understand the factors that are addressed.

4. *Designing school improvement strategies and action plans by considering the available knowledge-base about the factor(s) addressed*
   - Members of the A&RTeam share their expertise and knowledge with school stakeholders, providing additional input to existing ideas, experiences and knowledge for the designing of the action plans.
   - The final decisions for the development of the action plans are taken by the school, based on their needs and abilities (Hofman, Hofman, & Gray, 2010).

5. *Monitoring the implementation of the improvement project through establishing formative evaluation mechanisms*

- School stakeholders develop internal evaluation mechanisms to monitor the progress of their improvement efforts.

- Exchange of ideas and experiences between school stakeholders and the A&RTeam may help school stakeholders agree on how to improve their action plans.

6. *Conduct a summative evaluation to measure the impact of DASI*

- School stakeholders (with the support of the A&RTeam) measure the impact of their improvement efforts upon the improvement of the functioning of school factors and upon the learning outcomes.

- Summative evaluation may help school stakeholders decide whether the factor(s) addressed have been substantially improved, and resultantly if a new priority for improvement and new action plans need to be developed.

- Improvement efforts in DASI are seen as continuous, cyclical in nature, and embedded in a wider process of the overall school development (Nevo, 1995; Scheerens, Glas, & Thomas, 2003).

The Dynamic Approach to School Improvement (DASI) – Experimental Studies

The impact of DASI on promoting quality in education

- During the last six years, four experimental studies have been conducted in order to identify the impact of DASI on promoting student learning outcomes.

1. The impact of a dynamic approach to professional development on teacher instruction and student learning: results from an experimental study (Antoniou & Kyriakides, 2011).

2. Searching for stages of teacher skills in assessment (Christoforidou, Kyriakides, Antoniou, & Creemers, 2014).

3. The impact of school self-evaluation upon student achievement: a group randomisation study (Demetriou & Kyriakides, 2012).

4. Using the dynamic model of educational effectiveness to design strategies and actions to face bullying (Kyriakides, Creemers, Muijs, Rekers-Mombarg, Papastylianou, Van Petegem, & Pearson, 2014).

Experimental studies investigating the impact of using DASI rather than participatory approaches that are based on practitioner's expertise and effects on student learning outcomes

Area of investigation	Impact on factors	Ultimate aims
1. Using DASI rather than the HA to offer INSET to primary teachers (n=130)	Only teachers employing DASI managed to improve their teaching skills	DASI had an impact on student achievement
2. Using DASI rather than the CBA to offer INSET course on assessment (n=240)	DASI had a stronger impact that CBA on improving assessment skills of teachers at stages 2, 3 and 4	DASI had an impact on student achievement
3. Using DASI to establish school self-evaluation mechanisms in primary schools (n=60)	Not examined since schools had to deal with different improvement areas	DASI had an impact on student achievement
4. Integrating DASI with research on bullying to help schools (n=79) in five European countries to establish strategies to face and reduce bullying	DASI had an impact on school factors	DASI had an impact on reducing bullying

1. Antoniou, P., & Kyriakides, L. (2011). The impact of a dynamic approach to professional development on teacher instruction and student learning: results from an experimental study. *School Effectiveness and School Improvement, 22*(3), 291-311.
2. Christoforidou, M., Kyriakides, L., Antoniou, P., & Creemers, B.P.M. (2014). Searching for stages of teacher skills in assessment. *Studies in Educational Evaluation*, *40*, 1-11.
3. Demetriou, D., & Kyriakides, L. (2012). The impact of school self-evaluation upon student achievement: a group randomization study. *Oxford Review of Education, 38*(2), 149-170.
4. Kyriakides, L., Creemers, B.P.M., Muijs, D., Rekers-Mombarg, L., Papastylianou, D., Van Petegem, P., & Pearson, D. (2014). Using the dynamic model of educational effectiveness to design strategies and actions to face bullying. *School Effectiveness and School Improvement, 25*(1), 83-104.

- Schools participating in these studies **were not situated in socially disadvantaged areas.**

- Given that early effectiveness studies were concerned with identifying ways to help schools in disadvantaged areas to achieve learning outcomes (Edmonds, 1979; Rutter et al., 1979), **it is important to find out whether DASI can help schools in these areas to become more effective.**

Purpose of the PROMQE Study

- This study aimed to investigate the use of the dynamic approach to school improvement (DASI) in primary schools from four European countries (Cyprus, England, Greece, and Ireland) to promote student learning outcomes in

mathematics *(quality)* and reduce the impact of the SES in the final student learning outcomes *(equity).*

In the next presentations:

- The intervention that took place in the four European countries and the methods used, will be presented in the next presentation (Paper 2).

- The main findings of the study and implications for research, policy and practice are outlined in the third presentation (Paper 3).

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Paper 2

Designing an Experimental Study to Measure the Impact of DASI on Quality and Equity

***Evi Charalambous[1], *Margarita Christoforidou[2],
Declan Fahie[3], Julia Griaznova[4], EvaggeliaTserpeli[5], Athanasios Verdis[5]**

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The Two Dimensions of Educational Effectiveness: Quality and Equity

In this study:

- *Quality:* Improving student learning outcomes in Mathematics.

- *Equity:*

  - Fairness
  - Reducing the impact of the students' socioeconomic background on their final learning outcomes.

  Educational Effectiveness

Methodology: Phase 1- *Development of measurement instruments and school guidelines*

1. *Measuring the functioning of the school level factors*
   - Development of a teacher questionnaire based on the questionnaire that was validated and used in previous effectiveness studies in Cyprus and in other European countries (e.g. Creemers & Kyriakides, 2010; Vanlaar et al., 2016).

2. ***Measuring student achievement in Mathematics***
- Construction of Mathematics tests for Grades 4, 5 and 6 by analysing each country's mathematics curricula.
- *Four Mathematics tests* were developed (*Grade 3 test*=beginning of Grade 4; *Grade 4 test*=end of Grade 4 and beginning of Grade 5; *Grade 5 test*=end of Grade 5 and beginning of Grade 6; *Grade 6 test*=end of Grade 6).

3. ***Measuring the socioeconomic background of the students***
- Development of a student questionnaire for measuring SES by using items from *TIMSS 2007 Background Student Questionnaire* (Olson, Martin, & Mullis, 2008).

4. ***Implementing DASI by designing school improvement strategies and action plans***
- Development of a handbook providing suggestions on action plans that could be developed in order to improve each aspect of the school policy for teaching and each aspect of the SLE.

Methodology: Phase 1- *Development of measurement instruments and school guidelines*

Overview of the sample of students and schools used for the validation study of the Mathematics tests in each country

Country	Number of Students					
	Grade 3	Grade 4	Grade 5	Grade 6	Total	Number of schools
Cyprus	180	90	111	100	481	5
Greece	73	184	140	167	564	6
England	110	111	117	128	466	4
Ireland	104	96	85	82	367	4
Total	467	481	453	477	1878	19

Methodology: Phase 2- *The intervention*

Participants:

- At the beginning of school year 2015-2016, a sample of *72 primary schools in socially disadvantaged areas* from all four countries (Cyprus, England, Greece, and Ireland) was selected using stratified sampling procedure.

- Specifically, 24 primary schools from Cyprus and 16 schools from each one of the other three European countries were selected.

- These schools were randomly split into two groups: the *experimental (n=36)* and the *control group (n=36).*

- All Grade 4, 5 and 6 students (n=5560) of the school sample participated in the study.

The treatment offered to the experimental group:

1. An **external seminar to the headteachers** of these schools was organized by each country team at the beginning of October 2015 (see step A and B of DASI).

2. **Administration of the Mathematics pre-tests** to all students of Grades 4, 5 and 6 (October-November 2015) (see step C of DASI).

3. **Administration of the teacher questionnaire** (see step C of DASI).
   - The analysis of data helped in generating scores for each one of the school factors of the dynamic model.
   - The Kendall's W non-parametric test (Kendall & Babington, 1939) was applied to determine whether there was consensus among the teachers' perceptions in regard to the functioning of the factors.
   - For each school, we were also in a position to identify factors which performed less well in comparison to others and propose improvement priorities.

4. Announcement of the results of the teacher questionnaire in staff meeting (November 2015).

5. The A&RTeam provided support to the schools to help them develop their actions plans addressing specific aspects of the domains that they were focusing on based on the handbook given to them (November-December 2015) (see step D of DASI).

6. A template of the **action plan** was also given to schools.
   o It was explicitly stated that the action plan should not only outline the **actions/activities** to be undertaken but it should also indicate the **person(s) responsible** for each activity, **who was involved,** the *timeframe* and the necessary *resources*.

7. Frequent monitoring of the implementation of the action plans (once every 6 weeks) was carried out from early December 2015 till May 2016 (step E of DASI).
   o A network within and across countries between the participating schools addressing the same factors was also developed in order to share experiences during the implementation of their school improvement strategies.

8. The implementation of DASI lasted for approximately eight months.

9. At the end of the school year (May-June 2016) each country team collected the final data from the experimental schools using the teacher questionnaire, the student questionnaire and the Mathematics tests to evaluate the impact of the intervention (see step F of DASI).

Sample of action plan to develop strategies at schools aiming to promote quality and equity

ACTION PLAN TO DEVELOP STRATEGIES AIMING TO PROMOTE QUALITY AND EQUITY AT MY SCHOOL	
School Name:	
Coordinator Name:	
Time Period:	
A. Focus of Strategies (put an X):	
Policy for creating the school learning environment (SLE) and actions taken for improving the SLE	
▪ Student behaviour outside the classroom	
▪ Collaboration and interaction between teachers	
▪ Partnership policy (i.e., relations of school with community, parents, and advisors)	
▪ Provision of sufficient learning resources to students and teachers	
School policy for teaching and actions taken for improving teaching practice	
▪ Quantity of teaching (time on task)	
▪ Provision of learning opportunities	
▪ Quality of teaching	
B. Action Plan (describe briefly the following):	
PLAN	**DEVELOP A PLAN**
	a) Brief description of the priority your school has chosen/strategy your school is developing or will develop (in general):
ACT	**IMPLEMENT THE PLAN**
	b) Specifically, at what stage are you concerning your strategy/priority? c) Who is involved at this stage? o in your school (besides yourself): o from outside/from the community (e.g., parents, in-service trainer, counsellors etc.): d) What is your time frame for this?
CHECK	**EVALUATE THE EFFECT OF THE PLAN**
	e) When and how will you evaluate your priority/strategy? o periodically (i.e. once a month): o at the end of the project/school year:
IMPROVE	**CONTINUE OR ADJUST THE PLAN**
	f) As a result of the evaluation, and if it is the case, what needs to be adjusted?

The role of the research team	The role of the school stakeholders
• Analyses the data of the initial measurement - Finds the three school factors that need to be improved the most. • Announces the results to the school staff during a meeting • Presents the school factors and stresses their importance in promoting quality and equity. • Presents templates of action plans. • Communicates regularly with the coordinator of the project (phone, email). • Visits school every 6 weeks to evaluate the implementation of the action plan. • Establishes a network among the experimental group schools for the exchange of ideas and experiences.	• Decide on which factors should their action plans focus on. • Inform the research team about the special needs and context of their school. • Nominate one person from the teacher body to act as a coordinator for the implementation of the project. • Design their action plans. • The coordinator keeps a log book and any other record which will inform the research team about the whole process of the implementation of their action plans. • Encourage involvement of parents and students irrespective of their background. • Communicate with other schools participating in the project to exchange ideas and experiences.

IMPROVEMENT AREA/AREAS IN CYPRUS SCHOOLS (EXPERIMENTAL GROUP)

SCHOOL 1	1. Provision of sufficient learning resources to students and teachers 2. Quality of teaching 3. Quantity of teaching
SCHOOL 2	1. Partnership policy
SCHOOL 3	1. Quality of teaching 2. Student behaviour outside the classroom
SCHOOL 4	1. Quantity of teaching 2. Quality of teaching
SCHOOL 5	1. Partnership policy 2. Provision of sufficient learning resources to students and teachers
SCHOOL 6	1. Quantity of teaching 2. Quality of teaching 3. Partnership policy
SCHOOL 7	1. Provision of learning opportunities

SCHOOL 8	1. Quality of teaching 2. Partnership policy
SCHOOL 9	1. Partnership policy
SCHOOL 10	1. Quality of teaching
SCHOOL 11	1. Quality of teaching
SCHOOL 12	1. Student behaviour outside the classroom 2. Quality of teaching

Methodology: Phase 2- *The intervention -Examples-*

- *Provision of sufficient learning resources to students and teachers*
    - Activities at school on Saturday mornings: Organized by the Parents' Association with the participation of volunteer teachers and invited lecturers
    - Development of school policy for homework (workload, type of tasks assigned, the role of parents etc.)

- *Student behaviour outside the classroom*
    - Development of a code of behavior for out of school visits
    - Mobile library, organized recreational activities during the break

- *Quality of teaching*
    - Co-teaching emphasizing on specific factors / Discussion and exchange of views and experiences on good practices
    - Exchange of visits and co-observations of teaching using specific observation tools during teaching.
    - Creation of a board presenting :
        - ✓ The definition of each effectiveness factor
        - ✓ Why it is vital to the learning process
        - ✓ Practical examples for each factor.

- *Partnership policy*
    - Closer cooperation with the Association of Parents: Parents' training program aiming to enhance the skills of parents about parenting and promote their involvement in their children's school experiences.

- ➢ More information on the action plans of the schools participating in the project (experimental group) will be given during the Workshop 2 (in Greek): *From*

theory to practice in school improvement: Making the connections by drawing on successful school practices

Handling schools of the control group:

1. Data from these schools were collected using the same measurement instruments as the ones in the experimental group.

2. The A&RTeam of each country provided feedback to these schools on the results that emerged from the teacher questionnaire, but ***without mentioning what their improvement priorities are.***
   - Each school of this group could use these results in an autonomous way and develop its own strategies and action plans.
   - No training was offered to these schools, so DASI was not implemented.

3. At the end of the school year each country team collected the final data from these schools using the same measurement instruments as the ones in the experimental group.

Methodology: Phase 3- Analysis of the data

- ***Equating of Mathematics tests*** (Hambleton, Swaminathan, & Rogers, 1991)*:* Since every student is completing two tests (pre and post), there is a need to generate comparable scores on Mathematics achievement using Item Response Theory (IRT) modelling.

- ***Multilevel regression analyses*** (Goldstein, 2003)*:* To measure the impact of DASI on promoting:
  a) Quality (increasing student achievement in Mathematics).
  b) Equity (reducing the impact of SES on student achievement).

- Both across and within country analyses were conducted to find out whether DASI can be used equally effectively in the participating countries.

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Appendix

TIMETABLE OF THE STUDY		
Study's Phases	Period / Months	Activities
A. Preparation of the study	September – November 2014	Construction of the teacher questionnaire.
	January – April 2015	Construction of the Mathematics tests of Grades 4, 5 and 6 (pre- and post- tests) and of the student questionnaire.
	May – June 2015	Validation study of the Mathematics tests.
	April – September 2015	Developing the material (handbook) for implementing DASI to schools.
	September 2015	Sample selection
	September 2015	Final version of the measurement instruments.
	October 2015	Final version of the handbook in English and Greek.
B. Main study – The intervention	October 2015	Random assignment of schools into the experimental and control groups.
	October 2015	Offering an external seminar to the headteachers of the schools of the experimental group based on the main steps of DASI.
	October – November 2015	Initial measurements of students' achievement in Mathematics and of the functioning of each school's policy.
	November 2015	Reports to each school of the experimental group based on the results of the teacher questionnaire and identification of their improvement areas. Control group schools received only the results of the teacher questionnaire.
	November – December 2015	Development of action plans in the experimental group schools by using the handbook.
	December 2015 – May 2016	Monitoring the implementation of the action plans – Providing feedback (experimental group schools)
	May – June 2016	Final measurements of students' achievement in Mathematics, of students' SES and of the functioning of each school's policy.
C. Data Analysis	July – September 2016	Entering the data from pre- and post- measures.
	September - October 2016	Testing the validity and reliability of the data collected.
	November 2016 – January 2017	Across- and within- country analyses (measuring the impact of the implementation).

Paper 3

Lessons Learnt from the European Study

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Methodology: Analysis of the data

Step 1:

▸ To measure the impact of DASI on promoting: Quality (increasing student achievement in Mathematics).

▸ Multilevel analyses were conducted to determine whether students of the experimental group had a greater progress than the control group (see Table 1).
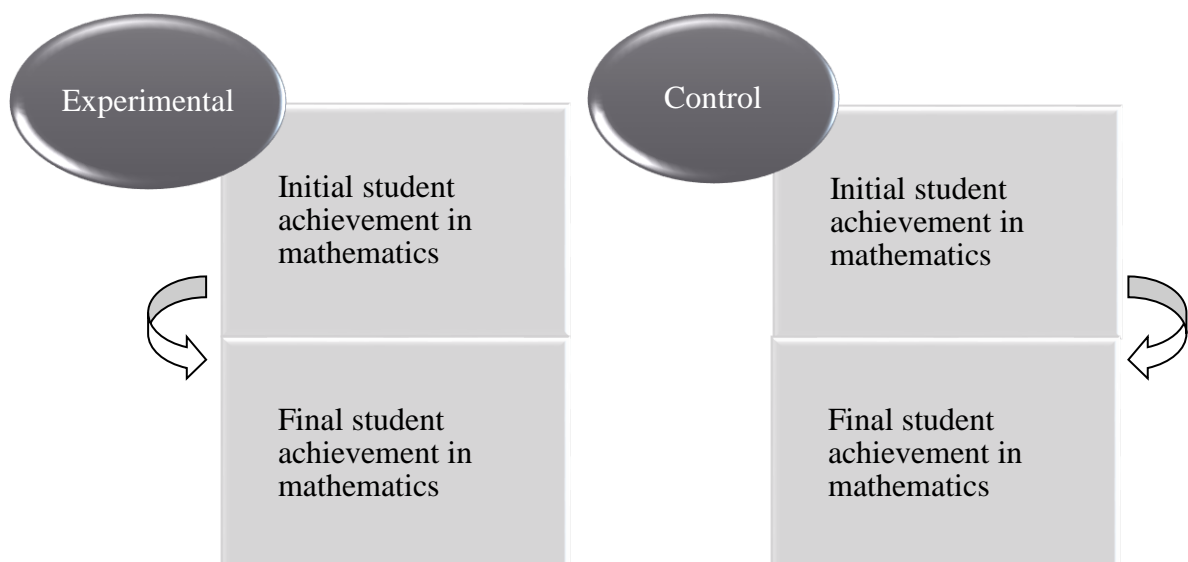
Table 1: Parameter estimates and (standard errors) for the analysis of mathematics achievement (students within classes, within schools)

Factors	Model 0	Model 1	Model 2
Fixed part			
Intercept	0.77 (.04)	0.73 (.07)	0.69 (.05)
Student level			
Prior achievement		0.57 (.01)	0.57 (.01)
Gender (0=boy, 1=girl)		-0.07 (.02)	-0.07 (.03)
SES		0.18 (.02)	0.18 (.02)
Class level			
Average prior achievement		0.07 (.04)*	0.06 (.04)*
School level			
Average prior achievement		0.28 (.09)	0.21 (.09)
DASI (0=control, 1=experimental)			0.19 (.05)
Countries			
Greece		-0.11 (.11)*	-0.10 (.11)*
England		0.29 (.11)	0.28 (.12)
Ireland		-0.13 (.09)*	-0.12 (.08)*
Variance components			
School	16.3 %	10.5 %	6.1 %
Class	23.5 %	17.3 %	13.2 %
Student	60.2 %	35.3 %	35.1 %
Explained		36.9 %	45.6 %
Significant test			
X^2	17936	13794	13768
Reduction		4142	26
Degrees of freedom		5**	1
p-value		.000	.000

* Non statistically significant effect at .05 level

** The models presented in this table were estimated without the variables that did not have a statistically significant effect at 0.05 level.

Measuring the impact of DASI on promoting Quality: Main Results arising from Table 1

▶ Student level factors such as prior achievement, gender and SES were found to have a statistically significant effect on student achievement in mathematics

▶ Student prior achievement at school level was also found to affect final achievement

▶ Cyprus was treated as a reference (or baseline) group and three dummy variables indicating the other countries participating in the program (i.e., Greece, England and Ireland) were entered into model 1.

  ▶ England was found to have a higher achievement in mathematics, however, one should bear in mind that the school sample is not representative of all primary education schools in each country. In this project, the school population regarded schools in socially disadvantaged areas.

▶ Students of the experimental schools that implemented DASI managed to obtain **better results** than those the control schools.

Step 2:

Both across and within country analyses were conducted to find out whether DASI can be used equally effectively in the participating countries.

Table 2 shows that small differences in the effect of DASI were observed in the four participating countries.

Table 2: Effect of using the DASI approach on student achievement gains in mathematics

Country	Effect	Pooled *SD*	Cohen's *d*
Cyprus	0.24	0.73	0.33
Greece	0.28	0.67	0.42
England	0.16	0.71	0.23
Ireland	0.32	0.84	0.38
Across countries	0.19	0.62	0.31

Step 3:

- ▶ To measure the impact of DASI on promoting: ***Equity*** (reducing the impact of SES on student achievement).

- ▶ Multilevel analyses were conducted to examine the impact of SES on student achievement before and after the implementation of DASI in both groups (i.e., experimental and control)

Table 3: Parameter Estimates and (Standard Errors) for the analysis of the impact of SES on student achievement in mathematics (students within classrooms within schools)

Factors	Experimental Group		Control Group	
	Pre-measure	Post-measure	Pre-measure	Post-measure
Fixed part				
Intercept	0.70 (.12)	0.73 (.07)	0.67 (.11)	0.74 (.07)
Student level				
Prior achievement	NA*	0.55 (.01)	NA*	0.59 (.02)
Gender (0=boy, 1=girl)	-0.08 (.03)	-0.07 (.03)	-0.09 (.04)	-0.08 (.03)
SES	0.30 (.00)	0.11 (.02)	0.28 (.00)	0.23 (.02)
Class level				
Average prior achievement	NA*	0.09 (.04)	NA*	0.08 (.03)
School level				
Average prior achievement	NA*	0.24 (.08)	NA*	0.18 (.08)
Countries				
Greece	-0.13 (.12)**	-0.14 (.10)*	-0.14 (.11)**	-0.11 (.09)*
England	-0.05 (.11)**	0.29 (.10)	-0.04 (.10)**	0.28 (.10)
Ireland	0.31 (.13)	-0.14 (.08)*	0.35 (.12)	-0.15 (.09)*
Variance components				
School	13.2 %	10.2 %	14.8 %	10.9 %
Class	24.7 %	17.1 %	25.6 %	17.5 %
Student	42.5 %	35.0 %	41.8 %	34.1 %
Explained	19.6 %	37.7 %	17.8 %	37.5 %
Significant test				
X^2	11878	13892	10098	12144
Reduction	231.9	571.9	182.4	504.2
Degrees of freedom***	3	6	3	6
p-value	.001	.001	.001	.001

* There was no measure of prior achievement that could be used in analyzing student achievement at the beginning of the intervention.

** Non statistically significant effect at .05 level

*** The models presented in this table were estimated without the variables that did not have a statistically significant effect at 0.05 level.

Measuring the impact of DASI on promoting Equity: Main Result arising from Table 3

▶ At the end of the intervention, the impact of SES on student achievement in mathematics was smaller in schools implementing DASI.

Conclusions

1. Schools implementing DASI managed to improve student achievement in mathematics more than schools of the control group.

   ▶ DASI had an impact on the quality dimension

2. Small differences in the effect of DASI were observed in the four participating countries.

   ▶ DASI was found to be more effective in some countries than others and this should be further studied.

3. The impact of SES was similar at the beginning of the intervention in both, the experimental and control schools.

▶ At the end of the intervention, the impact of SES on student achievement in mathematics was smaller in schools implementing DASI.

   → It can be argued that DASI had an impact also on the equity dimension

Policy Implications – Questions Raised

1. What kind of actions and/or policies the state can undertake to promote both quality and equity in schools in Cyprus?

   ▶ Do you consider that policies and/or existing mechanisms (e.g., teacher placements, financial support to schools, provision of learning and other resources, staff training) need to be modified to improve the effectiveness of our education system in terms of the equity dimension?

2. The study reveals the need to develop policies and actions at the school level aimed at improving the teaching and learning environment of the school.

   ▶ To what extent are our schools ready to undertake this role and how could the Ministry of Education support schools to design, implement and evaluate programs to improve their effectiveness?

3. What actions can the MoEC, the organized bodies and the research community take in order to move on to a model for designing policies, where each proposed reform will be based on a theoretical framework that is evidence-based and theory-driven?

   ▶ This model suggests that any reform needs to be evaluated to identify its impact on improving the effectiveness of our education system in terms of quality and equity.

   ▶ If you agree with this view, how do you consider that policies aiming to provide equal educational opportunities, such as the Action for School and Social Inclusion (ΔPA.Σ.E.), should be evaluated?

PARALLEL WORKSHOPS

Descriptions in English

14:30 – 16:00	
Workshop 1 (in Greek) Building ΧΩΔ02 Room 007	**Workshop 2 (in Greek)** Building ΧΩΔ02 Room 008
Improving learning outcomes for all students: school level practices Dr. Andreas Kythreotis Dr. Costas Michael Dr. Georgia Pashiardi Maria Chatzipieri	**From theory to practice in school improvement:** **Making the connections by drawing on successful school practices** Dr. Panayiotis Antoniou Andreas Tsolakis George Siambis Dr. Tonia Skordi George Koxenoglou Andrie Michael
Workshop 3 (in Greek) Building ΧΩΔ02 Room 009	**Workshop 4 (in English)** Building ΧΩΔ02 Room 110
The role of the Advisory and Research Team in supporting school stakeholders to use the dynamic approach to school improvement: **A professional development program** Prof. Leonidas Kyriakides Dr. Dona Papastylianou	**Developing theoretically driven and empirically based educational policies: Needs and challenges** Dr. Charalambos Y. Charalambous Dr. Demetris Demetriou

Workshop 1

Improving learning outcomes for all students: school level practices

Dr. Andreas Kythreotis, Inspector of Elementary Education

Dr. Costas Michael, Headteacher 3rd Elementary School of Lakatamia, Ayios Georgios

Dr. Georgia Pashiardi, Headteacher Ayios Demetrios Elementary School

Maria Chatzipieri, Headteacher 6th Elementary School of Lakatamia - Ayios Stylianos

The main purpose of this workshop is to examine good practices on educational policy that focus on the role of the school units for improving the quality of teaching aiming to help all types of students. Initially, there will be a presentation of crucial factors of educational policy referring to actions on the school level. Those factors were found to be significant through the investigation of two evidence-based programs of educational effectiveness and school improvement. Adjoining to the presentation of the factors, the cases of two elementary schools will be presented, as interventions for the improvement of their students' learning outcomes occurred. The school units had an active role in the process, as they were encouraged by the research team to design and applicate their own policies on specific issues related to their school unit. Next, there will be a discussion intending to give the chance to participants to exchange knowledge, experiences, and opinions. At the end of the workshop, it is expected from the participants to enrich their knowledge on practices that refer to issues of educational policy that can prove beneficial for the improvement of learning outcomes in their school units.

Workshop 2

From theory to practice in school improvement:

Making the connections by drawing on successful school practices

Dr. Panayiotis Antoniou, Faculty of Education, University of Cambridge

Andreas Tsolakis, Headteacher, 3rd Elementary School of Ayios Dometios (2015-2016)

George Siambis, Headteacher, 3rd Elementary School of Ayios Dometios (2016-2017)

Dr. Tonia Skordi, Teacher, 3rd Elementary School of Ayios Dometios

George Koxenoglou, Headteacher, 2nd Elementary School of Kaimakli (KB)

Andrie Michael, Headteacher, 2nd Elementary School of Dali

This workshop brings together theory and practice in relation to school improvement approaches that promote both quality and equity in schools. The participants will have the chance to discuss the experiences of school headteahers and teachers that have successfully implemented the Dynamic Approach to School Improvement in their schools during the last year in Cyprus and to reflect on the facilitators and barriers that they have encountered, such as time constraints and resistance to change. They will also have the chance to develop a practical framework, drawing on theory driven and evidence based approaches, that they could put forward in their efforts to initiate change and improve the quality of teaching and student outcomes in their schools.

Workshop 3

The role of the Advisory and Research Team in supporting school stakeholders to use the dynamic approach to school improvement:

A professional development program

Dr. Leonidas Kyriakides, Department of Education, University of Cyprus

Dr. Dona Papastylianou, Department of Philosophy-Pedagogy-Psychology, Section of Psychology, National and Kapodistrian University of Athens

This workshop will present the dynamic approach to school improvement (DASI) and will attempt to link it with the systemic approach in order to facilitate its effective implementation at schools taking into account teachers' personal and social needs. More specifically, this workshop will focus on the skills that an advisory and research team should have in supporting schools to implement DASI and the use of these skills for professional development purposes.

Workshop 4
Developing theoretically driven and empirically based educational policies:
Needs and challenges

Dr. Charalambos Y. Charalambous, Department of Education, University of Cyprus

Dr. Demetris Demetriou, Open University Cyprus

In this workshop participants will have the opportunity to discuss the importance and the benefits of developing educational policies that are theoretically driven and informed by relevant research findings. Several reasons (e.g., educational, social, and political) necessitate developing such policies both within and outside Europe. Because often times this approach of developing educational policies is hard to materialize, the workshop participants will be encouraged to reflect on attempts undertaken within their countries to develop such policies and propose practical and realistic measures that contribute toward making this approach more feasible. Toward this end, we will reflect on the main challenges associated with developing such policies. Such challenges include that educational research is not always realistic and authentic or grounded in actual educational needs and challenges; research findings are not always accessible and comprehensible by educational policymakers; and educational systems might be resistant to change thus failing to adopt/adapt educational research findings.

PARALLEL WORKSHOPS

Descriptions in Greek

14:30 – 16:00	
Εργαστήρι 1 (στα ελληνικά) Κτήριο ΧΩΔ02 Αίθουσα 007	**Εργαστήρι 2 (στα ελληνικά)** Κτήριο ΧΩΔ02 Αίθουσα 008
Βελτίωση της μάθησης για όλα τα παιδιά: Η πράξη στο επίπεδο του σχολείου Δρ. Ανδρέας Κυθραιώτης Δρ. Κώστα Μιχαήλ Δρ. Γεωργία Πασιαρδή Μαρία Χατζηπιερή	**Βελτίωση της ποιότητας και της ισότητας στην εκπαίδευση: Επιτυχημένες πρακτικές από σχολικές μονάδες στην Κύπρο** Δρ. Παναγιώτης Αντωνίου Ανδρέας Τσολάκης Γιώργος Σιαμπής Τόνια Σκορδή Γιώργος Κοξένογλου Άντρη Μιχαήλ
Εργαστήρι 3 (στα ελληνικά) Κτήριο ΧΩΔ02 Αίθουσα 009	**Εργαστήρι 4 (στα αγγλικά)** Κτήριο ΧΩΔ02 Αίθουσα 110
Ο συμβουλευτικός ρόλος της ομάδας στήριξης σχολείων που εφαρμόζουν τη δυναμική προσέγγιση σχολικής βελτίωσης: Ανάπτυξη και επιμόρφωση προσωπικού Δρ. Λεωνίδας Κυριακίδης Δρ. Ντόνα Παπαστυλιανού	**Αναπτύσσοντας Εκπαιδευτική Πολιτική που να Υποστηρίζεται από Θεωρητική Θεμελίωση και Εμπειρική Τεκμηρίωση: Αναγκαιότητα και Δυσκολίες** Δρ. Χαράλαμπος Γ. Χαραλάμπους Δρ. Δημήτρης Δημητρίου

Εργαστήρι 1
Βελτίωση της μάθησης για όλα τα παιδιά: Η πράξη στο επίπεδο του σχολείου

Δρ. Ανδρέας Κυθραιώτης, Επιθεωρητής Δημοτικής Εκπαίδευσης

Δρ. Κώστα Μιχαήλ, Διευθυντής Σχολείου Δημοτικής Εκπαίδευσης

Δρ. Γεωργία Πασιαρδή, Διευθύντρια Δημοτικού Σχολείου Αγίου Δημητρίου

Μαρία Χατζηπιερή, Διευθύντρια Δημοτικού Σχολείου Λακατάμειας Στ´-Αγίου Στυλιανού

Σκοπός του εργαστηρίου είναι η εξέταση καλών πρακτικών εκπαιδευτικής πολιτικής της σχολικής μονάδας που στοχεύουν στη βελτίωση της ποιότητας της μάθησης για όλα τα παιδιά. Αρχικά θα παρουσιαστούν σημαντικοί παράγοντες εκπαιδευτικής πολιτικής σε μια σχολική μονάδα όπως έχουν εντοπιστεί σε δύο διεθνώς επιστημονικά αναγνωρισμένα προγράμματα σχολικής αποτελεσματικότητας και σχολικής βελτίωσης. Στη συνέχεια, θα παρουσιαστούν ενδεικτικές περιπτώσεις δύο σχολείων στην Κύπρο όπου έγιναν παρεμβάσεις για βελτίωση της μάθησης μέσω της χάραξη και εφαρμογής εκπαιδευτικής πολιτικής από τις συγκεκριμένες σχολικές μονάδες. Στη συζήτηση που θα ακολουθήσει, θα επιδιωχθεί η ανταλλαγή γνώσεων, εμπειριών και απόψεων μεταξύ των συμμετεχόντων. Με το τέλος του εργαστηρίου αναμένεται οι συμμετέχοντες να εμπλουτίσουν τόσο τις γνώσεις όσο και τις πρακτικές τους σε θέματα εκπαιδευτικής πολιτικής των σχολικών μονάδων, τα οποία μπορούν να βελτιώσουν τη μάθηση στα σχολεία τους.

Βελτίωση της ποιότητας και της ισότητας στην εκπαίδευση:
Επιτυχημένες πρακτικές από σχολικές μονάδες στην Κύπρο

Δρ. Παναγιώτης Αντωνίου, University of Cambridge, Faculty of Education

Ανδρέας Τσολάκης, Διευθυντής, Δημοτικό Σχολείο Αγίου Δομετίου Γ΄(2015-16)

Γιώργος Σιαμπής, Διευθυντής, Δημοτικό Σχολείο Αγίου Δομετίου Γ΄ (2016 -17)

Δρ. Τόνια Σκορδή, Εκπαιδευτικός και συντονίστρια των δράσεων, Δημοτικό Σχολείο Αγίου Δομετίου Γ΄

Γιώργος Κοξένογλου, Διευθυντής, Δημοτικό Σχολείο Καϊμακλίου Β (ΚΒ)

Άντρη Μιχαήλ, Διευθύντρια, Δημοτικό Σχολείο Ιδαλίου Β΄

Το εργαστήριο αποσκοπεί στη σύζευξη της θεωρίας και πράξης αναφορικά με την προώθηση τόσο της ποιότητας όσο και της ισότητας στις σχολικές μονάδες. Πιο συγκεκριμένα, στο εργαστήριο θα έχουμε την ευκαιρία να συζητήσουμε τις εμπειρίες που αποκόμισαν συγκεκριμένες σχολικές μονάδες που εφάρμοσαν τη Δυναμική Προσέγγιση Σχολικής Βελτίωσης κατά το τρέχων σχολικό έτος, για τα θετικά και αρνητικά στοιχεία που βίωσαν και τους τρόπους με τους οποίους προσπάθησαν ή/και κατάφεραν να ξεπεράσουν τα εμπόδια που είχαν να αντιμετωπίσουν στις προσπάθειες τους, όπως η έλλειψη χρόνου και η αντίσταση στην αλλαγή. Με το τέλος του εργαστηρίου αναμένεται ότι οι συμμετέχοντες θα μπορούν να συνδυάσουν τόσο εισηγήσεις από τη διεθνή βιβλιογραφία, όσο και πρακτικές εισηγήσεις από συγκεκριμένες σχολικές μονάδες για την ανάπτυξη και επιτυχή εφαρμογή παρεμβατικών προγραμμάτων που αποσκοπούν στη βελτίωση της ποιότητας και ισότητας στα σχολεία τους.

Εργαστήρι 3

Ο συμβουλευτικός ρόλος της ομάδας στήριξης σχολείων που εφαρμόζουν τη δυναμική προσέγγιση σχολικής βελτίωσης:
Ανάπτυξη και επιμόρφωση προσωπικού

Δρ. Λεωνίδας Κυριακίδης, Τμήμα Επιστημών της Αγωγής, Πανεπιστήμιο Κύπρου

Δρ. Ντόνα Παπαστυλιανού, Τμήμα Φιλοσοφίας, Παιδαγωγικής και Ψυχολογίας, Τομέας Ψυχολογίας, Εθνικό και Καποδιστριακό Πανεπιστήμιο Αθηνών

Το εργαστήριο αποσκοπεί στην παρουσίαση της δυναμικής προσέγγισης σχολικής βελτίωσης (DASI) και στη διασύνδεσή της με μία συστημική προσέγγιση για αποτελεσματική εφαρμογή της στα σχολεία, λαμβάνοντας υπόψη το συγκείμενο, τις ανάγκες και δυνατότητες κάθε σχολικής μονάδας. Ειδικότερα, το εργαστήριο θα επικεντρωθεί στις δεξιότητες που πρέπει να κατέχει μία συμβουλευτική και ερευνητική ομάδα στη στήριξη σχολείων που εφαρμόζουν τη δυναμική προσέγγιση σχολικής βελτίωσης και στην αξιοποίηση αυτών για περαιτέρω επιμόρφωσή τους.

Εργαστήρι 4
Αναπτύσσοντας Εκπαιδευτική Πολιτική που να Υποστηρίζεται από Θεωρητική Θεμελίωση και Εμπειρική Τεκμηρίωση: Αναγκαιότητα και Δυσκολίες

Δρ. Χαράλαμπος Γ. Χαραλάμπους, Τμήμα Επιστημών της Αγωγής, Πανεπιστήμιο Κύπρου

Δρ. Δημήτρης Δημητρίου, Ανοικτό Πανεπιστήμιο Κύπρου

Οι συμμετέχοντες στο εργαστήριο αυτό θα έχουν την ευκαιρία να συζητήσουν την ανάγκη ανάπτυξης εκπαιδευτικής πολιτικής που να υποστηρίζεται από τα πορίσματα της εκπαιδευτικής έρευνας καθώς και τα οφέλη που προκύπτουν με/από αυτή την προσέγγιση. Συγκεκριμένα, η ανάπτυξη εκπαιδευτικής πολιτικής που να υποστηρίζεται από θεωρητική θεμελίωση και εμπειρική τεκμηρίωση προβάλλεται έντονη στις χώρες-μέλη της Ευρωπαϊκής Ένωσης αλλά και παγκόσμια για πολλούς λόγους (εκπαιδευτικούς, κοινωνικούς και πολιτικούς). Ωστόσο, αρκετές φορές συναντώνται εμπόδια στην εφαρμογή της πιο πάνω προσέγγισης. Ως εκ τούτου, οι συμμετέχοντες θα κληθούν να αναστοχαστούν επί αντίστοιχων προσπαθειών εφαρμογής της προσέγγισης αυτής στη χώρα τους και προτείνουν πρακτικές και ρεαλιστικές λύσεις για υλοποίηση της προσέγγισης αυτής. Προς τον σκοπό αυτό, θα συζητηθούν, επίσης, οι κυριότερες δυσκολίες υλοποίησης της προσέγγισης αυτής συμπεριλαμβανομένων της ανάγκης η έρευνα να καταστεί πιο ρεαλιστική και αυθεντική, της σημασίας της διασύνδεσης της έρευνας με τις εκπαιδευτικές ανάγκες/απαιτήσεις, της ανάγκης τα πορίσματα της έρευνας να είναι πιο εύκολα προσβάσιμα και της αντίστασης των εκπαιδευτικών συστημάτων σε αλλαγές, γεγονός που δυσχεραίνει την ενσωμάτωση/αφομοίωση των πορισμάτων της έρευνας στο εκπαιδευτικό γίγνεσθαι.

PARALLEL PAPER PRESENTATIONS: OVERVIEW

Session A

	Building ΧΩΔ02 – Room 007	
No	**Title of paper**	**Authors**
1	School characteristics moderating the relation between student socio-economic status and mathematics achievement in grade 8. Evidence from 50 countries in TIMSS 2011	Jan-Eric Gustafsson, Trude Nilsen
2	One Mission, Two Realities: What Works from Educational Research vs. What Happens in Educational Practice - Implications for Research, Policy, and Practice	Annemarie Neeleman
3	PROMQE: Voices from a Qualitative Study in Ireland	Catherine Merrigan, Dympna Devine, Declan Fahie
4	Exploring barriers and facilitators in implementing the Dynamic Approach to school improvement: An exploratory case study of a primary school in England	Panayiotis Antoniou, Julia Griaznova
5	School Improvement Practice – A Review and a Reconceptualization from the Perspectives of Educational Effectiveness and Educational Policy	David Reynolds, Annemarie Neeleman

Session B

	Building ΧΩΔ02 – Room 008	
No	**Title of paper**	**Authors**
1	School and family effects on 'reading for pleasure': can schools make up for family differences?	Despina Economou, Thekla Afantiti Lamprianou, Iasonas Lamprianou
2	Women and educational administration: the case of Western Macedonia	Dimitris T. Zachos, Eleni Katidou
3	Equal opportunities in education: the role of the curriculum	Eleni Damianidou, Helen Phtiaka
4	Measuring quality and equity in special education units: an action research	Eleni Damianidou, Helen Phtiaka, Kyriaki Antreou, Irene Kasapi, Sofia Georgiou,

Session C

	Building ΧΩΔ02 – Room 009	
No	**Title of paper**	**Authors**
1	Action Research for Teacher Professional Learning: Focusing on Resilient Students with Migrant Background in the Cyprus Educational System	Pavlina Hadjitheodoulou – Loizidou, Marianna Fokaidou
2	Implementing changes in schools for school improvement: evidence from interviews with 12 newly appointed Cypriot heads	Valentina Theodosiou
3	Improving the intercultural school: Reflections from Cypriot schools	Christina Hajisoteriou, Panayiotis Angelides, Christiana Karousiou,
4	School policy on partnership and stakeholders' actions. A longitudinal study to find reciprocal links between policy and actions.	Eliana Maltezou

Session D

	Building ΧΩΔ02 – Room 110	
No	**Title of paper**	**Authors**
1	Enhancing theoretical premises on the nature of students' mental representation of science concepts: The case of Force	Julie Vaiopoulou, George Papageorgiou, Dimitrios Stamovlasis,
2	Investigating the dynamic nature of learning and teaching processes: Methodological issues and research paradigms	Dimitrios Stamovlasis
3	Enhancing quality in music education through collaborations of schools with symphony orchestras	Leoni Hadjithoma
4	Multiliteracies Affinity Practice (MAP): Design and Evaluation of a Professional Development Programme to Support Multiliteracies-based Teaching and Learning in Cypriot Primary Schools	Stefania Savva
5	Promoting Positive Social Behavior Through Physical Education in Primary School in Cyprus	Valentina Georgiou

Session E

	Building XΩΔ02 – Room 111	
No	**Title of paper**	**Authors**
1	Research methods and the spatial turn in education	Athanasios Verdis
2	Parent Associations in Greece and their Potential Contribution in School Implementing DASI: Challenges and Possible Solutions	Evangelia Tserpeli
3	Improving preschool mathematics education classroom practice quality by establishing links with research	Maria Angela Shiakalli, Konstantinos Zacharos
4	The effect of teacher effectiveness and home learning environment on student achievement gains in mathematics: a longitudinal study	Andria Dimosthenous, Leonidas Kyriakides

PARALLEL PAPER PRESENTATIONS

Paper 1

School characteristics moderating the relation between student socio-economic status and mathematics achievement in grade 8. Evidence from 50 countries in TIMSS 2011

Jan-Eric Gustafsson[1], Trude Nilsen[2]

[1]University of Gothenburg, [2]University of Oslo

The study aimed to identify school characteristics that can reduce the within-school relation between socio-economic status (SES) and achievement, in order to improve equity of educational outcomes. Data from 50 countries participating in the Trends in International Mathematics and Science Study (TIMSS) conducted in 2011, focusing on Grade 8 mathematics, was analysed. Two-level random slopes models were fitted at school- and student-levels to investigate the influence of quality and quantity of instruction, school climate, and school SES on the within-school regression slope for achievement on SES. School SES was the strongest determinant of slope differences across schools and educational systems.

Extended summary

A relatively strong relation between students' socio-economic status (SES) and achievement has been established in numerous studies, and this relation continues to persist (OECD, 2013). In order to increase educational equity, the strength of the SES-achievement relation needs to be reduced. To do that, school characteristics that reduce the relation between SES and achievement need to be identified.

One challenge when investigating effects of school factors is that the amount of variation in the investigated factors often is restricted within any particular country. However, taking advantage of international comparative large-scale data may increase the possibility of identifying factors influencing the strength of the relationship between SES and achievement. The current study is based on data from 50 countries participating in the Trends in International Mathematics and Science Study (TIMSS) conducted in 2011, focusing on outcomes in the area of mathematics. We use these data to investigate the influence of quality and quantity of instruction, school climate, and school SES on the relation between SES and achievement.

There are basically two ways in which educational factors can cause SES to be more or less strongly related to educational achievement. First, such factors may have differential effects on low- and high-SES students. For example, if instructional quality has a stronger positive effect on the achievement of low-SES than high-SES students, there is a differential or interactive effect. Another way to phrase this is to say that instructional quality moderates the relation between SES and achievement. The second way that educational factors may influence the observed relationship between SES and achievement is through a correlation between SES and educational factors. For example, if low-SES students tend to be provided with instruction of lower quality than high-SES students, this will cause their level of achievement to be lower. The effect will be a function both of the amount of difference in level of quality of instruction between the SES-groups, and of the extent to which quality of instruction is related to achievement. These are additive effects of SES and instructional quality, and we conceive of instructional quality as a factor which mediates the effect of SES on achievement.

Numerous studies have concluded that students who attend low-SES schools perform worse than students who attend high-SES schools, even after controlling for students' family background and their ability upon entry to school (e.g., Liu, Van Damme, Gielen, & Van Den Noortgate, 2015). Thus, there are reasons to assume that the disparity in educational outcomes of different schools is partially determined by differences in the social and institutional factors that are associated with school SES, over and above effect of individual SES.

Several studies indicate that instructional quality (e.g., Finn & Achilles, 1999) and quantity (Scheerens, 2014), and aspects of school climate (Kyriakides, Creemers, Antoniou & Demetriou, 2010; Uline & Tschannen-Moran, 2008) lower the relation between SES and achievement. The hypothesis that SES is involved in mediating relations has also been supported and it has typically been concluded that low-SES students are provided with less quantity of instruction (Schmidt et al. (2015), instruction of lower quality (Rjosk et al., 2014) and poorer school climate than are high-SES students. These results suggest that improving school climate and the quality and quantity of instruction for low-SES students could have substantial effects on the equity of educational outcomes.

In order to investigate these possible effects of school-factors on equity we pose the following research question: To what extent can the within-school relation between SES and mathematics achievement be moderated by school characteristics reflecting School-SES, quality and quantity of instruction, and school climate?

Method

Data from the 50 countries (N = 282 737 students) that participated in grade 8, TIMSS 2011, was analyzed using Mplus 7.3. Two-level (students and schools) random slopes, multiple-group structural equation models were specified to investigate whether school

characteristics moderate the within-school relationship between student SES and achievement.

SES was measured on a scale derived from students' ratings of the number of books at home, their parents' highest education and home study supports. Instructional Quality was also assessed with student ratings (e.g. "I know what my teacher expects me to do", and "My teacher is easy to understand").

Principals' ratings were used to measure instructional quantity (time allocated for instruction) and school climate (School Emphasis on Academic Success and a safe and orderly climate).

The Human Development Index (HDI) was added to the dataset at the country level.

Results and discussion

The school factors reduced the strength of SES in 22 cases, mainly high HDI countries. The strongest determinant was School-SES. For 10 educational systems, School-SES had a significant and positive influence on the within-school slope and for equally many educational systems it was significant and negative. A positive coefficient implies that a high level of school-SES is related to a steeper within-school SES-achievement relation, which indicates that the system is anti-compensatory with respect to student SES. A negative coefficient indicates, in contrast, that the educational system is compensatory with respect to student SES.

We only found significant moderation in four educational systems for quantity of instruction and in five systems for quality of instruction. For quantity of instruction all coefficients were negative, indicating a compensatory effect, while for quality of instruction the coefficient was negative in three cases and positive in two cases. Quality of instruction, in contrast, generated both compensatory and anti-compensatory effects. A compensatory effect may be hypothesized for school systems with policies emphasizing equity, while an anti-compensatory effect may be expected in elitist educational systems where high-quality teaching is allocated to high-achieving students.

For school-climate the moderation was significant in six educational systems, with a compensatory effect in four cases. All these educational systems had a high level of HDI, which suggests that the compensatory effect of school climate varies as a function of level of human development.

The results showed school-SES to be the most powerful predictor of slope variability. The group of educational systems where school-SES was anti-compensatory was primarily composed of developing countries, while the group of systems where school-SES was compensatory included East Asian and Eastern European/former Soviet Union educational systems.

One hypothesis is that the anti-compensatory effect of school-SES in certain educational systems is due to a higher level of quality and quantity of instruction in

high SES schools, a part of which may be due to compositional SES effects, and a part of which may be due to unequal distribution of access to good education across different social groups.

One possible reason for why school-SES has a compensatory effect in certain school systems is that there is less of organizational differentiation of students across different schools in these systems. The more heterogeneous school composition of students in comprehensive school systems would imply that there is less room for school-SES to exert compositional effects and to relate to unequal access to good education.

The results also showed that the moderation coefficient for School-SES correlated highly negatively with mathematics achievement at the educational system level, and it even had predictive power over and above HDI. In other words, we identified a relation between equity and achievement. This finding is in line with results reported by Kyriakides, Charalambous, Charalambous & Dimosthenous (2016) who in reanalyses of PISA data found equity and achievement to be positively related for schools and countries. These results suggest the following hypothesis: What matters for level of achievement of an educational system is how school-level SES relates to the within-school relations between student SES and achievement. When this relation is low or negative, the educational system is more likely to reach higher levels of achievement than when it is positive. Thus, educational systems perform better when school-SES negates the effect of students' individual SES, so that compensatory effects are obtained.

In conclusion, the present study found that some educational systems function in a compensatory manner with respect to the association between SES and achievement thus improving equity, while others rather are anti-compensatory. The findings also showed that the compensatory systems tend to have higher levels of achievement. A partial explanation for this pattern is that the more highly developed countries are more capable of reducing the relation between within-school achievement and student SES through healthy school climates where order and safety prevail and where there is high priority for academic success, and higher instructional quality. These educational systems also avoid peer effects which increase SES effects and they allocate more and better instruction to low-SES students.

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Paper 2

One Mission, Two Realities: What Works from Educational Research vs. What Happens in Educational Practice - Implications for Research, Policy, and Practice

Annemarie Neeleman

Maastricht University

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In an era of policy decentralization to school level and the 'imperative' to improve educational quality and equity, it is increasingly important for schools to have an evidence base available that helps making sensible school policy decisions. In this study, school policy interventions (original data) are compared to 'effectiveness enhancing factors' from three authoritative effectiveness syntheses. This comparison, first, provides insight in the extent to which school policy practice corresponds to effectiveness enhancing factors as featured in the studied syntheses. Second, it identifies school interventions that are not (yet) present in effectiveness syntheses, but very real in school policy practice.

Extended summary

Objectives & importance
In various educational research traditions there is a growing evidence base regarding effective educational practices, comprising teaching/classroom, school, system, and leadership practices (e.g. Creemers & Kyriakides, 2010; Creemers & Reezigt, 1997; Hallinger & Heck, 1998; Hattie, 2009; Hendriks & Scheerens, 2013; Hopkins, Stringfield, Harris, Stoll, & Mackay, 2014; Leithwood & Riehl, 2003; Leithwood, Seashore Louis, Anderson, & Wahlstrom, 2004; Marzano, 2003; Marzano, Waters, & McNulty, 2005; Muijs et al., 2014; Reynolds, 2014; Reynolds et al., 2014; Robinson, Hohepa, & Lloyd, 2009; Scheerens, 2014, 2016; Witziers, Bosker, & Krüger, 2003). In this premise, the 'elementary design' of educational effectiveness research is interpreted as 'the association of hypothetical effectiveness-enhancing conditions and output measures, mostly student achievement' (Scheerens, 2016, p. 5). According to Scheerens (2016, p. 105), 'the major task of educational effectiveness research is to reveal the impact of relevant input characteristics on output to "break open" the black box in order to show which process or throughput factors "work", next to the impact of contextual conditions."

In an era of increasing decision-making responsibilities at school level (Anderson, 2005; Bal & De Jong, 2007; Eurydice, 2007; Helgøy, Homme, & Gewirtz, 2007; OECD, 2013; Pont, Nusche, & Moorman, 2008; Woessmann, Luedemann, Schuetz, & West, 2009) and the 'imperative' to improve educational quality (Barnett, undated;

Hopkins & Levin, 2000; UNESCO Education Sector, 2016, p. 10), it becomes increasingly important for schools to have an evidence base available that is helpful in making sensible decisions in the full scope of their day-to-day policy practice. In this light, and corresponding to this conference's themes, it is interesting to verify to what extend the current effectiveness knowledge base and school policy practice thematically correspond. Does the thematic scope of effectiveness research resemble school policy practice? Is a thematic overlap between research outcomes and school policy practice paramount or relatively minimal? If the latter is the case, what are the main thematic differences in effectuation? And how should these be interpreted?

In this study, current school policy interventions from an original data set are compared to 'effectiveness enhancing factors' from three internationally authoritative effectiveness synthesis studies. The aim of this comparison is twofold. First, it provides insight in the extent to which actual school policy practice corresponds to effectiveness enhancing factors as featured in the studied syntheses results. Second, in those instances in which there is no correspondence, it identifies school interventions that are not (yet) present in effectiveness syntheses, but very real in school policy practice. The area of focus that is elaborated in this study is presented in Figure 1.

SCHOOL POLICY INTERVENTIONS

overlap practice-research
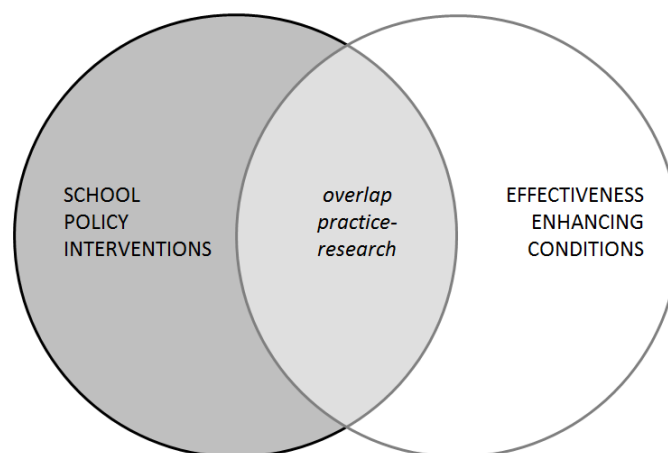
EFFECTIVENESS ENHANCING CONDITIONS

Figure 1: In grey this study's focus in the comparison between school policy interventions from an original data set and effectiveness enhancing factors from three effectiveness syntheses. (The sizes and positions of both circles are not based on research. Theoretically there could be no overlap at all.)

The outcomes of the comparison are indicators of both the applicability of research outcomes for educational practitioners as of the expected effectiveness of current school policy practice. In a context of increasing decision-making responsibilities and school autonomy, additional insights into current school policy practice and the degree of overlap between practice and effectiveness research might provide valuable clues for school improvement, school effectiveness, and educational change.

Theoretical Framework, methods & data sources

Original data on school policy practice is retrieved from a digital questionnaire that was conducted amongst secondary education school leaders in the Netherlands (N=196). In the questionnaire, school leaders were asked about school policy interventions, the reasons behind these interventions and the extent to which research outcomes were used in the considerations to start the particular intervention. The questionnaire evolved from intensive dialogue with and involvement of representatives of school policy practice. The final version contained mostly open-response questions, making it a mixed-method instrument (Onwuegbuzie & Leech, 2005). The starting point of the questionnaire was to grasp the versatility of school policy practice. Therefore, it was deemed essential to not predefine or limit the likely diverse and/or unexpected input on school policy practice beforehand. Even if this meant considerably more effort to interpret the – largely qualitative – data set for categorization purposes. Categorization of the original questionnaire data starts from an empirically based classification scheme for school policy practice (Neeleman, forthcoming) that was validated by educational practitioners for its face and content validity (Babbie, 2004).

The questionnaire was conducted among school leaders for the 'central role' they play 'in initiating internal changes in schools, providing direction and support, and sustaining those changes over time by linking the internal and external environments of the school' (Hallinger & Heck, 2009, p. 5). In this paper, school policy practice is interpreted as the holistic interplay between the school as an organisation and school leadership. Consequently, the survey outcomes are analysed both from a school perspective as from a school leader perspective. Hendriks and Scheerens (2013, p. 376) have already explicated this 'fair match between emphases in school leadership and school factors that have been empirically supported for being positively associated with student achievement'.

For analysis of the survey data from the school leadership perspective, Robinson, Hohepa, and Lloyd's (2009) *Best Evidence Synthesis Iteration* is used. This internationally authorative synthesis study introduces five dimensions to identify the impact of educational leadership on student outcomes from direct evidence and, in addition, three from indirect evidence. For the school perspective, both Hattie's (2009) synthesis on *Visible Learning* and Scheerens' (2016) critical review of the knowledge base of *Educational Effectiveness and Ineffectiveness* are used. Hattie (2009, p. 3) synthesises 'more than 800 meta-analyses about influences on learning'. His analysis is predominantly focused on what happens in classrooms. Though school policy practice obviously entails more policy domains than only instructional ones, Hattie provides research outcomes that are concrete, practically recognizable, and formulated in an engaging narrative. Hereby making it a relatively well-known study among educational practitioners in the Netherlands, including school leaders. Scheerens (2016) extensive and recent review study identifies school and instructional effectiveness enhancing variables from a multi-level approach to meta-analysis. It, additionally, distinguishes between various moderator variables like the education stage (primary or

secondary education) or the country (US, the Netherlands, or other) in which studies were conducted and the kind of tests (language, maths, or other) were used to assess student achievement. The presence of the moderating variables for secondary education and the Netherlands, makes this review study all the more suitable for comparison with the questionnaire data from secondary education school leaders in the Netherlands.

Results

Through the digital questionnaire, 589 school policy interventions are contributed by 196 responding secondary education school leaders (there was a maximum of three interventions per school leader). In order to compare the extent to which actual school policy practice corresponds to effectiveness enhancing factors as featured in the studied syntheses results, an equivalent for every single intervention is sought in each of the syntheses. The outcomes of this comparison are presented in detail. The corresponding table, first, describes which (type of) school policy interventions have an equivalent in each of the syntheses and which do not. Second, it displays the coverage of current school policy interventions in each of the syntheses in percentages. Finally, it describes any encountered dilemma in the process of comparison.

An analysis of the outcomes of comparison – including the implications of the findings for educational research, policy and practice – is currently elaborated.

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Paper 3

PROMQE: Voices from a Qualitative Study in Ireland

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This presentation will describe the qualitative research findings from the *Promoting Quality and Equity: A Dynamic Approach to School Improvement* (PROMQE) study in Ireland. The research will reflect the voice of principals and Mathematics co-ordinators from eight experimental schools who participated in interviews with the research team in June 2016. It will explore five key themes emerging from the study including: 1) the impact of social context on learning, 2) the school culture, 3) the importance of relationships with parents, 4) the need for human resources and 5) the definition of quality and equity in education from the schools' perspective.

Extended summary

This presentation will describe the qualitative research findings from the *Promoting Quality and Equity: A Dynamic Approach to School Improvement* (PROMQE) study in Ireland. The research will reflect the voice of principals and Mathematics co-ordinators from eight experimental primary schools who participated in interviews with the research team in June 2016. It will explore five key themes emerging from the study including:

1. The Impact of Social Context on Learning

2. The School Culture

3. The Importance of Relationships with Parents

4. The Need for Human Resources

5. The Definition of Quality and Equity in Education from the Schools' Perspective.

Objectives of Presentation

The objectives of this presentation are:

1. To describe the educational context of the school sample that participated in the qualitative aspect of the PROMQE study in Ireland

2. To provide an overview of the research methodology and rationale employed in this study

3. To explore the key themes and research findings emerging from this study

4. To provide a voice for schools working in disadvantaged and challenging circumstances in Ireland through the PROMQE study

Perspective or Theoretical Framework

This small-scale study forms part of the broader PROMQE study which encourages primary schools in disadvantaged areas to develop their own strategies and action plans by using the *Dynamic Approach to School Improvement* (DASI) (Creemers & Kyriakides, 2012). The DASI model has received empirical support from international studies such as Kyriakides, Archambault & Janosz, (2013) and Panayiotou et al. (2014), in addition to a number of other prominent studies and reviews. The findings of these studies demonstrate that the factors involved in the *Dynamic Approach to School Improvement* (DASI) are associated with achievement gains in learning amongst primary school children, particularly those who are low-achieving in ability or those who attend schools in disadvantaged areas (Kyriakides, 2007; Reynolds et al., 2014). The factors involved in the DASI model which are used to support school improvement are illustrated in Table 1 below.

Table 1: *Using DASI for School Improvement*

	Factor	**Aspects**
1.	Quantity of Teaching	1. Absenteeism of Students 2. Teacher Absenteeism 3. Management of Teaching Time 4. Policy on Homework
2.	Provision of Learning Opportunities	1.School Trips and Extra-Curricular Activities 2. School Policy on Long-term and Short-term planning 3. School Policy on Providing Support to Students with Special Needs
3.	Quality of Teaching	1. Orientation 2. Structuring 3. Questioning 4. Teacher Modelling 5. Application 6. The Classroom as a Learning Environment 7. Management of Time 8. Assessment

4.	Student Behaviour Outside the Classroom	1. Student Behaviour in Break Time
		2. Student Behaviour before the Lesson Starts
		3. Student Behaviour After School Hours
		4. School Behaviour Code
5.	Collaboration and Interaction Between Teachers	
6.	Partnership Policy	
7.	Provision of Sufficient Learning Resources to Students and Teachers	

Source: *Handbook of the Research Project: Promoting Quality and Equity: A Dynamic Approach to School Improvement* (Kyriakides, Creemers & Charalambous, 2015).

Methods, Techniques or Modes of Inquiry

This aspect of the PROMQE study involved the use of qualitative research methods, in the form of semi-structured interviews, to further explore the experience of schools working in disadvantaged circumstances. The use of interviews has become a popular research methodology when conducting qualitative and mixed methods research studies (Robson, 2011). The rationale for using the interview as a research method is that it "allows for greater depth than is the case with other methods of data collection" (Cohen et al., 2007, p.35). As highlighted by Robson (2011, p.280), "face-to-face interviews offer the possibility of modifying one's line of enquiry, following up interesting responses and investigating underlying motives in a way that postal and other self-administered surveys cannot". The fundamental element of the interview is a social relationship between the researcher and the participant and a rapport based on "a harmony with, conformity to and an affinity for one another" (Seidman, 1998, p.80).

Semi-structured interviews were used to collect qualitative data for this aspect of the PROMQE study. The semi-structured interview is viewed to be more "flexible in terms of the order in which the topics are considered...and there is more emphasis on the interviewee elaborating points of interest" (Denscombe, 2003, p.167). According to Robson (2011, p.285), semi-structured interviews are "widely used in flexible and multi-strategy designs" and are "most appropriate when the interviewer is closely involved with the research process". Therefore, a qualitative approach involving the use of semi-structured interviews was the central research methodology for this study.

Data Sources

Purposive sampling was employed in selecting the sample for this study. Using purposive sampling, the sample is "hand picked ...with a specific purpose in mind" (Denscombe, 2003, p.15), which allows the researcher to focus on a sample that will be "critical for the research" (ibid, p.16). In this case, the principal teacher and the Mathematics coordinator in eight experimental primary schools involved in the PROMQE study in Ireland were invited to participate. All eight schools are designated with DEIS (Delivering Equality of Opportunity in Schools) status by the Department of Education and Skills in Ireland. Semi-structured interviews were conducted between the principal teacher and/or the Mathematics coordinator with the research team from the School of Education, University College Dublin, throughout the month of June 2016 and were audio-recorded for the purposes of transcription. All eight experimental schools had previously participated in two phases of quantitative data collection as part of the PROMQE study (September 2015 to June 2016) involving completion of Teacher Questionnaires, Student Questionnaires and Student Mathematics Tests.

Results and Conclusions
The five key themes emerging from the qualitative aspect of this study include:

1. The Impact of Social Context on Learning

2. The School Culture

3. The Importance of Relationships with Parents

4. The Need for Human Resources

5. The Definition of Quality and Equity in Education from the Schools' Perspective.

Each of these themes will be explored in further detail throughout the conference presentation.

Educational Importance of this Study
This small-scale study provides the researchers with an opportunity to contextualise the quantitative data gathered throughout the first and second phase of the PROMQE study in Ireland. It also provides greater depth and understanding of the school context of the experimental schools. Moreover, this study reflects the voice of key stakeholders who are working with students in schools with a disadvantaged status.

Connection to the Themes of the Conference

This study complements the research that is being gathered by the PROMQE study internationally and supports the theme of promoting quality and equity in education.

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Exploring barriers and facilitators in implementing the Dynamic Approach to school improvement: An exploratory case study of a primary school in England

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The Dynamic Approach to School improvement (DASI) is a theory driven and evidence based approach to school improvement. A number of studies have been conducted to identify the impact of DASI on student outcomes, using mainly quantitative and experimental designs. This qualitative study explores the facilitators and barriers teachers encountered while implementing DASI in a primary school in England with a high percentage of socially disadvantaged students. Data were gathered from teachers using semi-structured interviews before, during and after the intervention. The results of the study highlight some of the important changes that happened during the intervention related with teacher, school and DASI characteristics.

Extended summary

Introduction

During the last decades the education system in England is defined by the recurring attempts for school reform. The era of school reform and improvement has descended upon many of the industrialized nations, and research in traditions of educational effectiveness and school improvement has thrived and received increasing attention in the last years (Coe, 2009). Yet, due to the divergent focus of research in the fields of educational effectiveness and school improvement there is a gap between school reform theory and practice. As such, many schools are caught in the cycle of school improvement fads, seeking to improve teaching and increase student outcomes, but with little notable progress in either as they move from one initiative to the next (Borman, Hewes, Overman, & Brown, 2003). Scholars attribute the failure of many school improvement initiatives to the lack of linkages between the fields of educational effectiveness, which focuses on theory, and the tradition of school improvement which is concerned with practice (Creemers, Kyriakides, & Sammons, 2010).

Despite their differences in theoretical orientation and methodology, it has been suggested that for these fields to progress further, collaboration is not only desirable, but also a necessary precondition (Scheerens, 2016; Creemers, & Kyriakides, 2008). In this perspective, Creemers and Kyriakides (2012), combining major elements of school improvement and educational effectiveness research, have developed the Dynamic Approach to School Improvement.

The Dynamic Approach to School Improvement

The theoretical framework of DASI is based on the Dynamic Model of EER (Creemers & Kyriakides, 2008). Particularly, at the school level the model refers to four major factors. The first factor is the school's policy on teaching and the activities undertaken with the goal of improving teaching (Creemers, Kyriakides & Antoniou, 2013a). This factor is further broken down into quantity of teaching, quality of teaching and provision of learning opportunities. The second factor is directly related to the first, and relates to the evaluation of the policy on teaching (Creemers & Kyriakides, 2010b). The third factor refers to school policy and the activities undertaken to improve school's learning environment. This in turn consists of five elements: partnership policy, provision of resources, collaboration between teachers, student behaviour outside the classroom, and values favouring learning. The fourth factor is concerned with the evaluation of the policy on school's learning environment (Creemers & Kyriakides, 2012).

In relation to measuring those factors, one of the key aspects of DASI which distinguishes it from other models, is the incorporation of five measurement dimensions, through which the factors are defined and measured (Kyriakides & Creemers, 2008). These dimensions refer to the issues of frequency, focus, stage, quality and differentiation. All dimensions, with the exception of frequency, provide qualitative information regarding the factors residing at the classroom, school and system levels (Creemers & Kyriakides, 2010a).

Research Aims

A number of studies have been conducted over the past decade to identify the impact on student outcomes and to provide empirical support to the key characteristics of DASI (e.g., Creemers & Kyriakides, 2012; 2010b; Heck & Moriyama, 2010). However, from a methodological perspective, while the existing research on DASI utilizes advance quantitative and experimental methods, qualitative designs have only rarely been used, which in turn restricts our ability to provide in-depth and detailed explanations of how, why and under which conditions DASI works in improving student outcomes. In this perspective, although the effectiveness of DASI has been well established in the literature (Creemers & Kyriakides, 2015), there is an urgent need to explore teachers' perspectives, attitudes and perceptions on implementing the DASI framework.

Research Methods

The methodology for the data collection and analysis was based on the Symbolic Interaction Theory (Blumer, 1969). Under this theory, human beings are viewed as social agents who are influenced by external factors (e.g., school policies, school leadership) but who are also capable of maintaining distance and able to initiate individual action and meaning through interpretive processes.

Sample

Data were collected from an English primary school in Cambridgeshire which during the school year 2015-2016 participated in an experimental study investigating the impact of DASI on student achievement in Mathematics. The study involved a number of schools from four different countries, i.e., England, Cyprus, Greece and Ireland. The schools in each country were randomly allocated into two groups. The control group, receiving only initial and final evaluation results on the functioning of school effectiveness factors, and the experimental group, which fully implemented DASI. The particular school was selected for this case study due to the relatively high percentage of students from socially underprivileged families. In addition, the analysis of the student tests revealed that the school managed to improve student achievement in Mathematics during the year of implementing DASI, by improving its policy and practice on quality of teaching. Data were gathered from primary school teachers (n=16). Involvement in the study was voluntary. Our teacher sample was predominately female. Particularly, our study sample consisted of two male and fourteen female primary school teachers. The average age of teachers was thirty-four and the average number of years in teaching was twelve. The educational level of study participants ranged from PGCE, Bachelor to Masters Degrees.

Data collection

Semi-structured interviews were employed for the data collection. Semi-structured interviews are particularly powerful primary sources of data collection since they have the potential to elaborate on a single topic in-depth and increase the probability of gathering a broad range of relevant data about the phenomenon under investigation (Teddlie & Sammons, 2010). The interviews took place in different phases: during and by the end of the school year in which the school implemented DASI. Our main purpose was to identify any changes in teacher perceptions during the year in relation to facilitators and obstacles to school improvement and try to explain those changes.

Data analysis

The interviews were recorded and transcribed for analysis. The data analysis was based on the constant comparative method to examine new and old data for discrepancies (Creswell & Plano Clark, 2011). Particularly, the data were coded according to guidelines for inductive-exploratory research and comparative analysis (Glaser, 1965). This form of analysis requires a comparison of each new element coded previously with emergent categories and subcategories. We also used an open, axial and selective coding technique to analyze the interviews and develop conceptual categories (Creswell, 2012). Through open coding, we examined the transcripts for similarities and separate data into initial broad categories. We followed this up with axial coding during which we re-examined the previously developed categories to establish inter- and intra-category links and combine data in new ways (Tashakkori & Teddlie, 1998). Thus, the development of the conceptual framework of barriers and facilitators of

implementing the DASI framework was grounded to the data, with the data leading to the development of the theory (Glaser & Strauss, 1967).

Research findings

The results of the study revealed several key components facilitating or constraining the effective implementation of the DASI, situated at different levels. Particularly, our teacher sample has identified a number of facilitators and barriers located at the (a) teacher level, i.e., related with teacher characteristics, (b) school level, i.e., related with school's characteristics and processes, and finally (c) the DASI level, related with some of the basic characteristics of this particular school improvement approach, all of which are elaborated below:

Facilitators of DASI effective implementation

A) Facilitators at the teacher level:

1) Improving teacher efficacy:

Teachers have identified that efficacy was an important facilitator to effectively implement DASI at their school. What is perhaps more interesting to note is that teachers were reluctant to discuss issues related with improving the learning of students from underprivileged families at the beginning, since they considered that they couldn't have any significant effect on their outcomes and they attributed their failure to external factors. During the course of time and with the guidance of the *Research and Advisory Team* the teachers came to realise that the program requirements were feasible and that they could have an impact and that their role, especially in relation to those children, was crucial.

2) Improving teacher engagement:

Teachers in our sample also supported that efficacy was highly correlated with their engagement levels and they believed that high efficacy corresponded to high work engagement in relation to the school improvement initiative. Although some teachers were initially not supportive of the school improvement initiative, they developed more positive perceptions once they realised that their role in the intervention was related with their everyday tasks and the expectations were feasible and realistic. They also stressed the important role of the *Research and Advisory Team* and their colleagues' contribution in improving their engagement with DASI.

B) Facilitators at the School level:

1) Supportive school leadership

A common element among all teacher interviews was a clear reference to the important role of the school headteacher, as an important facilitator for the effective implementation of DASI. The school head was considered by teachers as one key factor for developing and implementing the school policy on quality of teaching, which was the focus of the school improvement initiative, in close collaboration with the *Research*

and Advisory Team. That was accomplished directly, through one to one or group discussions, revision of action plans and classroom observations and indirectly through the designation of teacher and parents' roles in the well-functioning of the school both inside and outside classrooms and the publication of various documents in relation to school's policy on quality of teaching. The headteacher was also considered by teachers as the one preparing the culture appropriate for DASI, during the very early stages, spending time on capacity-building and a culture of acceptance for the new initiative.

2) Promoting peer support and collaboration

Peer support at the school level is another factor that teachers identified as facilitating their effective involvement in the DASI initiative. Teachers supported that they have more incentives to meet and collaborate as a result of their engagement with DASI. What is interesting to note is that teachers have identified that a big change they noticed was related with the focus of their discussions with peer. They acknowledged that DASI and particularly the *Research and Advisory Team* has directed their collaboration and discussions on issues which were directly related with student learning and the learning of students coming from underprivileged backgrounds, something which was in line with their school policy.

C) Facilitators at the DASI level:

1) Clarity of improvement objectives

The majority of the teachers emphasized that an important element which contributed to their decision to engage effectively with DASI was the clarity of the objectives and the clear direction of the initiative, supported with empirical findings, i.e., evaluation of the functioning of effectiveness factors in their particular school. Several teachers stated that they felt as being motivated by the fact that the goals which they considered important and compelling were taken into consideration, during the initial evaluation phase and the initial discussions with the *Research and Advisory Team*.

2) The Role of the Research and Advisory Team

A common element in all teacher interviews was the important role of the DASI *Research and Advisory Team*. The team played a significant role in all stages during the school year, from explaining the importance of the intervention based on a solid theoretical background to providing support and constructive feedback that facilitated the development and implementation of policy at the school. It was also made clear that the team gradually gained the respect and acceptance from more teachers in the school. The teachers found important a number of characteristics / roles of the *Research and Advisory Team* such as respect of the teachers' time and making feasible and realistic suggestions. Another characteristic that the majority of the teachers mentioned as facilitating the effective implementation of DASI at their school was the provision of support, constructive feedback and support by the DASI *Research and Advisory Team*

during the implementation phase. Some teachers also considered the role of the research and advisory team as exercising some control which was perceived as a positive drive for teachers to continue their improvement efforts.

Teachers also considered that the evaluation of their effort in relation to student achievement in mathematics was an important facilitator to the school improvement initiative. As our respondents argued, without class- and school-based data about learning, specifically value-added measurements on student learning, teachers cannot properly determine the effects of what they do in classrooms.

Barriers constraining the effective implementation of DASI
Apart from factors facilitating the effective implementation of DASI, a number of factors were identified as barriers constraining the school improvement effort. In the context of this study, teachers referred to teacher resistance to change and time constraints as factors which made the implementation of DASI more difficult.

Teachers are the key actors within schools (Antoniou, 2012). As Creemers and Reezigt (2005) argue, schools do not change if the people within the schools, particularly the teaching staff, do not change. Preparation and willingness to engage in the process are also key when it comes to interdisciplinary collaboration within school improvement initiatives.

Another constraint identified by the majority of the teachers was related with lack of time. However, teachers acknowledged at the same time the important role of the *Research and Advisory Team,* in making the most of their time as has been discussed earlier.

Conclusion
This exploratory case study provided an in-depth understanding of the teachers' perspectives of implementing the DASI framework, exploring the types of challenges and facilitators experienced by teachers in the process of implementing DASI in a primary school in England with a relatively high percentage of socially disadvantaged students during the academic year 2015-2016. According to a report by the Social Mobility and Child Poverty Commission of the UK government (2016), many of the richest places in England, like Worcester, Northampton, Cambridge and Oxford are doing worse than places that are much poorer and are actually among the worst-performing 20% of areas in terms of equity and social mobility.
The findings of this study are in line with previous research findings on school improvement (Chapman & Harris, 2004; Gu & Day, 2013; Mendenhall et al., 2013; Jošić, Džinović & Ćirović, 2014; Rhodes & Houghton-Hill, 2000; Hakanen et al., 2006). However, several studies place the brunt of the blame on teachers in case of reform failure, and discuss strategies to overcome teacher resistance (Knight, 2009). We argue that such a perspective only considers the symptoms, rather than examining

the roots of the problem. Relatively few studies have considered the obstacles teaching staff experiences in the process of implementing school improvement approaches. Teachers have a unique perspective on school reform since they bear the brunt of the work in such projects. Therefore, their perceptions and experiences should be considered and addressed prior to the implementation of improvement initiatives.

In this paper, we argue that there are always going to be challenges, constraints and barriers to any school improvement initiative. The decisive point for any school improvement initiative is to present a number of facilitators which could overweight the barriers and could help teachers and schools to actively engage with the improvement process. We need to acknowledge, however, that the use of an evidence-based and theory-driven framework, such as DASI, cannot in itself ensure that the programme will be effective for all schools. DASI supports that emphasis should be placed on collecting data in order to identify needs and priorities for improvement for different schools, thereby facilitating the design of relevant improvement efforts with differentiated content and focus. This is important, since teachers seem to consider new initiatives on their individual merits, particularly in relation to how they will benefit classroom teaching in their own professional context (Corkindale & Trorey, 2002). Teachers have turned away from various school improvement approaches, which are not seen to have ready relevance to and application in, the classroom and are not geared to teachers' needs (Dinham et al., 2000).

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School Improvement Practice – A Review and a Reconceptualisation from the Perspectives of Educational Effectiveness and Educational Policy

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It is argued that SI researchers and practitioners (SI) need to be aware of the insights for their practice from recent educational effectiveness research. Schools seem to be 'pulling different levers' to those of SI. Systemic change may be less important than the policy changes nested within it. Contextual factors may influence what 'effective' school improvement is. SI may currently be organizationally based rather than classroom based. Extra or outside school factors may be helpful in generating SI. We speculate about what the possibilities are of pulling all levers of SI, namely classroom, school, community and policy.

Extended summary

The field of school improvement (SI) has developed rapidly over the last 30 years, moving from the initial Organisational Development (OD) tradition, through to school based review, action research models and more recent commitment to leadership generated improvement in the form of the instructional (currently) and distributed (historically) varieties.

However, it is clear from the findings of the field of educational effectiveness (EE) (Chapman et al., 2012; Reynolds et al., 2014) that SI needs to be aware of the following developmental needs, based on insights from EE:

1. Schools and educational systems have all been doing school improvement themselves over the decades and years, but this is poorly understood, rarely measured and rarely used as foundations of researcher designed SI. We seem to have passed the stage whereby we try to understand the 'foundations' of improvement that precede our own pre-existing efforts in the SI community. We will be presenting unique data from a large sample (n = 196) of school leaders in the Netherlands who have furnished mixed method data concerning the educational interventions that their schools have started, and those that have been considered but not started (Neeleman, forthcoming). These show considerable differences between 'practitioners' and the 'researchers in SI' in what kinds of SI is being supported, intellectually and practically, with practitioners focussing much more on 'teaching' and 'the curriculum' and 'student additional programmes' than the

SI tradition, with its focus upon 'whole school organisational change'. A synergy of perspectives is argued for.

2. The field of SI also needs to consider the impact of the educational policies that have multiplied in recent years. Across the world, the post financial crisis emphasis in many societies on maximising the 'talent' generated by their educational systems (because of the popularity of human capital theories) has led to multiple interventions by many societies in their educational systems.

   One tradition has been that spawned by the popularity of PISA, whereby it is systemic factors that are advocated and studied, such as the 'demand side' systems of consumer choice of schools, performance indicators and formal educational organisational and governance arrangements (such as in the examples of Charter or Academy or privatised systems).

   Yet sophisticated quantitative analysis of the effects on student achievement of some of these 'system' level factors show quite minimal effects, amounting to, for example, only a 3.5 point advantage to educational systems in PISA who publish school performance data (see discussion in Reynolds & Kelly, 2013). By contrast, recent (Kyriakides et al., 2015) analysis of policy effects rather than systemic effects show multiple, sizeable and consistent effects on educational outcomes, consistently across a sample of multiple European countries.

   We will be presenting an operationalisation and classification of which policy areas need to be explored as valuable 'contextual' factors that may also, like the school leaders data above, have implications for what is needed to bottom out the concept of 'capacity' within SI, both with regard to quality and equity.

3. Contextual factors other than the above policy related ones also have potentially major effects upon the needs of reconceptualising 'capacity to improve' in SI.

   SI has had very little to say about whether or not 'what works' is different in different educational contexts. In part, this happened because the early SI discipline had an avowed 'equity' or 'social justice' commitment that led to an almost exclusive focus in research in many countries upon the schools that the disadvantaged students attended, leading to an absence of the school contexts of other students even being in the sampling frame. Latterly, this situation has changed, with most studies now based upon more nationally representative samples, and with studies attempting to focus upon establishing 'what works' across these broader contexts.

   However, many of the statistical relationships established in EE over time between school characteristics and student outcomes are on the low side in most of the meta analyses (e.g. Hattie, 2009), with a low variance in outcomes being explained by

use of single school level factors or groups of them overall. Strangely, this has not led to what one might have expected – the disaggregation of samples into smaller groups of schools in accordance with the characteristics of their contexts like socio economic background, urban/rural status, and region. With disaggregation and analysis by groups of schools <u>within</u> these different contexts it is possible that there would be better school/outcome relationships than overall exist <u>across</u> all contexts with, in this possibility, school effects seen as moderated by school context.

This point is nicely made by May, Huff and Golding (2012), in an SI study that failed to establish strong links between Principal behaviours and attributes in terms of relating the time spent by Principals on various activities and student achievement over time, leading to the authors' conclusions that '….contextual factors not only have strong influences on student achievement but also exert strong influences on what actions Principals need to take to successfully improve teaching and learning in their schools.' (p. 435).

The authors rightly conclude in a memorable paragraph that (also p. 435):

'…our statistical models are designed to detect only systemic relationships that appear consistently across the full sample of students and schools.' (…..) '… if the success of a Principal requires a unique approach to leadership given a school's specific context, then simple comparisons of time spent on activities will not reveal leadership effects on student performance.'

What contextual factors might provide a focus for a more 'contingently orientated' SI approach to 'what works' to improve schools? Socio economic composition of the catchment areas of schools is one important contextual variable – others are whether schools are urban or rural or 'mixed', the level of effectiveness of the school and/or the trajectory of improvement/decline in school results over time. All these areas have been explored – by Hallinger and Murphy (1986), Teddlie and Stringfield (1993) and Muijs et al. (2004) on SES contextual effects, and by Hopkins (2007), for example, in terms of the effects of where an individual school may be on their stage of the performance cycle affecting what they need to do to improve.

Other contextual factors that may indicate a need for difference in what is needed to improve include:

- Whether the school is an 'improver' or 'decliner' over time
- Whether the school is primary or secondary in its age phase covered
- Whether the school is a pre-existing member of educational improvement networks

- Whether the school has significant within-school variation that can act as a brake upon any improvement journey
- Whether the school is linked already to Universities or other possible possessors of SI 'capacity'

We speculate about the further needed directions for research on this 'contextual' effects topic. Hereby we address the politics of change and improvement at school and country level.

4. Existing SI has focussed particularly at the level of the school organisationally, rather than taking into account the need for SI that impacts upon the classroom or 'learning level'. All the existing analyses (Muijs & Reynolds, 2011; Teddlie & Reynolds, 2000) show that the effects of the teacher at classroom level are much greater than those of the school level, and that it is teacher behaviours, attitudes and values that have the primary effect upon educational outcomes.

Instructional improvement at the level of the teacher/teaching is relatively rare though, although there have been some 'instructionally based' efforts like those of Slavin (1996) and some of the experimental studies that were part of the old 'process/product' paradigm of teacher effectiveness research in the 1990s and 1980s in the United States.

However, it seems that SI researchers and practitioners are content to pull 'levers' of intervention that operate mostly at school level, even though they will have less effect than classroom or classroom/school based ones. The problems of adopting a 'school' rather than 'classroom' based approach have, it must be said, been magnified by the use of multilevel modelling which only allocates variance 'directly' to different levels rather than looking at the variance explained by the interaction between levels (of school and classroom potentiating each other). We speculate about what 'classroom SI capacity' is and address professional development and professionalization in education.

5. Recent years have seen the SI field expand its interests into new areas of practice, although the acknowledgement of the importance of these new areas has only to a limited degree been matched by a significant research enterprise to fully understand their possible importance. Examples are:

- The focus upon system based improvement, in the understanding of the supra school conditions at the macro level of national educational policies and the 'meso' level of District/State/Local Authority operations that can further school improvement capacity (e.g. Hopkins, 2007).

- The focus upon how schools now cast their net wider than just 'school factors' in their search for improvement effects, particularly in recent years involving a focus upon the importance of outside school factors.
- As EE research has further explored what effective schools do, the 'levers' these schools use have increasingly been shown to involve considerable attention to home and to community influences within the 'effective' schools;
- It seems that, as a totality, schools themselves are focussing more on these extra-school influences, given their clear importance to schools and given schools' own difficulty in further improving the quality of already increasingly 'maxed out' internal school processes and structures;
- Many of the case studies of successful school educational improvement, school change and indeed many of the core procedures of the models of change employed by the new 'marques' of schools such as the Academies' Chains in the United Kingdom and Charter Schools in the United States give an integral position to schools attempting to productively link their homes, their community and the school;
- The variance in outcomes explained by outside school factors is so much greater than that explained by school factors that the potential effects of even a limited, synergistic combination of school and home influences could be considerable in terms of effects upon school outcomes;
- The variation in the characteristics of the outside school world of communities, homes and caregivers itself is increasing considerably with the rising inequalities of income and health status. It may be that these inequalities are also feeding into the maximisation of community influences upon schools, and therefore upon SI.

We speculate about what the effect of recognition of these new areas will be upon the development of ecologically, environmentally located SI, that attempt to pull all levers of improvement, namely classroom, school and community in order to promote both quality and equity. Hereby addressing the vital links between educational effectiveness research and school improvement.

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School and family effects on 'reading for pleasure': can schools make up for family differences?

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School and family have been identified as important factors contributing to the love of Reading for young students. A short questionnaire investigated the beliefs and attitudes of pupils, parents and teachers towards reading for pleasure in Cyprus, both in primary and secondary education. The analysis of the data revealed similarities but also significant discrepancies between students', parents' and teachers' responses to the same questions. In addition to presenting our findings, we discuss the methodological challenges of interpreting dissonant data in quantitative educational research and suggest ways to turn this "problem" to an advantage.

Extended summary

Introduction

Reading for pleasure is an important component of all-round education and contributes to a young person's individuality (Dollinger, 2016). Reading books can be a source of happiness and pleasure. Love for the books is not an inherent habit, people are not born with it; it is a longitudinal and systematic habit that is cultivated from the early years of human life. Two basic factors that empower the reading habits of children are the family and the school (Klauda & Wigfield, 2012; Ivey & Johnston, 2015). For example, Katsiki-Givalou et al. (2011) have found that parents have a prominent role for the child's positive attitude towards reading and that is constructed as an exemplar habit of the children's parents (Aggelopoulou, 1986; Anagnostopoulos, 1987; Sotiropoulou, 1993; Giannikopoulou, 1998). Other factors that contribute to the love of reading by the children are the school, the teacher, the school library, book fairs and visits of authors in schools (Christodoulou-Gliaou, 2007).

Reading for pleasure is a significant concept in education, and has been researched extensively. Different terms have frequently been used to signify the same concept, and a huge literature has been accumulated across time; for example, reading for pleasure is often called "independent reading" (Cullinan, 2000), "voluntary reading" (Krashen, 2004), "leisure reading" (Greaney, 1980) and "ludic reading" (Nell, 1988).

No matter the terminology, reading for pleasure has been correlated with significant academic and social skills. For example, reading has been characterized as an "*important gateway to personal development, and to social, economic and civic life*" (Holden, 2004). Evidence has also been published that there is a positive relationship between reading frequency, reading enjoyment and attainment (Clark 2011; Clark and Douglas 2011).

The existing literature talks about very different patterns of reading for pleasure across different age groups and gender. For example, Clark (2011) found that many children enjoyed reading very much (22%); 27% enjoyed it quite a lot; the majority (39%) enjoyed it quite a bit, and only the minority (12%) said that they did not enjoy reading at all. Also, the older children get, the less they seem to enjoy reading (Clark and Douglas 2011), but they may spend more time on reading (Clark 2011). Boys have also been found to enjoy reading less than girls; also, young people from lower socio-economic backgrounds tend to read less compared to young people with a more privileged background (Clark and Rumbold, 2006; Clark and Douglas 2011).

Beyond the effect of family, school has been found to contribute significantly towards developing good reading habits. For example, Cremin et al (2009) reported that the relationships between teachers and students can "strongly" influence reading for pleasure. This study aims to compare the magnitude of school and family effects on students' habit to read for pleasure. Hence, we ask the question: "can schools really make up for family differences"? The question may be perceived to be philosophical, but we use empirical data from parents, teachers and students, to generate a discussion that is always timely and useful.

The objectives of the study
Since reading for pleasure has so profound effects on a young individual's future, and since it has been found that families are so important in shaping a young person's reading habits, it makes sense to investigate other sources of influence, such as schools. If schools can be an important source of influence, this may mean that the educational system can counter-balance inequality by channeling more resources towards this direction. This can be another measure towards fighting educational inequality due to familial socio-economic differences. Unfortunately, there is no published research measuring family and school impact on reading for pleasure.

This study aims to investigate the school and family effects on reading for pleasure, which are the two most important factors found that contribute to the love of reading. A short questionnaire was constructed and administered to a very large number of parents, students and teachers in Cyprus. The questionnaire investigated the beliefs and attitudes of pupils, parents and teachers towards reading for pleasure. The questionnaires had both multiple choice and open-ended questions.

When analyzing the data, we realized that there were discrepancies between the perspectives of different stakeholders. As a by-product of the study, we discuss the challenging issue of interpreting dissonant data in quantitative educational research, and

we demonstrate how ignoring key stakeholders in educational research can result to misleading findings.

Data and Methods

The questionnaires were administered to a representative sample of primary and secondary education pupils and students as well as to teachers and parents. We collected 836 questionnaires from primary school pupils, 486 questionnaires from parents of primary school pupils and 127 questionnaires from primary school teachers. We also collected questionnaires from 2472 secondary education students, 720 parents of secondary education students and 587 secondary teachers.

Collecting data from all three groups of stakeholders proved – as expected – to be very resource-demanding. Although collecting data from students is the obvious thing to do, persuading teachers to complete the questionnaire is always more challenging. However, the most time consuming and demanding component of the research was to collect data from parents, in way that it would be possible to correlate the anonymised responses of a school's students, teachers and parents.

Due to restrictions regarding the student's privacy, it was not possible to link the responses of parents to the responses of their children. However, we managed to link the parents, the children and the teachers teaching in each school. Therefore, our design allows us to measure family effects, classroom/teacher effects as well as overall school effects. One of the practical limitations of our research was that it was not possible to ask sensitive questions such as family income, educational background of the parents and the like. This, however, does not causes major problems in our study because we do not wish to identify the variables that cause differences between families – this is well known and has been investigated extensively in the discipline of Sociology of Education.

Results

We analysed the data quantitatively and compared the responses of the three different groups of stakeholders. Some of the main findings are:

1. Primary school pupils spend more time reading for pleasure compared to secondary school students. Older students tend to have more positive attitudes towards reading for pleasure. This agrees with the findings of past research.

2. Most pupils and students say that they would like to spend more time reading but they tend to spend their time on video games, private afternoon lessons and homework. This is less well-documented in the literature, although some relevant references do exist.

3. Parents and teachers acknowledge that it is both the role of parents and teachers to encourage healthy reading habits to the students. However, only a sub-sample of parents and teachers practically encourage their children to read.

4. Interestingly, the students also believe that both parents and teachers can successfully encourage them to spend more time reading for pleasure.

This study highlights the leading role of the parents and teachers in the educational community with regards to children's interest in reading. We suggest that the collaboration of parents and teachers is necessary in order to encourage good reading habits to young individuals. What is more, it is important to acknowledge that school should give emphasis on the reading habits of children in order to give equal opportunities to students even to those that do not have the experiences at home. We discuss how schools can make up for less effective family involvement.

One of the most striking findings of the study was that each of the three different groups of respondents gave slightly different responses to the basic questions of the questionnaire. They even gave slightly different responses to factual questions. Methodologically, we discuss the merits of investigating the perspective of multiple informants, and how we can make sense out of dissonant data.

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Women and Educational Administration: the Case of Western Macedonia

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The purpose of this paper is to present the results of our research, which concerns the relationship of women to management positions in the Greek educational system. More specifically, we explored female principals of the administrative region of Western Macedonia (Greece) views and approaches concerning women participation in the administrational positions of primary education.

Our research strategy was Case Study and our research technique in depth semi-structured interview. According to research results, there are still discriminatory and cliental relationships against women in their working environment, and strong family stereotypes hindering their professional development. n our case, it appears that certain measures of positive discrimination in favor of women, would serve the goal of equal treatment of men and women in education, as well as to the local community.

Extended summary

<u>**Introduction**</u>
Rapid changes in economy, politics and society, both in Greece and internationally, have a major impact in education (Daraki, 2007, Markopoulos & Argiriou, 2014: 529). Education systems all over the world are invited by various international organizations (Organisation for Economic Co-operation and Development, World Bank, International Monetary Fund) to adapt to the new environment, in an almost identical manner: decentralization and privatization. In our opinion, there is not one and only way. The adjustment that is required to be done corresponds with the visions and goals that each society, in each historical period poses. In other words, what kind of education we provide to children dependents on economic needs, political choices and the ideology prevailing in each social formation and not to any "natural" doctrines.

So, educational organizations are forced to adapt to globally prevailed market economy model. Market economy model's pillars are privatization, profit, self-regulation, individualism, competition and consumers' domination. As it concerns education, market model aims to transform schools to businesses like organizations, and therefore it gives priority to values such as innovation and efficiency.

The proposed transformations have their impact to the educational theoretical perspectives, as well as the ways school communities are organized and work. School effectiveness and school improvement research and theory reflect an approach that according to which schools can make the difference. Although we do care for better schools, we believe that a theory that neglects social and economic factors' impact on pupils' routes can have limited contribution or even negative outcomes.

Within this framework, "School Leadership", a scientific sub-discipline of Pedagogy which focuses on managing and leading schools, blossomed and flourished during the last twenty years. Educational leadership is considered by many scholars (i.e. Anagnostopoulou, 2002, Pasiardis, 2004) as a crucial factor to the development and improvement of school. Furthermore, school leadership is considered the most

important factor after teaching to achieve a positive learning climate (Hatzidiakou, 2011: 9).

Noting saying that while Leadership is considered as a critical factor of schools' development and improvement (Tsalikidis, 2015), it is not associated with the administration. The notion of Leadership concerns the mood and the ability to mobilize team members to scramble together for one target (Kouzes & Ponser, 1995). On the other hand, administration is associated with the achievement of specific goals (Patsiomitou, 2015: 269). But, the quality of leadership, more than any other parameter, determines the success or failure of an organization (Fiedler, 1922). Therefore, a good leader should be a good manager in order to contribute to the goals of the school.

In this paper, we dealt with a specific area of school leadership theory: women's relationships with the school leadership.

Women and School Administration

The equality of women with men is a human right that has been recognized in many countries all over the world. However, in practice, it seems that there is still way to get to the point, where gender equality would have achieved in all sectors of the economic, political and social life. More specifically, after World War II, most Western countries have adopted policies and legislations to promote equal opportunities between men and women in employment and education (see for example Greek Lαw 3488/2006). Nevertheless, male teachers are more likely to climb the educational hierarchy compared to their female counterparts (Allain, 1981, Foxley, 1982, Fauth, 1984, Maskell, 1997, Blackman, 2000, Smith-Doerr, 2004). It is a paradoxical situation, if someone consider, that teaching profession is numerically dominated by women (Greek Statistic Authority, 2010, Markopoulos &Agririou, 2014: 529).

According to Greek Law 1566/85, access to educational administrative positions is available to any teacher who wish to apply. Former laws, as well as the Low that in now in force did not / do not make any gender discrimination (Law. 2266/94, Presidential Decree 25/02, N. 3467/06, N.3848 / 10). Nevertheless, few females hold high administrative educational positions in Greece. This fact, has contributed to the identification of the administration with the male model (Blackmore, 1989). Many people tend to believe that men are better than women not only in school management, but also in politics (Logan & Joyce, 1998: 6).

There has been formed a perception-myth that an effective administrative requires a person whose traits meet the male stereotype whose characteristics are aggression, ambition, self-confidence, competitiveness, domination, forcefulness, self-confidence, ability to make decisions and independence. (Gray, 2006: 298). In contrast, the female stereotype portrays women to be affectionate, emotional, gentle, children love, tender, warm and empathetic (Archer & Lloyd, 1982). Women could be described as emotional, while men as rational (Sachs & Blackmore, 1998: 272). Therefore, the most appropriate position for women is in the classroom (Trinidad &Normore, 2006: 581). It should be noted, that a portion of woman seems to be not capable yet to get rid of gender stereotypes and try to entry into the "male" world of leadership (Cubillo & Brown, 2003). The identification of leadership with the "male" figure, have led those woman to think that they are inappropriate for senior positions (Bakalmpasi, 2011).

This approach is further enhanced by certain "scientific" projects that attempt to connect man – woman (supposed) different behaviors, attitudes and abilities to biological characteristics. In other words, there are different genes, different hormones and a different brain structure (Kimura, 2002, McCarthy Auger, & Perrot-Sinal, 2002, Cahill, 2005, Brizendine, 2006) located essentially at the root of the male / female

differences in personality and behavior (Kruger, 2008: 156). Thus, women are not suitable to practice administration (Brizendine, 2006).

Factors consider to be negative to women's professional growth could be external and internal (Pasiardis, 2004). External are considered those factors which are related to the wider economic, political and social environment and affect the institutional treatment of women (i.e. position of women in production and in politics). On the other hand, internal could be considered those factors relating to different individual characteristics and personal temperament (i.e. low self-esteem and self-confidence, lack of personal motivation) (Daraki, 2007: 106).

More analytically, a first category of barriers comes from women's dual role, as mother and professional (Daraki, 2007: 106). The efforts that many women do to meet the demands of both roles (mother – professional) may lead them to conflicts with their family. These conflicts may be important obstacles not only for "women's career development, but even for the prospects of a career" (Hatzipanagiotou, 1997: 295). Marriage and motherhood, much more than gender, are associated with women reduced job prospects (Mousourou, 1993: 113).

As a result, women hardly assert administrative positions that premise an increased number of labor hours and liabilities, when at the same time they fulfill maternal and conjugal role (Koutouzis & Athannasoula - Reppa, 2002, Kantartzi & Anthopoulos, 2003, Liakopoulou, 2005, Nakos, 2005). This is not to say that women teachers have no ambitions, but they are forced to suspend them due to their family obligations (Maragoudaki, 1997: 218).

A second category of barriers to women's working carriers are "temporary leaves" and more specifically the authorized take off their work to start a family and raise its new members (Bakalmpasi, 2011). Such working breaks generate problems to women's hierarchical anode, since work demands continuous (Evetts, 1988: 95).

A third category of obstacles to women's working carriers stem from the structures of the education system and the way it is organized and managed (Boutouridou & Tsiata, 2014: 43). According to Robertson (1993), whether women's underrepresentation in educational administration can be attributed to their conscious choice to avoid being caught in this bureaucratic managerial system or whether this is due to a general inertia mood, remains an open question.

A fourth category of barriers to women's successful working carriers arises from the staff selection procedures in Greece. Maragoudaki (1997: 284-286) suggested that the choice of administrators in Greece, is mainly based on partisan criteria. Although twenty years have passed since then, our assessment is that this statement maintains a degree of validity even today. In this specific staff selection process, a common practice is one in which the current government alter the selection criteria to help its own people (Athanasoula - Reppa, 2002). This "habit" contributes to the exclusion of women from managerial positions in organizations such education, where most employees are women, but they participate less actively than their male counterparts in the trade union and politics and therefore fail to promote themselves or other women (Lapathiotis, 1991).

Research Procedures

    a) Research Strategy & Technique

After we thoroughly converted the theoretical part of our study, we proceeded to design the field research. The purpose of our study was to identify and describe the way females presently serving as school principals rationalize women's administrator carriers in primary education. This objective is met by qualitative approach in educational research. A qualitative research aims to the description, analyzation, interpretation and the understanding of social phenomena, responding mainly to the questions "how" and "why" (Iosifidis, 2003). By collecting detailed data, qualitative studies highlight multiple aspects of cases under investigation, as well as facilitate the development process and clarification of conceptual categories (Kyriazi, 1999: 52)

Case Study design were employed in our study Where "Case" was the administrative region of Western Macedonia of Greece. Our research involved a total (nineteen) women serving in primary schools of Grevena, Kastoria, Kozani and Florina. Their approaches, views and experiences were investigated through semi structure, in depth interview, which was our main research technique. Semi-structured interview based on a plan, a core of questions, but gives the interviewees the opportunity to narrate events that they deem as useful or to express opinions freely, without restricting their answers to those proposed in the questionnaire or structured interviews for example. It is therefore a research on real people in real situations, which we hope that will enable readers to understand women's position in educational administration in a more easily way than a simple description of relevant theories (Cohen, Manion & Morrison, 2008: 310).

b) Data Collection and Analysis

The conduct of the interviews took place between November 2015 and February 2016. Most interviews (seventeen) were recorded, while for two of them we kept detailed notes because the women did not allow us to use our tape recorder.

In our research participated eighteen (18) women principals of primary schools of the Region of Western Macedonia. More specifically, women of our research leaded schools of Regions (former prefectures) of Kastoria, Kozani and Florina. We emphasize that in our research was not included any woman from the Region of Grevena, after all fourteen primary school principals' positions of the area occupied by men!

The following tables describe with more detail the profile of women who took part in our research:

Table 1

Age	Number of Women
35-40	1
41-45	2
46-50	4
51-55	11

Table II

Years of experience in Education	Number of Women
10-15	2
15-20	-
20-25	9
25-30	6

Table III

Years of Management Experience	Number of Women
1	6
2	3
5	6
7>	3

Table IV

Marital status	Number of Women
Married with children	15
Unmarried without children	2
Divorced with children	1
Divorced without children	-

c) Data Analysis

After we transcribed data by hand, we proceeded to analyze it using Thematic Analysis (Braun & Clark 2006). After we scrutiny read, re-read and listen the interviews, we identified six recurrent themes which we present here. Themes are accompanied by extracts from the interviews, that we believe give a best picture of participants' views.

Gender Discrimination In Education

According to participants of our research, women face discrimination not only in education but also in institutions and organizations such as local authorities, political parties, church:

"There are gender discriminations that sometimes may happen by some colleagues, and sometimes when you meet people of the municipality. Sometimes they may emphatically ignore you and some other times, in identical circumstances they may behave in a totally different way if you are accompanied by a man" (K. I.).

It seems that in our case, gender discriminations are deeply rooted and male privileges are very well established:

" In the old days, it was imperative the school heads to be male and not female ....." *(S.M).*

Men's privileges have nothing to do with some aptitudes or individual abilities, but only with patriarchal social structures that still survive in the local societies of Western Macedonia's Region:

"There are some discriminations, that do not respond to what a man or a woman deserve, but to a weird common sense that administrative positions belong to men..". *(A.G.)*

At this point we should underline that according to the women who participated in our research, before twenty years, gender discrimination problem was more acute. Lately, however, it seems that there is a positive evolution for women, particularly in education:

"Discrimination exists and I think that it depends on the age of our colleague - teachers. For example, I think that the more elderly ones, or to say better the older men see women in a different way. But I think that young people understand things differently".

Stereotypes of Women's Role

Stereotypes of women's role still exist in local societies of this region. As a result, women face discriminations that prevent them even to take part in the principals' selection process.

"Of course, there are discriminations. Look. Even in the current society, we are in the 2016, in my view there are gender discriminations that stem from to the social perception concerns woman and her skills. Certainly the social stereotypes let's say .. uh.. the social stereotypes according to which a man has more authority than a woman still exist. I can ascertain that. A woman is considered good as a "petit" teacher let's say, but a woman in administrative position is in dispute " (K.I.)

It is worth noting that those stereotypes that are related to gender roles in the family, seems to be adopted by the one single women that participated in our research. This woman appears convinced that if a woman teacher decides to make a family, she should not assume for any managerial positions:

"I can say that women who have a family have enough work to do. Truth be told, this is true. Family work and obligations takes a lot of time. Okay I am single, but I think that if I had family and if I had children, it would be much more difficult for me, because now I spend enough of my free time on my administration work at home. So, okay, in schools most collegues want to come to do their job and then leave (…). Therefore, it is difficult. I would not probably walk into this road" (S. E.)

Family against carrier

Family work distribution (obligations and responsibilities) and male and female role models within family in Greece is another factor that deter several women from claiming administrational positions in education.

". Because a woman has her family's responsibility, at least in Greece, she cannot follow her wishes. Even among progressive couples, woman plays the second role. Because she is the one that takes care of everything in the family, the daily routine. A woman has burdened herself with so many worries that she prefers to be in a classroom, to make her lesson and after this to be free to go from school and to deal with her own house. The woman is responsible for the house and the man takes on the works outside of the home." (A. E.).

Women cannot easily balance their professional and family obligations. Women have multiple roles within the family, a fact that makes a possible involvement in administrative positions (and issues and problems) to be at the expense of their free time (if they have that luxury).

"No, it's no very easy because women in general should finish all the alphabet: In family, home, school from alpha to omega. So, you always have a time deficit. I think

that my female colleagues who have young children and serve as administrators must have much help from their family. You cannot be good at both of them. You must somewhat halt one of these two. " (K.K.)

Women that took part in our research have clearly set as their priority to fulfill their family responsibilities first, especially those concerns the upbringing of their children:

"(Women) set their family as their top priority. Time is precious and they prefer to provide time for their children and not for their administrational duties (...) .. And I have met female colleagues and older ones that did not have any prejudice to take such a position, but they were afraid that they might not succeed, inasmuch they already had so many obligations. As a result, they did not enter the process of applying for an administrative position. " (T. K.)

The above mention ascertainment is strengthened by the fact most women who participated in our research decided to reclaim an administrative position only after their children became adults:

"If woman wants to be good at all her responsibilities, she should not have many things to do either as administrator or as a family member. Personally for example, I would not enter this process five years ago or even earlier when my children were still at home, and I had other obligations. Right now, my children are not at home, they are studying, they are working, so I had time to get involved, because in this working position eight hours are not enough. Not at all. This work needs many hours, and it has much responsibilities. You should be devoted to this position. " (S.B.)

Women (?) leadership

According to women that participated in our research, women manage / lead differently than their male colleagues. Women are more affective and prioritize the issues based on different criteria.

"Women can organize school functions better than men. The same they do at their homes. I firmly believe that this is a kind of tidying. Women explore any situation in detail. Instead, men are more grumpy. Women are more tolerant. They have the ability to handle school crisis. In other words, women may know many things. " (A. E)

According to our participants, men seems to be more practical and effective:

"A man school principal is very stereotyped, very aloof, unapproachable, very throughput. I cannot catch up with a man in bureaucratic issues, but to issues of pedagogy he is not imaginative at all. He is much more of a manager. " (A. G.)

Women who participated in our research believe that the identification of leadership with man, creates difficulties in their performance duties and sometimes marginalize and further discriminate them.

"There is an approach, according to which men are more dynamic. So, by the time we grow up, stereotypes pass from generation to generation, and for this reason stereotypes continue to exist in our professional careers, as well as to our everyday

lives. As a result, there is no equality of opportunities between men and women in our professional careers' (S.S).

"If a woman want to be respected as a leader, she should adopt a tougher image, at least in the beginning. She out to fight for her accreditation. Respectively, a man should only be himself"(X.M).

" When I first came here, the society of the village believed that I would not stand for long. They thought that I would resign. It took some months till local authorities, school board's members and the rest of the village's inhabitants acknowledged that I can make it with school's management"(X.M).

Clientalism

Clientelism, cultivated by politicians and trade unionists cause insecurity in women that contributed in our research:

"Women were not insiders in politics like men. Just a few of us join political lobbies. Most of us go with the cross in hand. Most of us believed that if we apply for a educational administrator's position the others will "eat" us alive " (K. F.)

We should underline here, that those woman that did not belong to any party feared that they would become victims of discriminatory procedures and judgments in the near future.

"They put their own people in the administrative positions. Men were generally more than women. Furthermore, men teachers were let's say more involved in syndicates, so principals were all ex trade unionists. They always had an involvement in all these political institutions. In the old days, this would give award of points, as the interview was made by members of the teachers' trade unions, so we would basically share a pie among them" (K. K.)

All women who took part in our research believe that syndicalism and personal relationships play important role in the selection of the educational administrators:

"I think that the interview process did not functioned as it should be, but only to give extra points to some people or to beat down some others. I think that in many cases the results were tampered. " (S. B.)

According to the penultimate law, interview was the main tool in order to prevail the "chosen ones":

"I was ranked fairly low in the process of the selection of the school principals because I had a very low rating in the interview. I understand there were people who failed the same way as myself. I had high marks -in relation to other colleagues- in terms of measurable criteria (qualifications, teaching experience), but in the interview they put me too low. I do not know exactly why this happened. Maybe it was my inexperience, my anxiety….. some ccolleagues told me that there were others who should be settled first" (L. T.).

Incentives & Current Family Obligations

Women - principals of our research consider that a woman's wish to disperse her knowledge, to utilize her experience and skills, to fulfill her aspirations and to improve her finances are the strongest incentives to apply for an administrator's position.

"It was the mood for knowledge, in general and in all areas (...). Not clear ambition, because some people are very ambitious and they work to achieve their goals. They want to reach there. I was interested and I am still interested in what I will meet when I reach at a certain point"(G. F.).

"I want to have the experience, to live this and something more. Namely to evolve, to not be stagnant. And to climb a step further. I marched this way in my entire life. I studied, I got my degree and then I said that I needed to do something further, so I participated in a post-graduate program. That way we climb a stair further and do something better. Not only for ourselves but also for all of us" (S. E.)

Another striking finding of our research is most women principals that took part in our research serve in rather small schools, located in little towns, not in big cities' (capitals of the prefectures). This may be the result of their choice:

"The woman burdened herself with much responsibilities, especially housework, in a way that she could not have any professional development. They can hardly apply for a post graduate degree. Furthermore, trade union contribute to women's downgrading in education, as men have always better public relations. In other words, a woman prefers to be principal in a village, where she would have fewer responsibilities and more time to deal with her family." (A. E.)

In other cases, the fact that participants in our research serve in small schools could related to stereotypes or to their shortcomings in qualifications.

"Women did not have the standard qualifications to get a principals position in a big school. When they have them, of course they claim it (the position). If they had the standard qualifications, they would claim it but they don't have them and for this reason this is what happens. Educational authorities seem to passes that stereotypes as well as trade union"(M.X).

In Lieu of an Epilogue

The purpose of this study was to investigate the status of women in the administration of education in Greece. From our research data, it appears that in our Case, namely in the administrative Region of Western Macedonia (Greece), there are still gender discrimination in education. According to the women who participated in our research, this phenomenon, which was more intense in the past, is due to the strong social stereotypes, women's role in Greek society and clientelism that exist in education.

Despite the obstacles and discriminations that still exist in education, women want to use their knowledge and experience from a different position. Women that participated in our research want to fulfill their ambitions, but also to benefit from the better salary that a school principal gets.

Changing stereotypes and achieving greatest contribution of men in domestic and family responsibilities remains an open question for this part of Greek society. We should not here that a number of measures that was taken in order to increase women's participation in political and social life (quotas in ballots and local councils) seems to have promote women's rights. But, as our research data shows, there still remain to be a number of interventions in teachers, parents and wider local community, in order to overcome the stereotypes, break down barriers and achieve gender equality.

We believe that our research finding are of importance to educational policies that aim to women's equal opportunities and treatment in education. To achieve better schooling and a better society, we first need to eliminate discrimination, fight against stereotypes and ensure equality of opportunities for all, no matter their class, ethnic origin, gender, abilities and sexual orientation.

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Equal opportunities in education: the role of the curriculum

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Even though a fixed curriculum provides an accessible framework for teaching, restrictive curricula may raise barriers to equal opportunities in education. Thus the objective of our study was to understand the effects of the Cyprus curriculum on equal opportunities in education regarding disabled children and the consequent implications on teaching practice and inclusion. To this end, we conducted a mixed methods research, during which 536 secondary education teachers responded to our questionnaire and 21 Greek philology teachers participated in semi-structured interviews. Data analysis revealed that, even though the current curriculum does not seem to promote equal opportunities in education, there is hope for improvement because of inspired teachers.

Extended summary

Objectives or purposes

Given that, Cyprus teachers tend to think on the basis of a medical and charity model, while they favour special schooling for specific groups of children, which result to marginalization and exclusion, i.e. inequality (Angelides, Stylianou & Gibbs, 2006; Symeonidou & Phtiaka, 2009), the objective of our study was to understand the effects of the Cyprus curriculum on equal opportunities in education regarding disabled children and the consequent implications on teaching practice and inclusion. Our research questions were:

- To what extend are equal opportunities in education confirmed by the official curriculum in Cyprus?
- To what extend do teachers abide by the given curriculum and what are the implications on inclusion?

Perspective(s) or theoretical framework

Even though following a fixed curriculum provides an accessible framework for an educational course and an end goal for teachers, curricula may have negative implications, too, because of imposed restrictions (Westbury, 2008). Thus, restrictive and monolithic curricula may raise barriers to equal opportunities in education, because they discourage change and quell innovation and flexibility, which are prerequisites for the inclusion of disabled children (Erevelles, 2005). In fact, inclusive teaching is about adapting instruction to the disabled children's needs (Graham & Slee, 2008). On the

other hand, exclusion is related to the political character of curricula, which perpetuate dominant ideologies and power relations through pre-determined official knowledge (Apple, 2000). In this way, curricula propound selected aspects of social life which reproduce the social hierarchy and keep less powerful groups marginalized (Giroux, 2010).

However, as evident in international treaties such as the Salamanca Statement, attempts to realize inclusive education have intensified during the last decades (Armstrong, 2005). Inclusion is about social justice, equity and citizenship; it is about the right of all children to full participation in education, and equal provision of opportunities, to help them reach their full potential (Symeonidou & Phtiaka, 2009; United Nations, 2007; Vlachou, 2004). Despite the existing legislation, shifting students around on the educational chessboard does not necessarily imply inclusion (Graham & Slee, 2008). Actually, effective inclusive practice at school seems to be impeded by discriminatory barriers related to current ideologies and everyday practice towards disabled children, which, underpinned by the current curriculum, justify and perpetuate oppression (Abberley, 1987; Barton & Armstrong, 2001; Erevelles, 2005).

Teachers become accomplices in this process of exclusion by remaining pathetic performers that always abide by the curriculum, even when the truth about the social construction of disability is sidestepped (Erevelles, 2005; Terwell, 2005). Thus teachers get trapped in the paradox of postulating commitment to promote learning, while at the same time they believe that they have no control on the presumed principal learning factor, i.e. learning ability, as an allegedly innate and unchangeable personal trait (Hart, Dickson, Drummond & McIntyre, 2008; Tuval & Orr, 2009).

This assumption is confirmed through a curriculum that does not consider prior experience and learning opportunities, as well as individual differences; in contrast, an unfair assessment is proposed, that is based on a snapshot in time (Erevelles, 2005). As a result, children with disabilities get labelled as able or not able to learn. In this framework, teachers prefer to think in terms of the norm and then categorise their students according to abstract notions of intelligence, in a purely comparative and selective manner, underpinned by the curriculum (Graham & Slee, 2008; Tuval & Orr, 2009).

Since in Cyprus efforts to reform the curriculum are currently being observed, it seems important to explore the effects of the curriculum on equal opportunities in education, so as to make suggestions for improvement.

Methods, techniques or modes of inquiry

In order to answer the above research questions, we conducted a mixed methods research, based on the two-phase model. According to the latter, the researcher starts off with a quantitative approach and proceeds with a qualitative one. In this way, it is possible to gather information regarding the general trends and attitudes, which are then explored and explained further through qualitative data (Creswell & Plano Clark, 2007).

In this way a comprehensive picture may be drawn regarding the effects of the curriculum on equal opportunities in education and the relationship with inclusion and teaching practice.

Based on the above model, we delivered questionnaires to a representative sample of 536 secondary education teachers in order to gather information regarding their general attitudes and trends, their commitment to abide by the curriculum and the extent to which their teaching practice was reflecting equal opportunities in education and inclusion. Most of the participants were familiar with disability: the majority (71.1%) had taught disabled children in their classes sometime during their career; half of them (50.2%) had offered support lessons to disabled children, while a larger percentage (66.2%) had worked in a school with a special unit.

Following the data analysis, we proceeded to the second phase of our research. We interviewed 21 Greek Philology teachers so as to further explore and explain our findings from the first phase. The participants were selected through a combination of typical and snowball sampling methods (Robson, 2002). Our sample comprised only Greek Language teachers, because they usually spend more time with the same class than other teachers do; hence they are more familiar with the students' needs and personalities. In addition, they teach literature as well as language. This gives them the freedom to discuss and share ideas with the students, and circumvent or not the official knowledge.

Quantitative data was analyzed with SPSS, while qualitative information was analyzed with thematic analysis (Robson, 2002). Our research was compliant with research ethics. Thus we kept confidentiality and anonymity during the presentation of the results.

Data sources or evidence
As described above, data sources comprised the opinion of secondary education teachers, as expressed in questionnaires and interviews.

Results and/or conclusions/points of view
The statistical analysis revealed that half of the secondary education teachers (49.6%) believe that school does not support equal opportunities in education for all children and thereby it is not inclusive. In addition, two-thirds of the participants (68.9%) believe that schools are not adequately prepared to welcome disabled children, even though accommodating disabled children's needs is a matter of distributing social justice. Moreover they believe that the educational system in Cyprus is dysfunctional (63.2%) and that the current curriculum does not permit initiatives being restrictive, too (66.9%). Ironically, despite the negative implications of the curriculum and schooling on disabled children, half of the teachers admit that they always abide by the curriculum (50.9%).

However, there is still hope for a better future regarding equal opportunities in education through inclusive teaching practice in Cyprus, since the key-factor for change seems to be the teacher. Participants believe that teachers have the power to effect change, distribute social justice and establish inclusion, since they are the ones who decide what they will do in their own classroom (74.5%). As stated during the interviews, even though participants do not usually differentiate their instruction, they try to find ways to respond to the disabled students' needs through attending relevant seminars or asking advice from more experienced colleagues.

In addition, since teachers have the freedom to teach texts and poems which are not included in the curriculum, the participants commented that they often choose material that fosters critical thinking and raises awareness towards discrimination, racism and injustice. It seems that inspired teaching practice can, and does, overcome the barriers imposed by the curriculum and pave the path towards the implementation of equal opportunities in education and inclusion.

Educational importance of this study
The above study seems to be important for education, since it sheds light on the relationship between equal opportunities in education and the current curriculum. Moreover, since educational reform is currently being planned in Cyprus, it is important to inform policy makers regarding likely problematic issues that need to be taken into consideration.

Connection to the themes of the congress
Since the general theme of the congress is "Quality and Equity in Education: Theories, Applications and Potentials", the above study, which explores the role of the curriculum in equal opportunities in education regarding disabled children, seems to be closely related to it.

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Measuring quality and equity in special education units: an action research

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Inclusive education is about equal opportunities in education for all children, regardless of ability. Thus, the purpose of this study was to explore the factors related to quality and equity in education for disabled children enrolled in special units. To this end, we conducted an action research, in a school where a special unit was established. Our research tools were a) observation of the children at the special unit; b) semi-structured interviews with stakeholders; c) a structured questionnaire for the students of the school. Even though analysis of the data showed an exclusive attitude and practice, our intervention had a positive impact and paved the path for improvement.

Extended summary

Objectives or purposes

The purpose of this study was to explore the factors related to quality and equity in education for disabled children enrolled in special units. In this way, this study would inform the design of interventions aiming to create an inclusive setting and improve the children's well-being as a matter of equal opportunities in quality education.

Perspective(s) or theoretical framework

Inclusive education is about equal opportunities in education for all children, regardless of ability (European Commission, 2010; Gallagher et al., 2003). Within this framework, a trend towards enrollment of disabled children in mainstream schools has been observed during the last few years; this is underpinned by international conventions, such as the UN Convention on the Rights of Persons with Disabilities (United Nations, 2006; UNESCO, 2004), and initiatives, such as the European Agency for Special Needs and Inclusive Education, that aim to inspire national legislation towards equal access to quality education (European Commission, 2010). In Cyprus most disabled children are entitled to enroll in mainstream schools, as the law 113(I)/1999 mandates (Cyprus Parliament, 1999). However, children labeled as children with severe disabilities are segregated either in special schools or special units, where they still have a fragmented curriculum, which, according to the Ministry of Education and Culture (MoEC, 2016), emphasizes socialization rather than learning (Pieridou, 2010; Phtiaka, 2006; Symeonidou, 2009).

Yet, segregation, coupled with a curriculum that does not aim to enable disabled children maximize their potential, seem to violate the children's right to receive quality education alongside their peers. Moreover, when children are educated separately, they are less likely to develop partnerships and friendships (Barton & Slee, 1999; Richards & Armstrong, 2011). Therefore, special units seem to function within a contradiction: on the one hand their alleged purpose is to prompt disabled and non-disabled children integrate and intermingle; however, the inevitable segregated setting seems to create a restrictive environment and encourage separation and alienation (Ferguson, 2008; Muuya, 2002). Ironically though, in Cyprus, special education units have proliferated recently, albeit the obvious negative implications for the implementation of inclusive education and the distribution of social justice (Angelides & Michailidou, 2007; Phtiaka, 2007).

Thus, during the academic year 2016-17 a special unit was installed at a secondary education school in Cyprus, where one of us is currently working as an assistant head-teacher and four of us are school students. Five disabled boys aged 16-19 were enrolled at the particular special unit, each one with a different disabling condition, i.e. autism, Asperger syndrome, severe and mild mental retardation and schizophrenia. According to the law 113(1)/1999, disabled children in Cyprus special units attend a special educational program that is decided by the school head-teacher and the special education committee. The latter decide also the duration of their stay in the special unit. By the end of each academic year, disabled children in special units get a certificate of attendance which is not equal to a high-school degree. Therefore graduates from a special unit are not allowed to continue with tertiary education. Besides attending fundamental lessons such as Language, Mathematics, Music and Art, children are transferred from special units to particular workplaces twice a week to gain work experience. They are also entitled to attend lessons in mainstream classes without being graded, given that the teacher agrees (Angelides & Michailidou, 2007; Cyprus Parliament, 1999).

Despite some efforts of the aforementioned school to create an environment, where the above disabled children would feel welcomed and happy, the function of the particular special unit did not seem smooth. In particular, the five disabled children seemed marginalized and isolated, while some of them developed anger bursts and expressed a strong desire to leave the special unit. Based on the above observations, we tried to answer the following research questions: a) Which factors are related to the decreased well-being of the children in the special unit? b) What changes and improvements can be done so as to create an inclusive setting and improve the children's well-being, as a matter of equal opportunities in quality education?

Methods, techniques or modes of inquiry
In order to answer the research questions, we decided to conduct action research, which constitutes a powerful tool for schools that may help them to make progress on school-wide priorities and meet the needs of a diverse student body (Sagor, 2000). As

mentioned above, one of us is an assistant head-teacher in the secondary education school where the particular special unit is based; she is also responsible for the implementation of special education programs in that school. The other teaches inclusive education at the university. The assistant head-teacher liaised with the university teacher to begin the cycle of action research in that school. In addition, seven school students of the sociology class of that school, with the same concerns about disabled children, participated in the action research. According to Sagor (2000), involving stakeholders in action research is important because of being related to commitment and engagement in the planning process.

Within this framework, we followed Sagor's (2000) seven-step process. Thus we began with serious reflection about the topic of our research. We concluded that being happy at school is a right of every child and that we had to do something about it. The second step involved identifying the values, beliefs and theoretical perspectives we held. Thus, we decided to frame our research within the social model of disability, according to which disability is socially constructed (Oliver, 1990), and the interpretivist paradigm, which postulates that reality is constructed intersubjectively (Bryman, 2008). The next step was to identify our research questions, which have been stated above.

To ensure validity and reliability, we then decided to avoid relying on a single set of data. In addition, we agreed to employ more than one research tools. In this way, we used a) observation of the children at the special unit; b) semi-structured interviews with the head-teacher, one assistant head-teacher, some teachers, the students' board and the school caregivers that worked with the children of the special unit; c) a structured questionnaire that was delivered to the students of the school, where the special unit is based.

We also made plans to analyze our quantitative data on SPSS and our qualitative data with thematic analysis. The final two steps will involve reporting our findings and taking informed action, based on the participants' suggestions and the relevant literature. Our intervention will be evaluated and a second action research cycle will begin, based on the feedback.

Data sources or evidence
As described above, data sources comprised the opinion of the head-teacher, one assistant head-teacher, teachers, the students' board, the students and the school caregivers that worked with the children of the special unit, as expressed in questionnaires and interviews. Moreover, we gathered data through observation.

Results and/or conclusions/points of view
Until February 2017 we managed to observe the five disabled-children (referred here with the pseudonyms Marios, Gerasimos, Yiannis, Kyriakos and Savvas) during their lessons in the special unit. We noticed that sometimes the children seemed to be bored and not interested in the material they were presented by the teachers. In addition,

Kyriakos usually teased the others; moreover, when he was upset, he used to open the classroom door and run outside. Gerasimos and Yiannis kept some distance from the others and liked to be left alone. However, when the participant students intermingled with the children and participated in the lesson, we observed that Kyriakos, Marios and Savvas performed better.

Moreover, we observed the five disabled-children during the school-breaks. We noticed that they were alone, seemed sad, and did not try to make friendships with the other students. However, when the participant students talked to them and prompted other students to do the same, Kyriakos, Marios and Savvas responded happily and exchanged information with the other students about their life at school and their interests, their telephone numbers and facebook.

We also conducted interviews with one assistant head-teacher and three teachers of the special unit. According to them, the main barriers to inclusion encompass lack of infrastructure and equipment, inadequate teacher training and incompatibility of the disabled children's needs. In order to dismantle the above barriers we decided to ask the school personnel, the parents' board and MoEC for equipment. We also planned a seminar on class management and differentiated instruction for the teachers at the end of January.

After gathering and analyzing the data from all the interviews and the questionnaire, we are going to plan further interventions, which will be applied and evaluated by the end of this year.

Educational importance of this study
The above study seems to be important for education, since it sheds light on educational quality and equity issues. Moreover, it provides evidence regarding the function of the special units in Cyprus and likely interventions for improvement.

Connection to the themes of the congress
Since the general theme of the congress is "Quality and Equity in Education: Theories, Applications and Potentials", the above study, which explores issues of quality and equity in special units, seems to be closely related to it.

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Action Research for Teacher Professional Learning: Focusing on Resilient Students with Migrant Background in the Cyprus Educational System

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According to Stoer and Cortesao (2001), education that strives for quality takes into account diversity. Consequently the educational process which takes into account sociocultural diversity is developed in an *action research context.* The paper presents an action research which focused on resilient students in an urban school in Cyprus. The teacher and her critical friend focused on resiliency and enhanced teacher professional learning at school by investigating the profile of three migrant female twelve year old students, with excellent learning outcomes. Reports of academic performance, teacher's diary notes, reactions of the students to specific planned activities in the classroom were analyzed to extract information on the sociocultural background, language proficiency, personal skills and interests, daily habits, as also persons and places that acted as landmarks in life shaping personality and achievement. The whole process worked as a teacher professional learning in the school which enabled teachers to select methods, approaches and make pedagogical decisions that strengthen all students and enhance facets of the role of teachers in quality and equity in education.

Extended summary

The paper illuminates our experience engaging teachers in an action research study where shared interest in a common educational issue—the success of children with migrant background in the Cyprus education system led to collaboratively investigate ways we may adopt to intentionally contribute to improving the educational experiences of our students. During the study we used practitioner research involving various activities such as student-created digital stories combined with an investigation of children's background using a protocol. This led to a reflection of teachers in the school in order to recognize and implement ways for enhancing students' achievement.

The following specific research questions guided the study:

1. How can focused conversations initiated by students' photographs and digital stories help the teacher become more aware of social constructions of migrant biography and resilience and how can they contribute to teachers' awareness of their role?

2. How do teachers understand the ways in which these labels encourage and/or hinder an equitable education?

The paper begins by sharing the relevant literature related to the study, which centers on resiliency and on-0 how professional learning can influence it. The literature discussion illuminates the current state of professional learning and elaborates on the need for shifting into a more holistic, participatory, and collaborative approach to make professional learning more effective. Next, a discussion of the study follows focusing on how the use of specific activities can result in an effective form of professional learning that promoted new understandings and shifted teaching practices. Finally, recommendations for facilitating this type of work in schools are made.

Perspective(s) or theoretical framework - Literature review
The term "resilient students" as used in PISA studies refers to students who, are in the most disadvantaged quartile of students in their country, but nevertheless score in the top quarter on the PISA assessments. Results suggest that top-performing educational systems succeeded in supporting the disadvantaged at-risk students to achieve high academic performance (OECD, 2012) while native students and students who speak the language of the test at home are over-represented to a marked degree among resilient students (and under-represented among disadvantaged low achievers). Early discussions of resilience in the school context described the "invulnerable child" who could thrive in spite of extreme adversity (Anthony & Cohler, 1987). Criticism of these discussions showed that the focus on this invulnerability overemphasized innate traits and certain personal strengths like social skills, problem-solving ability, and self-regulation contributed to resilient outcomes (Cloitre, Martin, & Linares, 2005). There were also references to the capacity of the migrant families to adapt their belief systems and make meaning of adversity (Walsh, 2003, Parra-Cardona et al., 2006). Challenges of migrant life were associated with the opportunity to improve their quality of life as well as to financially secure the future of their children.

However, Butler (1997) made one step further by referring to resiliency as an interactive and systematic phenomenon, which reflects a complex relationship of inner strengths and outer help throughout an individual's life span embracing concepts of hope and possibility. Factors which enable students get over any adverse elements and succeed can be care and support, opportunities for meaningful and active participation, vision for the future, social competences, problem solving skills (Benard, 1991, Brendtro, Brokenleg, & Van Bockern, 2002). Kossek and Burke (2014) stressed also the impact for teenagers of having someone in their lives who believed in them and truly cared about them as individuals, accepting them in spite of their choices. Parents, grandparents and siblings, seemed to have encouraged students to persist and their teachers were described as willing to help and listen to and believing in success. In particular, when support from home was lacking, teacher relationships were fundamental in empowering students to overcome their circumstances. Such experiences which draw students out of failure and toward success formulate three

primary categories: participation in school assignments or programs meaningful and related to future plans, athletics and outside experiences such as raising a child, being involved in church, or holding jobs that provided connection and meaning (Kossek and Burke, 2014). In a similar way Modood (1993) used the concept of "mentality", referring to the 'motor' of migrant populations overcoming disadvantage which lies in migrant parents getting their children to internalize high educational ambitions and to enforce "appropriate behaviour" (Modood, 2004, p. 87). The notion of "Motor" was used by Modood (1993) as a kind of cultural capital, not necessarily tied to economic class position.

So since migrant students tend to have lower education outcomes than their native peers as PISA studies have consistently shown, certain characteristics of the education system, teacher expectations, classroom environments and school organization can be identified to contribute to shaping migrant students' learning experience through interaction with individual characteristics of students (Nusche, 2009, NESSE, 2008). The study aimed at enabling teachers see how diverse student characteristics are associated with resilience within the educational system and identify patterns and interconnections in the relationships of resilience to student approaches to learning, the specific cut-points for socio-economic disadvantage and academic achievement or interrelation with other issues such as gender or language and immigrant background appear (OECD, 2012).

Methods, techniques or modes of inquiry
For this purpose action research methodology which operates in partnership and research questions and design are developed with the teacher was implemented. According to Stoer and Cortesao (2001), education that strives for quality takes into account diversity and the educational process which takes into account sociocultural diversity is developed in an action research context. Action research methodology was implemented to explore the biography of three migrant girls who were considered as resilient students and act to foster resiliency aiming at implementing Elliott's notion of action research:. "the study of a social situation to improve the quality of action within it" (Elliott, 1991, p. 69), which refers to any research into practice undertaken by those involved in that practice, with an aim to change and improve it. It is a process of enquiry of the teacher into the effectiveness of his/her own teaching and his/her students' learning. It entails both 'action' and 'research' and the links between the two. The action research process is cyclical with inter-related stages comprising planning, acting, observing and reflecting. It is also collaborative, qualitative rather than quantitative and it involves critical reflection on the process and the outcomes. It usually starts with a question or an observation about an issue by students in their learning and continues on some action to investigate the question which involves collecting some evidence. The process is spiral as reflection on action and findings lead to another question and further action.

In the case presented in the paper, the close connection between action (teaching) and

research makes the approach particularly attractive and revealed the added value of the self-initiated approach of the teacher herself to research and to come to an improvement in practice as a legitimate part of effective teaching in her school. Although life circumstances and definitions of situation are unique, investigating them can lead to useful conclusions for others. So in this sense the paper aims at empirically investigating the situation of the three girls in the real context and improve teaching and learning in the school (Altrichter, Posch and Somekh, 1993). The action research cycle implemented in this case consisted of four steps (Αυγητίδου, 2014). They were based on the idea of action research as the main route of teachers' professional learning and were applied in the school in cooperation with an external facilitator/researcher from the Teacher Training Department of the Cyprus Pedagogical Institute. The steps are presented as follow

- Investigating personal theories - describing the situation
- Theoretical investigation – data collection
- Action- implementation
- Evaluation – setting new questions

The purpose of the present study was to look for and listen to the students' voices and enable teachers find solutions regarding the promotion of the state goal for improvement of all students' learning outcomes and achievements. The profile of the three girls was in contrast with the expectations of their classroom teacher. This contradiction consisted a source of motivation for further investigation. It generated the question of how high performance and low socioeconomic background are related in the biography of these children. Despite the hard life circumstances, positive aspects seem to influence their learning and personal development.

Based on these observations, the study attempted to investigate which aspects function in a way that strengthens and enhance resiliency. As a second step it aimed to relate these aspects with the school life and reflect teachers' professional learning in order to implement effective elements in the school context

Data sources or evidence
This study took place in an urban school in experiencing noticeable over-representation of students with migrant background from various countries. One teacher from the school participated as core searcher in the study. Data Sources and methods of data collection included:

1. Observation
2. Investigation of background through previous records
3. Interviews with parents
4. Teacher's diary notes
5. Critical discussions derived from certain activities during Health Education sessions
6. Teachers' workshop

Mixed methods were employed to look at the level of classroom and school. The

descriptive content analysis focused on the children's academic performance portfolio and the teacher's journal/diary where interactions and incidents of their daily life in school and at home, skills, attitudes and behaviors were reported. Diary notes offered useful information about the socioeconomic and academic status of the parents, their attitudes and expectations related to the academic progress of their children, the house circumstances, routines and free time, important places, persons influencing their lives.

Results and/or conclusions/points of view
The teacher/practitioner together with the external facilitator proceeded to an analysis of experiences and revealed various aspects which were decisive for developing resiliency to the participants. All data were analyzed and categorized according to their content. The following main categories were formed according to the information:

1. Self-respect and self-control attitude
2. Daily Tasks and sense of duty
3. Being an important part of a Group

The project created a better knowing and understanding leading to a positive teacher – student relationship. As a second step explored how effective aspects can be extended in order to empower more students. There was a great need for the school to create opportunities and places where the students feel that they are members and can interact with people who can influence them positive. The researchers with the teachers discussed the way these data could be used so that the school will "adjust" teaching to certain identity aspects of children which are decisive in their personal and learning development. The daily experiences of each child, despite how hard and complicated they are, offer a field for further investigation and interpretation. In this way, constructive connection of how limitations and competences could be associated, gave the chance to deal with the negative circumstances of life in a positive and productive manner. When the school unit is aware and provides a supportive environment, students feel safe and cared and develop their personal and learning skills.

Educational importance of this study - Connection to the themes of the congress
While this study focused specifically on the three students with migrant background the design could be used to help teachers investigate their assumptions about all students, including those with migrant background or students of low socioeconomic status. When teachers shift their thinking about students to resiliency factors they can capitalize on their own impact and the school impact on students' strengths, interests and achievements. The result of this decision is improved educational experiences for all students. The study can continue to provide that "refreshing change" that is so desperately needed, both for teachers and for students, so that schools can offer boundless and enriching academic opportunities that challenge and engage all students" (Allen, 2016).

Professional learning often fails to enhance teaching and learning when applied in the

form of isolated workshops, occurring outside the classroom and involving an expert who talks and emphasizes test scores or research results. The approach to professional learning described above and adopted by the Cyprus Pedagogical Institute is more responsive to teachers needs and goals, and shows a shift to a more "holistic" and "participatory" approach of professional learning emphasizing teacher-practitioner research. Successful professional learning becomes collaborative in order to result in teachers' collective sense of responsibility. "Teachers in the same school share students and challenges, and professional learning involving collaborative discussions to reach promising solutions to meet student needs may sustain changes in practice over time" (Garet et al., 2001, p. 942).

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Paper 2

Implementing changes in schools for school improvement: evidence from interviews with 12 newly appointed Cypriot heads

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It has been found that a headteacher's role is key to effective teaching and quality learning and headteachers internationally are expected to act as instructional leaders and change agents, who lead learning and influence staff towards school improvement through strategic planning at school level. This paper explores the role of school culture and trust among staff in promoting a head's vision for the school and the implementation of changes towards school improvement, through the lens of organisational socialisation theory. The findings presented in this paper emerged from interviews conducted with twelve headteachers to gain valuable insights into their lived experiences in schools, while aiming to reshape school culture to reflect their vision for school improvement.

Extended summary

Within the context of reform changes in education that aim at school improvement and enhanced pupil learning outcomes (Fullan 2009; Pashiardis, 2014), there is an emerging consensus that a headteacher's role is key to effective teaching and quality learning (Bubb & Earley, 2010; OECD, 2012). While Cypriot headteachers for years have been mainly 'responsible for school administration and management' (Nicolaidou, Karagiorgi and Petridou, 2013), they are nowadays expected to see themselves as instructional leaders and change agents (CPI, 2009), who lead learning and influence staff towards school improvement through strategic planning and self-evaluation initiatives at school level. This paper explores the role of school culture and trust among staff in promoting head's vision for the school and the implementation of changes towards school improvement, through the lens of organisational socialisation theory (Merton, 1968; Van Maanen and Schein, 1979). The findings presented below emerged from a greater study into Cypriot headteachers' preparation and induction in schools that took place five years ago. The study is located within a series of studies into the organisational socialisation of new heads in schools.

When new heads assume a headship post to a specific organisation, they experience *Organisational Socialisation* (OS), which includes learning the knowledge, values and behaviours necessary to perform the role within a particular organisation (Weindling, 2003). Van Maanen and Schein (1979) defined it as 'the process by which one "is taught and learns the ropes" of a new organisation role' (p.211), while Merton (1968)

described the OS of newcomers as a series of stages that they move through to become organisational members. Within organisational socialisation theory, OS is viewed as a two-way interaction between the individual (the new headteacher) and the context (the school), which is largely characterised by school culture.

Understanding the school culture in any school forms the core of action implementation in the organisation. For novice headteachers to influence the organisational culture and promote their vision for the school, entails 'decoding the signals to arrive at the central beliefs of the organisation' (Lumby, 2001, p.143). While school leaders interact with the organisational culture both 'in terms of efforts to include the multiple cultures which may be present and also to sustain, adopt or change the dominant culture' (Lumby and Foskett, 2008, p.56), they are concurrently shaped by school culture within which headship is enacted. Teachers, parents and pupils hold strong expectations about how headship should be enacted in the particular school and respond accordingly to a new headteacher's attempts to challenge the status quo and implement change in school. Trust among school staff is also considered an important aspect for school improvement, 'commonly thought of as the lubricant that keeps organisations running smoothly' (Day et al., 2011, p.10). In schools with low level of trust, leaders usually face resistance in their improvement efforts, as staff members are unwilling to collaborate towards common goals.

Various reform initiatives worldwide are currently calling for school principals to act as transformational leaders to promote effectiveness into their organisations (Leithwood et al., 1999; Crow, 2006). Edgar Schein (1996) talked about creating culture as the most significant task of leaders but also the most difficult one, while Fullan (2001) proposed that 're-culturing' an organisation and understanding the processes involved in cultural change, are, perhaps, the greatest challenges for headteachers in promoting school improvement.

Headteachers socialisation in schools, which this study explored, is a complex and multi-dimensional issues that is contingent on people's lived experiences and social interactions in specific school contexts. Hence, the interpretive and pragmatic perspectives (Briggs and Coleman, 2007) informed this study and a sequential mixed-methods design was employed to draw on new heads' perspectives and experiences in post during a period of two and a half years. For the purpose of this paper, evidence is drawn from semi-structured in-depth interviews and follow-up interviews conducted with twelve headteachers during the last stage of the study to gain valuable insights into their experiences in schools.

The findings of the study confirm that on entering a school the head aims to reshape school culture to reflect his or her vision for school improvement (Lumby and Foskett, 2008). However, 're-culturing' a school proved a year-long process for most heads to foster trust and collaboration between staff, prior to introducing changes towards school improvement. Prior to applying aspects of their instructional role in schools, all heads

followed the same steps in establishing changes in schools. First, heads invested time to establish firm personal and professional relationships with everyone. They also aimed to identify teachers' strengths to look for alliances in bringing about changes and implementing their vision in schools. Good personal and professional relationships with staff, as well as deputies were acknowledged as central for the success of change implementation initiatives. Also, more than half heads attempted to establish an academic learning climate and create a shared vision towards common goals, while three heads found it particularly demanding to establish a rapport of trust and a positive working culture amongst staff. Heads attributed their difficulty to establish a supportive culture towards school improvement to staff's rotation among schools around Cyprus, which causes instability in schools and prevents the development of a common culture and strong relationships between colleagues. Then, heads aimed to achieve good communication and links with people outside school, such as parents and the local community. They wanted parents to be aware of school's work and be involved in the teaching and learning process. Informing parents about school work and involving them in decision making for school improvement was highlighted by half of the interviewees as central for their efforts to create a positive image for the school and gain parents' support in implementing changes in school. Establishing discipline and a positive image for the school, as well as upgrading school infrastructure and teaching resources proceeded instructional leadership.

With regards to change implementation, introducing structural changes in school was an easy process for most heads who dealt with it early on. The support of teachers was granted especially in cases new heads informed staff during meetings and explained the reasoning behind their actions. However, while introducing changes regarding the working culture and the way things were done in schools, new heads' experiences varied according to the nature of the change, teachers' readiness to accept the change and the headship stage during which the change was introduced. Acknowledging the bidirectional relationship between school culture and the appointee, it was unavoidable for all new heads to experience highly emotional incidents during the first months, while trying to bring about changes to which staff resisted. Interestingly, the data suggests that interviewees used various metaphors to describe their negative socialisation experiences in post.

As it has been argued elsewhere (Hart, 1993), the findings confirm that school culture and trust among staff had a pivotal role in heads' attempts to introduce changes in schools and implement their visions for school improvement. In an era of increased accountability and pressure towards school improvement, the nurturing and support of school leaders to meet the challenges of headship in their attempt to promote school improvement are considerably greater nowadays than they have been before. While reflections on professional and personal experiences cannot be generalised, they may provide valuable insights into how novice headteachers interact with school culture and context and build an understanding of how leadership is enacted and changes are implemented in schools. Furthermore, understanding the larger occupational context of

headship is necessary in the ongoing dialogue concerning school improvement and the principal's role, as heads play a crucial part in maintaining and improving schools. As Menon-Eliophotou (2012) put it, heads are 'the main point of reference in the school culture and a strong influence on the level of collaboration and progress' (p.226) in schools towards school improvement.

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Improving the intercultural school: Reflections from Cypriot schools

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Contemporary phenomena, including globalisation and migration, have altered the socio-political and cultural conditions of schooling. Schools are called to respond to such change through improvement efforts fostering interculturalism. This research examines school actors' perceptions of promoting improvement in intercultural schools. In the context of Cyprus, we carried out observations and interviews with head-teachers, teachers, students, and their parents. The participants perceived listening to student voice, socio-emotional and culturally-responsive teaching, and increased parental involvement as important inputs for the improvement of intercultural schools. These factors bear implications for school-based leadership, building successful professional communities, and enhancing intercultural competence in schools.

Extended summary

Objectives or purposes

Postmodernity has created an era of change calling schools to respond to a wide range of new socio-political, cultural, and economic phenomena. Sutton (2005: 97) points out that the "epochal" dimensions of this new era, such as globalisation, wide scale human migration, and global recession, "have complicated social identities within many nations and therefore stimulated public debate on how pluralism is recognised in the curriculum and pedagogy in national school systems". The aforementioned factors have not only become the source of "super diversity" in school settings; they have put increased pressure on schools to respond simultaneously to educational standards and efficiency, on the one hand, and to equity, social justice and cohesion, on the other.

Central to the intercultural school's academic success it is the active and meaningful involvement of all key school actors in improvement efforts. By giving them the opportunity to share their ideas and values and treat them as reflective practitioners, we unveil their perceptions of what could assist the improvement of the intercultural school. Therefore, we adopt a position of advocacy for school actors as stakeholders of school improvement. Nonetheless, in the case of Cyprus, school actors are imprisoned in a managerial, bureaucratic and highly centralised system, unable to exercise agency, assess their practices, apply new ideas as complex and critical practitioners and become partners in the reformulation of the education reform by offering their professional views and judgments.

This research aims to fill in this gap by providing a number of important insights into the process of improving the intercultural school by engaging in the research all actors

involved in the partnership. It thus aims to examine how various school actors - including head-teachers, teachers, students and their parents - perceive the successful components of school improvement in intercultural schools, in terms of school leadership, school culture, and involvement.

Perspective(s) or theoretical framework
School improvement (SI) places the emphasis on the process (instead of results) so as to provide an insight to all the variables that play a pivotal role in the SI project (Townsend, 2007). Over the past few decades, it has evolved in an attempt to conceptualise SI strategies based on the assumption that students' learning outcomes are affected by various factors such as the school, the community and home (Townsend, 2007). Nonetheless, what most definitions of SI do not acknowledge is the cultural diversity increasingly characterising the student population. Thrupp, Lupton and Brown (2007) content that as SI research is drawn by an implicit desire for generalisations of findings, it disregards 'what some schools and people in them are facing'. They thus counter-propose a contextualisation agenda aiming to build differentiated models of SI. To this end, we draw upon Kyriakides (2007) to argue that taking into consideration the cultural-diversity of specific schools by looking at how the school caters for the needs of disadvantaged children is an imperative need, in order to improve schools in terms of both quality and equity.

The need to acknowledge the cultural diversity of school population as an input of school's change is imperative. According to Kyriakides (2007) an one-size-fits-all model, which does not acknowledge students' diverse backgrounds, including socio-economic status, prior achievement, gender, and other personal characteristics, is inappropriate for successful school change. Ainscow *et al.* (2006) explain that by improving, schools become more inclusive of diversity, and vice versa; by becoming more inclusive, schools improve. Ainscow *et al.* (2006: 23) present inclusion as bounded to 'equity, participation, community, compassion, respect for diversity, sustainability and entitlement'. Arguably, the definition of SI should be reframed to acknowledge the efforts to make schools better places for *all* students and for all students to lear despite of their diversity. Additionally, cultural diversity influences not only the learning conditions, but also other internal conditions, that are the elements of change.

Methods, techniques or modes of inquiry
Cyprus has five education districts, namely: Nicosia, Limassol, Larnaca, Famagusta and Paphos. We deliberately selected ten primary schools (two in each district) as information-rich cases. Within each participant school, we conducted interviews with the head-teacher, 2 teachers, 4 children of Cypriot or migrant origin, and one of their parents. Additionally, we carried out observations in the selected teachers' classrooms for a full day per week (for the total of 5 weeks). Observations referred to occurrences during teaching, the classroom dynamics, students' behaviour, teachers' cognitions and characteristics, and teaching.

The collected data were inserted in a thematic analysis cycle. Firstly, we examined the data according to the group from which they were collected (i.e. head-teachers, teachers, parents, and children). Secondly, we read our data to understand them better. After that, we began examining our data for groups of meanings, themes, assumptions and behaviours and tried to locate how these were connected within our theoretical framework (Creswell, 2013). Thirdly, we continued the process of analysis and we divided the data into categories. Each part was named. In the fourth stage, we put all the names together in big groups to create areas of analysis. Finally, in the fifth and sixth stages of analysis, given that the categories were set to be connected to the research questions, we began looking at our data in order to substantiate these categories with raw data.

To establish the trustworthiness of our findings, we triangulated our data from multiple angles and different perspectives, continually looking for alternative possibilities and different explanations (Creswell, 2013).

Data sources or evidence
In identifying the inputs for the improvement of culturally-diverse schools as perceived by school actors, various components emerged, including listening to student voice, socio-emotional and culturally-responsive teaching, and increased parental involvement. It is evident from all the groups of interviewees that participated in our research that the development of inclusive school cultures plays a fundamental role in creating conditions of fostering school improvement by building communities where all school actors can develop and learn from each other. Through the development of inclusive cultures, schools may promote social equity by empowering all those involved to engage in a sense of purpose, one which emerges through the collaboration of committed individuals. As schools are turning into 'super-diverse' institutions, there is a growing need for developing school cultures which allow teachers, students, and parents to become skilled in building intercultural competence, tolerance and understanding of other cultures, as well as, cultural self-awareness.

Moreover, our across-group data analysis has shown that listening to all children's voices is a component of school improvement, allowing schools to build policies and practices that better cater for their students' socio-cultural needs. Similarly, listening to children's voices has gradually arisen in the agenda of education research as an important aspect that facilitates school improvement as it is considered both as a means to improve student learning in schools and as a potential avenue for the successful implementation of meaningful educational reform (e.g. Manefield, *et al.,* 2007). Our data also point to the core benefits of socio-emotional teaching for schools to improve. Socio-emotional teaching strategies aim to enhance emotional literacy in students and to help them develop friendships, identify feelings in self and others, and develop problem-solving skills.

Lastly, our across-group analysis has shown that successful school-family networks have the potential to re-culture the environments within which head-teachers, teachers, students and their families are operating to create more inclusive, collaborative and multi-agency endeavours. For this reason, parental involvement is also well documented in the international literature as a construct that facilitates school improvement and as a critical contributor to improved student performance, reduced dropout rates, positive attitude towards school, and valuing of education (e.g. Zaoura & Aubrey, 2011). Parental involvement socialises young people; parents gain social control by getting in touch with other stakeholders with whom they can discuss their children's attainment; and lastly, they gain access to important information regarding their children (Turney & Kao, 2009).

Results and/or conclusions/points of view
Schools are faced with the challenge to develop policies that address multiple, multifaceted and even contradictory values, interests, and needs. In this research, we argue that head-teachers should empower not only teachers, but also parents and their children, and the broader community to be involved in school-based management in an effort to develop inclusive school cultures. It is necessary to draw upon collaborative partnerships between schools, parents, communities, and even other professionals in order to develop operational strategies that allow for students' intercultural preparation to share a 'super-diverse' world. Multiple-perspective, collaborative, and shared school-based leadership may support decision-making for interventions by promoting intercultural competencies.

At the classroom level, teachers have to perform complex roles in order to meet the demands of a 'super-diverse' learning environment. They have to develop methods that cultivate all students' decision-making and critical-thinking skills in order to avoid future risks of social exclusion and marginalisation. Moreover, teachers should acknowledge the identities of all students in their educational practice in order to give them the opportunity to have equal learning opportunities. This will contribute decisively to their school success and improvement.

Last but not least, head-teacher, teachers, parents, and students should be interculturally trained to become involved in multiple-perspective, collaborative, and shared school-based leadership. To this end, training should encompass school actors' ethical orientation and efficiency enabling them to promote the academic and social development of culturally-diverse children. Ethical orientation refers to the values and interpersonal attributes, and orientation to diverse people, while efficiency orientation includes the organisational skills and abilities to act in various roles and situations.

Educational importance of this study
This study aims to contribute to the identification of the constructs which may act as levers for improvement within the context of intercultural schools. Such endeavour is

useful for all stakeholders at the level of both policy and practice in terms of enhancing the development of suitable and comprehensive strategies and consequently promote sustainable improvement in intercultural schools. Based on effective school improvement practices the creation of schools that value cultural diversity, and are engaged in the shared responsibility of creating, maintaining and enhancing inclusion, equity, and success for all, becomes more viable.

Connection to the themes of the congress

The congress focuses on linking research, policy and practice to promote quality and equity in education. This study mainly connects to the theme: 'Educational policy-making and the politics of change and improvement at school and country level'. The study aims to add an input in building a dynamic approach to school improvement by examining the politics of change and improvement at the school level as perceived by key school actors including head-teachers, teachers, students and their parents. If key school actors' interpretations of school improvement are important in our efforts to bridge quality and equity in schools, educational research should understand the perceptions that key stakeholders hold with regards to improvement in intercultural school settings.

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<div align="center">**Paper 4**</div>

<div align="center">**School policy on partnership and stakeholders' actions: A longitudinal study to find reciprocal links between policy and actions**</div>

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This paper proposes a theoretical framework to explore how school policy on partnership can promote student learning. School policy on partnership is considered to have indirect effect on student achievement by changing the school stakeholders' actions. A reciprocal relation between policy and actions is investigated. A longitudinal study was conducted and students' achievement was measured alongside the school policy for partnership and school stakeholders' actions associated with it. The results of multilevel structural modeling analyses supported the main assumptions of the framework. Implications for the measurement of school level factors are drawn and suggestions for further research are provided.

Extended summary

A policy consists of principles, rules and guidelines formulated or adopted by an organisation to reach its goals and are in a form widely accessible and it's designed to influence and determine all major decisions and actions that take place within the boundaries set by them. Schools can be seen as complex organisations and are therefore expected to propose a set of actions that school stakeholders (e.g., teachers, students, and parents) should follow to promote student learning (Kyriakides et al., 2015).

Since these policies are for the most part under the jurisdiction of the school as whole (Marzano, 2003) are referred to as school level factors and changes in these factors are usually a result of formal or informal policy decisions. A school policy is thus seen as a set of actions captured not only in official documents published by the school administrative team designating roles of different stakeholders but is also reflected in various documents periodically issued by the school management team, such as the minutes of the teaching staff meetings and announcements or guidelines sent to teachers and/or parents (Kyriakides et al., 2015).

As early as the late 70's, researchers in the field of education, started to focus on differences between schools and classrooms in terms of student achievement and a discussion on the importance of establishing effective school policies which may have an effect on improving student learning outcomes was initiated (Reynolds et al., 2014).This body of research though considered school factors as unified factors without attempting to distinguish actions initiated by the policy from the policy itself. This

resulted in the examination of only the direct effects of changes of a policy on student learning neglecting any possible effects of changes of school policy on student learning via changes of the stakeholders' involved actions.

This paper argues that there is a need to construct new theoretical frameworks which will contribute to theory by distinguishing policy from actions and in this way investigate the direct and indirect effect of each school factor individually on student achievement.

The development of such a framework will also have to take into consideration the fact that research in the field has already encountered two methodological imperatives: "pay attention to the multilevel organizational structure" in which education works and "collect longitudinal data" (Creemers & Kyriakides, 2008). This can be attributed to the fact that school and teachers are concerned with dynamic processes which occur within multilevel, hierarchical organizational structures (Creemers & Kyriakides, 2008, Reynolds et al., 2014). Nevertheless, the dynamic nature of school and teacher effects is also important because school effects modify children's growth and because the schools that produce them are changing (Kyriakides & Creemers, 2006). This dynamic nature generates the need for longitudinal data to measure the effect of schools and teachers on student achievement gains and to enhance the validity of causal inferences in non-experimental research by providing a basis for assessing the direction of causation between two variables and by enabling some control over selection effects (Cook & Campbell, 1979).

Therefore any framework constructed should be tested with a longitudinal study to investigate a possible reciprocal relationship between the official school policy and the actual policy implemented. Reciprocality is an important issue since school factors are considered to be situational factors. The absence of a policy may be the result of an already existing good practice at a school where as in the case of no actions or bad practice a policy is present to initiate actions.

Furthermore, any new framework suggested will not only have to be theory driven (Creemers & Kyriakides, 2008; Scheerens, 2013) but also be based on empirical studies investigating the impact of school policy on student learning outcomes (Creemers & Kyriakides, 2010).

Thus a framework based on the dynamic model of Creemers and Kyriakides (2008) was developed. The dynamic model was chosen as it makes reference to both direct and indirect effects of school factors on student achievement and was empirically validated in the context of Cyprus and beyond. At the same time, an essential difference of the dynamic model with other theoretical models of effectiveness is concerned with its attempt to reflect the complex nature of educational effectiveness by pointing out the importance of factors operating at different levels and by using five dimensions to measure the functioning of each factor: frequency, stage, focus, quality and

differentiation. In this way both quantitative and qualitative characteristics of each factor are taken into account.

For the proposed framework the term "school policy" mainly refers to actions taken by the school, teachers and parents in order to have a clear understanding of what is expected from them to do. The term does not only refer to formal documents or the official policy of the school and emphasis is not given to who designs or implements the school policy, but to the content of the policy.

The current study aims to further broaden the knowledge base concerned with school level factors of effectiveness by distinguishing between policy and practice and thus examine the direct and indirect effects school level factors have on student learning gain by focusing on the school policy concerned with partnership and tested it with a two year longitudinal study so as to investigate reciprocality between school policy for partnership and stakeholders' actions. By distinguishing policy and actions will generate the opportunity to examine both direct and indirect effects of partnership on student learning not only by detecting changes but also explain why these changes take place. Based on the outcomes of this study, suggestions to researchers on how to measure school level factors will rise.

For the study to be conducted there was a need to develop and validate instruments for measuring the school level factor under examination. These instruments will in turn provide a basis for measuring school level factors in future studies. The study lasted for two school years. In each year, an author-developed questionnaire measuring school policy on partnership was administered to all teachers and parents of the school sample.

The study's sample consisted of all fourth and fifth grade students of 22 primary schools in Cyprus, their parents and all the teachers of the school (including the administrative team).

The schools were selected using stage sampling (Cohen, Manion, Morrison, 2000). Small schools were excluded and a stratified approach was adopted to select both rural as well as urban schools. All students of fourth and fifth classes were selected (n= 738).

Data on student achievement in mathematics were collected by using equated tests administered to the student sample at the beginning of Grade 4 (September 2012) and Grade 5 and at the end of Grades 4 and 5 (May 2013) and at the end of Grades 5 and 6 (May 2014).Questionnaires to both teachers and parents were administered twice (May 2013, May 2014).

Additionally, as part of the study, two questionnaires were constructed and administered two times (May year 1, May year 2), based on the theoretical model proposed. One of them was addressing parents, including items for the school policy for partnership as the parents perceive it, their actions and their attitudes towards

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partnership. The parents' questionnaire also included items for background variables. The second questionnaire was addressing teachers asking them to give information on their school policy on partnership, their actions as well as their own attitudes towards partnership. Collecting data in more than one phase helps to draw credible conclusions about causal relations between factors and outcomes.

The data of the research were analyzed by using several statistical techniques. In particular, the data from the students' tests were analyzed using the Extended Logistic Model of Rasch (Andrich, 1988). This model was used to analyse the emerging data in mathematics and a scale, which refers to student knowledge in mathematics was created and analysed for reliability, fit to the model, meaning and validity. Thus, for each student, a different score was generated for his/her achievement at the beginning of the school year 1 by calculating the relevant Rasch person estimate in this scale. The same approach was used to estimate student achievement at the end of the school year 1 and student achievement at the end of school year 2 in relation to mathematics outcomes.

Confirmatory Factor Analyses (CFA) within SEM was used to investigate the factor structure of both teachers' and parents' questionnaires and clarify the meaning of their explanatory variables.

Having established the reliability of the scales, SEM techniques were employed to treat variables as having a double role. This made it possible to set up and test chains of variables that may influence each other both directly and indirectly, thus testing the hypotheses of the theoretical model about mediation (Creemers et al., 2010).

The results of this study could contribute in further development of the framework related to the use of the dynamic model of EER for improvement purposes. According to Creemers and Kyriakides (2006), it is expected that the dynamic model will reveal the complexity of educational effectiveness and may help us to establish strong links between educational effectiveness research and improvement practices.

In addition, school–family relationships in the Greek-Cypriot educational school system appear according to Symeou (2007) to be marginalised in the agendas of policy and practice and the few in number previous studies conducted in Cyprus (Georgiou, 1996; Phtiaka, 1996; Symeou, 2002, 2006) indicate that research in the field remains limited (Symeou, 2007). Thus a research in the Cyprus context will help expand our knowledge base in the field.
Finally the research was carried out in Cyprus and research findings may be contextual. This implies that the generalisability of this study should be tested in other contexts and should act as starting point for more across countries studies.

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Enhancing theoretical premises on the nature of students' mental representation of science concepts: The case of Force

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Quality in education is directly associated with the validity of the theories existing behind practices and thus, any improvement in these theories, enhances school effectiveness in any educational activity. Focusing on the concept of force, the present paper investigates the *coherent knowledge* versus *fragmented knowledge* hypotheses by implementing Latent Class Analysis, a multivariate robust statistical method, which can point out clusters of cases with consistent pattern of responses, revealing coherent latent variables. The results do not support the existence of coherent mental models. This finding contributes to the ongoing discussion, indicating the methodological issues related to theoretical and empirical controversies.

Extended summary

Introduction: Theoretical perspectives
School improvement depends predominately on the theoretical premises guiding teaching and curriculum development. Considering the tentative character of "theories" along with the notion of *falsifiability* within Popper's epistemology (Popper, 1983), any progress in theories is directly associated with empirical research and depends principally on the applied methodology. In social sciences, empirical inquiry often leads to contradictory evidences, frequently due to methodological issues.

A relevant example is the conceptual change theories fostered in science education, which investigate the nature of students' ideas before they acquire the scientific knowledge. There are two antithetic theories: The first states that pupils' supposedly naïve knowledge is stable and coherent, and thus it resembles to a "scientific" theory (e. g. Chi, 2005; Vosniadou & Brewer, 1992; Wellman & Gelman, 1998). The second one states that the students' naïve knowledge is rather an incoherent structure that consists of multiple quasi-independent elements known as phenomenological primitives or *p-prims*; when learning is attained these elements are organized towards the scientific view (e.g., Clark, 2006; diSessa, 2006; diSessa, Gillespie, & Esterly, 2004; Harrison, Grayson, & Treagust, 1999).).

It is apparent that the two theoretical perspectives lead to the design of different curricula and teaching approaches. However, interestingly they are both grounded on empirical research and coexist for decades, while the debate is still going on. In addition, there are also compromising views of the two theories supporting the one or the other depending on the specific topic that is under investigation or the researchers' data interpretation (e.g. Taber, 2008; Taber & Garcìa-Franco, 2010).

One of the core topics in science education is students' conceptualization of *force*. Relevant research based on certain methodologies supports the theory of coherent students' models, proposing the existence of seven categories of set responses and classifying them into the following models: (a) internal force, (b) internal force affected by movement, (c) internal and acquired force, (d) acquired force, (e) acquired force and force of push-pull, (f) force of push-pull, and (g) gravitational and other forces (Ioannides and Vosniadou, 2002). The criteria for this classification were certain response patterns. For example, a student is classified into *internal force* model if he/she responds that the force exerted on the objects is always related to their size or weight, and this response is supposedly consistent across various contexts. However, other researchers failed to replicate these results (diSessa, Gillespie & Esterly, 2004), while latest investigations provided ambiguous evidences of consistency in students' responses (Özdemir & Clark, 2009; Clark, D'Angelo, & Schleigh, 2011).

Rationale: Objectives of the present endeavor
The present paper aims to elucidate the discussion concerning the above controversial hypotheses on students' mental representation for the concept of force. As a number of researchers suggest (e.g. Taber, 2008; Taber & Garcìa-Franco, 2010) relevant ambiguities in empirical evidence is due to methodological issues, and especially due to their data analysis. The usual methodology in mental model research is based on the percent agreement between observed and expected responses. The disadvantages of this method are the arbitrary criterion of the accepted fit, which usually changes under different circumstances and the number of items used, while there is no statistical fit index for the overall proposed classification (Jansen & van der Maas, 1997). In addition, all the relevant inquiries worked at an exploratory mode and, thus, confirmatory conclusions were not valid even though the results seemed replicated in more than one cases.

In this endeavor, a multivariate robust statistical methodology was chosen for data analysis in order to detect and classify certain response patterns of students, which could infer the structure of their mental representations of force.

Methodology
Latent Class Analysis (LCA) was used as classification method, which is suitable for revealing clusters or classes based on patterns of responses (Clogg, 1995). LCA considers both manifest and latent variables as categorical, and it can identify different groups or latent classes (LC), based on *conditional probabilities*. A CP is the probability

of providing a specific answer, given that the subject belongs to a certain LC. If LCA converges to a number classes characterized by certain patterns of responses, these LCs are expected to correspond to mental models under investigation. If LCA converges to one LC model characterized by significant heterogeneity in terms of conditional probabilities, then the fragmented knowledge hypothesis is supported. The analysis provides a number of model fit indicators, such as the likelihood ratio statistic (L2), Bayesian Information Criterion (BIC) and bootstrapped p-value (Magidson & Vermunt, 2001).

Procedure and Data
The present research was conducted with the participation of elementary school pupils (*N*=127), aged eight to eleven years old (51% girls), from seven different schools of Macedonia, Northen Greece. They were interviewed in small groups answering to questions regarding forces applied to certain objects under different circumstances. The interview was supported by illustrations, an example of which is shown in Figure 1.
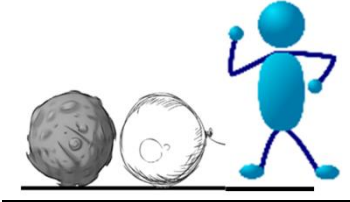
A stone and a balloon are standing motionless on the ground. Is there any force exerted on them?	IF	1. Yes there is, but only on the stone, because it's heavier.
	AF	2. No, there is not any force exerted to any of them, because they are not moving.
	FPP	3. No, there is not any force exerted to any of them, because the man is not pushing them.
	G	4. Yes, there is the force of gravity exerted to both of them.

Figure 1. Example of a question used in the interview and the (force-choice) answers (AF:Acquired Force, IF: Internal force, G: Gravity, FPP: Force of Push/ Pull)

The answers used in the multiple-choice questions were derived from previous reports (Ioannidis & Vosniadou, 2002; Clark, D'Angelo, & Schleigh, 2011), where they served as empirical indexes to categorize responses to various models. In Figure 1, responses 1 to 4 were categorized as *Internal Force, Acquired Force, Force of Push/ Pull* and *Gravity* models respectively. Note that in the present research the LCA is used as a confirmatory procedure and only the above mental modes are being tested.

Statistical analysis

Pupils' responses were introduced into Latent Class Analysis in order to obtain the groups of subjects that had provided statistically different pattern of responses. The analysis was conducted via LatentGold_4.0.Based in BIC criterion, the 1-LC cluster model is superior (BIC=1630) to 2-LC model (BIC=1650), which suggest that no distinct clusters can be detected and that no coherent models exist. However, examining the 2-LC solution, the two LC clusters are characterized by high heterogeneity in terms of *conditional probabilities* (CP).
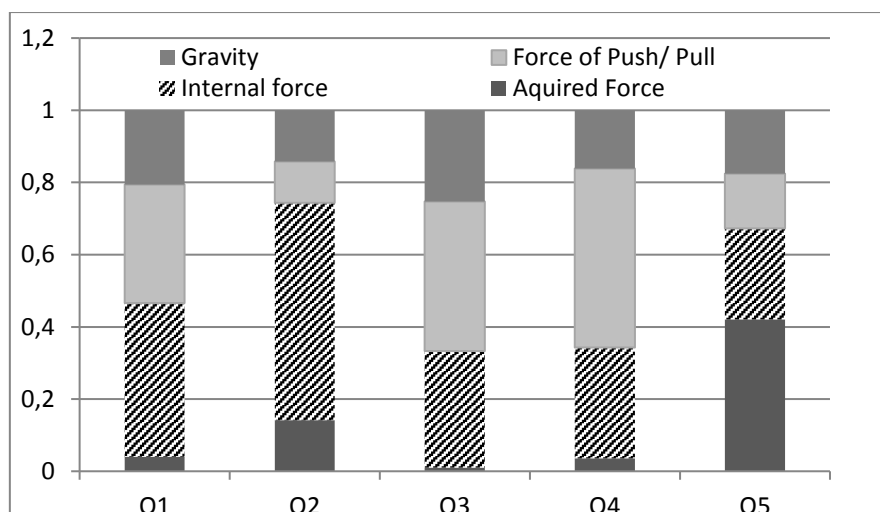
Figure 2. Conditional probabilities for the hypothesized mental models in Latent Class 1

Figure 2 corresponds to the first LC and shows the conditional probabilities of the pattern of responses related to the five questions. In Question Q3 for example, subjects belonging to this LC, demonstrate probabilities of 0.35, 0.40 and 0.25 to respond according to the mental models *Internal Force, Force of Push/ Pull* and *Gravity* models respectively. That is, these students do not possess any particular of the hypothesized models. Students' knowledge appears totally fragmented. The second LC (not presented here) shows similar fragmentation.

Concluding Remarks

The present research adds to the ongoing discussion on the nature of students' knowledge before they acquire the scientific view. The LCA revealed inconsistency in students' responses under the various settings, and thus, it does not support the existence of coherent mental models. The results are in line with previous research findings where LCA was implemented as a confirmatory procedure (Straatemeier et al., 2008; Stamovlasis et al., 2013; Vaiopoulou, Stamovlasis & Papageorgiou, 2017). Further to limitations arising from moderate size of the sample and the specific group of items implemented, the present endeavor demonstrates the use of a robust statistical methodology in investigating such important theoretical issue. In addition, the

implementation of LCA can be extended to numerous topics, which anticipate analogous answers.

The present work contributes to the ongoing discussion concerning the aforementioned antithetic perspectives. This debate is crucial for the quality in Education, because the fostered theories lead to different pedagogical approaches, directly affecting curricula design and science teaching.

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Investigating the dynamic nature of learning and teaching processes: Methodological issues and research paradigms

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The present paper reports on research methodological advancements aiming to provide a deeper understanding of teaching and learning processes, and ultimately contributing to school improvement. Complex Dynamical Systems (CDS), a novel perspective that has undergone substantial development in many scientific disciplines, has also been applied to educational research with a series of investigation realized at various levels of complexity. Two research paradigms are briefly introduced: The application of catastrophe theory in modeling sudden and unexpected changes in academic or social behaviors, and the analysis of verbal interactions within a leaning-in-group process. Finally, a short review of recent works is presented, in order to demonstrate the surplus value of CDS perspective.

Extended summary

Introduction: The CDS perspective

School improvement is highly determined by the efficiency and the validity of the theories applied, which are built through empirical research, where methodology has a crucial role. A common drawback of the typical research methodologies is that they treat school systems as linear and static ones and rely merely on cross-sectional data, which do not capture the dynamics of the processes involved. This paper reports on a novel perspective, which has already been established in other disciplines, and proposes the theory of *Complex Dynamical Systems* (CDS) as a meta-theoretical framework to describe and explain human behavior (Guastello, Koopmans & Pincus, 2009; van Geert, 1991; van der Maas & Molenaar, 1992).

The notion *dynamical* and *dynamics* refers to a system or process where time is an explicit factor or contributing component to the expected or unexpected outcomes. The term *complex* and *complexity* refers to a property or an exhibited behavior of a system, rising out from the interactions of its components, which cannot be readily reduced to the properties of its individual parts (Prigogine & Stengers, 1984). Such systems are inherently *nonlinear,* that is, the ordinary liner models hardly capture or predict their behavior, while its description and explanation is impossible within the traditional epistemological framework.

In school systems, processes of learning and teaching can be conceived as complex dynamic systems. Schools consist of many interacting components, such as students and teacher, which, are continuously influencing each other's behavior and characteristics over time (Smith & Thelen, 2003). For instance, consider a science lesson in a collaborative classroom setting, where teacher's questions influence students' reactions and vice versa. These interactions processes are not deterministic. The results cannot be reduced merely to some initial conditions, i.e. teacher's linguistic ability, or students' individual properties. The interactions at time t influence the interaction at time $t+1$ and so on. Thus, the path towards a goal is not unique and the outcome *emerges* from an iterative dynamical process. Analogous description holds for an individual student and the interactions of his/her mental resources when he/she is learning, thinking, solving a problem or is involved in a creative process (Stamovlasis, 2011).

Exploring such phenomena, which are dynamic in nature, requires the appropriate epistemological and methodological framework. The CDS theory offers an array of concepts to describe nonlinear dynamical processes, such as the notions *entropy*, *attractors*, *bifurcations*, *catastrophes, emergence, self-organization and power laws* to mention a few, while a number of methodological approaches, which depending on the hypotheses tested, might include *time series analysis*, *catastrophe theory*, *state space grid analysis*, *network analysis* etc. (Guastello, *et. al.*, 2009). The theory of CDS is concerned with the analysis of systems irrespective of how the unit of analysis of those systems is defined. These systems could be individuals, groups of people or human organizations.

In the following sections two research paradigms that foster CDS approach are briefly introduced.One concerns the application of catastrophe theory to model sudden and unexpected changes in academic or social behaviors within school context, and the other concerns the analysis of verbal interactions in a leaning-in-groups process. Moreover, a short review of additional applications is presented, in order to show the surplus value of CDS.

Modeling nonlinear changes with catastrophe theory
School activities aim to *changes* in academic and social behavior of students, which might occur in different modes. They could be smooth and linear, but could also be drastic and sudden changes, which are nonlinear. In school context, such nonlinear effects could be the unexpected failure of students, sudden changes in attitudes, unexpected dropouts of students not being at risk, changes toward an illicit action or unforeseen bulling behaviors.

This type of discontinuities can be properly studied via Catastrophe theory (Thom, 1975). We focus on the cusp model which describes the behavior (y) by two control variables: The asymmetry factor (a) and the bifurcation factor (b). The mathematical

formalism of the cusp expresses a dynamical system, which is seeking to optimize some function. A human or a psychological system could be viewed as seeking to minimize cognitive dissonance or to maximize the degree of adaptation. The optimization process results to an equilibrium, described mathematically by the derivative of a potential function expressed by equation (1):

$$\delta f(y)/\delta y = -y3 + by + a \qquad (1)$$

All detailed and comprehensive methodological and statistical issues could be found epitomized and with emphasis to educational applications elsewhere (Stamovlasis, 2016a). This section highlights merely some qualitative characteristics of nonlinear effects due to the dynamics of the underlying processes. The main feature that can be revealed from real data, if exists, is a *bifurcation* effect. Figure 1 shows a schematic representation of a bifurcation, contrary to the linear alternative tested with the ordinary liner model. The interpretation of cusp model suggests that the bifurcation factor (independent variable) possesses a threshold value, beyond of which the system could oscillate between two states or behavioral modes (A or B). In fact, in this region, sudden changes in behavior are observed, that is, the system becomes unstable and unpredictable. This justifies the research interest focusing in detecting variables which can act as bifurcation factors, and this has been realized in many interesting cases.
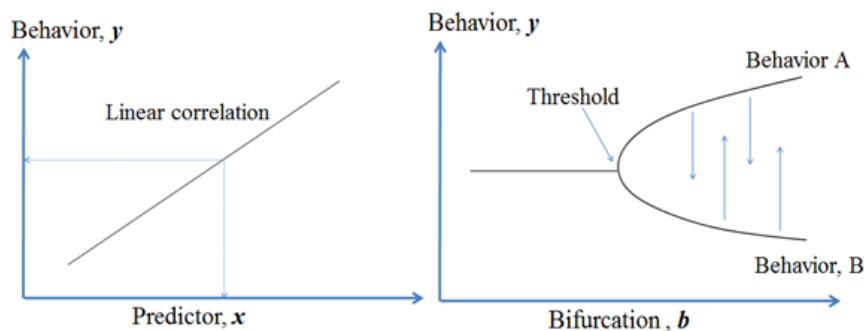

Figure 1. A schematic representation of a bifurcation effect in contrast with the linear correlation.

Catastrophe theory has been applied for explaining overload phenomena and school failure by employing constructs from neo-Piagetian theories (Stamovlasis, 2011; Stamovlasis & Tsaparlis, 2012). Within achievement goal theories, cusp analyses have provided rational explanations for the effect of motivational orientations on school anxiety and for fostering illicit behaviours, such as cheating in school examinations (Stamovlasis & Sideridis, 2014; Sideridis & Stamovlasis, 2014). Moreover, CDS offered a better understanding of the role and effect of bulling experiences on students' academic behaviour (Sideridis et. al., 2013). All the above studies have shed light into the relevant processes taking place in the school context.

Probing the verbal interactions in learning-in-group process

Cooperative learning is a well-established instructional practice. However, there are theoretical and methodological issues to reexamine. The usual experiments ignore the underlying processes following a 'black-box' approach (Stamovlasis, Dimos & Tsaparlis, 2006). Interaction process in small-group behavior has been shown to possess nonlinear dynamical characteristics, and thus concepts and tools from CDS theory can be appropriately applied (Pincus & Guastello, 2005).

Investigating verbal interaction processes in classroom, produce series of utterances unfolding in time which can be analyzed and characterized by *fractal dimensionality* and *power law distributions*, while indices, such as *Information entropy* (H_s) can be estimated. H_s, for a set of categories (utterances) with unequal odds of occurrence, is defined by the equation:

$$H_S = \sum_{i=1}^{r} p_i [\ln(1/p_i)] \qquad (2)$$

Where p_i is the probability associated with each ($i = 1$ to r) categorical outcome (Shannon & Weaver, 1949). *Information entropy* is a measure of complexity and it also reflects the degree of novelty present. H_s has proposed as a macro-index associate with the effectiveness and the outcomes of the interaction processes in a cooperative learning (Stamovlasis, 2016b).

Concluding Remarks: The surplus value of CDS approach

The present paper reports on research methodological advancements aiming to provide a deeper understanding of teaching and learning processes, and ultimately contributing to school improvement. CDS is a novel perspective that has undergone substantial development in many scientific disciplines. Lately, its applicability to educational research has been demonstrated in a series of investigation realized at various levels of complexity, e.g. at student level, at school level and at the level educational system as a whole. CDS theory and its methodological tools are applied irrespective of how the unit of analysis of those systems is defined and it appeals to educational researchers, practitioners and policy makers as well. In addition to previous paradigms, some more representative investigations are subsequently reported. Guevara and Porta (2014) using the CDS perspective investigated how educational systems act as a mechanism for intergenerational transmission of inequality, evidences that are overlooked by linear approaches. At school level, time series analysis with nonlinear methods investigated long memory process in daily high school attendance data, and some meaningful answers were provided about how endogenous processes contribute to the transformative process in education (Koopmans, 2015).

The surplus value that a CDS approach offered is demonstrated at classroom level by Van Vondel and her co-workers (2016), who attained a detailed understanding of how

behavioral changes occur over time. Moreover, they answer questions about how the underlying processes affect students' performance and provide insights into how teachers can optimize their lessons. Analogues contribution by Pennings and co-workers (2014) analyzed real-time teacher-student interactions using the method of State Space Grids (SSG). Informed by Interpersonal Theory, teachers' interpersonal profiles are characterized in terms of agency and communion, based on their behavior in the classroom. SSG can map the characteristics of real-time interpersonal teacher behavior, while measurements of the content (attractors) and structure of changing behavior (variability) are provided and connect aspects of teaching processes at the micro level (interpersonal behavior) with the macro level characteristics of educational components.

Concluding on this presentation, it is imperative to emphasize that the CDS perspective does not abolish local theories, but embrace them into a unified epistemology and a meta-theoretical framework.

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Paper 3

Enhancing quality in music education through collaborations of schools with symphony orchestras

Leoni Hadjithoma

The focus of this study was to explore how learning processes may occur in a concert hall during symphony orchestra educational concerts for 5-18 year old students. The researcher conducted a comprehensive literature review and data was collected from orchestra websites, orchestra surveys published on-line and published thesis and doctoral dissertations. The results show that students and teachers may benefit from collaborations of schools and institutions such as a symphony orchestra in the form of educational concerts, stressing the fact that such projects can further upgrade the quality of music education at schools.

Extended summary

The Improving Educational Quality (IEQ) Project (1999) provides a framework about educational quality being a process that consists of assessment of who learns, what is learned and how it is learned in a classroom environment by collecting various types of data, followed by discussion of the findings by the actors involved and action taken on improving learning throughout the system. But is learning a process that takes place solely in a classroom by a qualified teacher or could it take place elsewhere in a different context?

Since the beginning of the 20th century, every season, many symphony orchestras include educational concerts for students in their programs, in order to expand the services offered to the public and to train their future audience (Kiesling, 2006). At the same time, educational concerts are an important part of the curriculum of music education and give pupils the opportunity to gain additional experiences by interacting with the community to which they belong (Wu, 2004).

The focus of this study was to explore how learning processes may occur in a concert hall during symphony orchestra educational concerts for 5-18 year old students. The researcher conducted a comprehensive literature review on how the students and the teachers can benefit from collaborations of schools and institutions such as a symphony orchestra in the form of educational concerts, stressing the fact that such projects can further upgrade the quality of music education. Data was collected from orchestra websites, orchestra surveys published on-line and published thesis and doctoral dissertations.

Preliminary results show that such programs have two main benefits. First, they offer equal opportunities to all students of being exposed to and participate in a live symphony experience, an opportunity that some students may otherwise not have even once in their lifetime. Second, they assist students to establish positive attitudes towards music in general and to come into contact with the cultural activities of an institution of their own community. Additional benefits for teachers include that teachers get support for the delivery of the music curriculum by collaborating with education departments of symphony orchestras. Teacher and student resources are freely given to the teachers before the concert in order to prepare the students for the overall experience, and sometimes, teacher training is provided suggesting teaching strategies and techniques for use in the classroom (Leach 1996; Santangelo,2008)

Small (1998) criticizes musical performances nowadays as 'a system of one-way communication, from composer to listener through the medium of the performers', which does not allow any social contact between performers and listeners, or the usually dead composer and the listeners, and sometimes leads to the alienation of the latter. This seems to be avoided in the case of educational concerts as recently there is a tendency of the concerts taking the form of collaborations between the orchestra and the students, who are actively involved in the concert by singing or playing an instrument while the conductor guides and facilitates the process. Moreover, educational concerts sometimes include pre-concert talks by the conductor and hands-on activities for the students (Leach, 1996) during which the students have the opportunity to meet and interact with the conductor and the musicians of the symphony orchestra in a more relaxed environment.

Repertoire includes works from the classical repertoire as well as works by contemporary composers, sometimes composed to be performed especially at educational concerts. Kiesling (2006) advises that the students' preferences should be taken into consideration when a conductor selects repertoire for an educational concert, and suggests that film music should be performed as it is a type of repertoire which the students can relate to. The performance may also include other forms of art such as multimedia, theatre acts and dance.

According to the principles of quality in education, assessments of educational concerts are usually carried out to gather information and improve the project (Santangelo, 2008).

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Multiliteracies Affinity Practice (MAP): Design and Evaluation of a Professional Development Programme to Support Multiliteracies-based Teaching and Learning in Cypriot Primary Schools

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The present proposal aims at presenting a project involving the design, implementation and evaluation of a professional development programme to enhance the literacy repertoires of in-service primary teachers in Cyprus. The proposed research is based on the findings from the development of the Multiliteracies Affinity Practice (MAP) framework, an innovative framework which derives from the creative overlap of multiliteracies pedagogy of the New London Group, the Learning by Design Model adapted from Cope and Kalantzis and Gee's affinity spaces theory. There is specific focus on the development of the MAP framework to accommodate for culturally and linguistically diverse students' needs.

Extended summary

The context: Teaching literacy in a globalised digitally mediated world
The rationale for this research derives from local and global challenges in an era of increased globalisation and cultural and linguistic diversity, all of which need to be addressed in the context of an equitable and quality educational system.

The latter requires to engage in research, theory and practice relevant to the concept of "multiliteracies". Multiliteracies refers to a broad and inclusive model of literacy that accounts for the complex and rapidly changing modes of meaning making within our diverse society. Taken from a global perspective, the project seeks to set forward the importance of literacy-driven pedagogical practices on behalf of teachers (Hardin & Koppenhaver, 2016) and contribute to a more systematic dialogue about how to promote effective and inclusive 21st century professional development programmes. In addition, the research adds to the scarcity of research and experience on teachers and literacy in the Greek-Cypriot context (Ioannidou, 2015) and the passive technology classroom use as a learn-from medium globally (Purcell, Heaps, Buchanan, & Friedrich, 2013).

Professional development and new literacies
Substantial research efforts over the past three decades attempted to uncover the particular nature of knowledge used in teaching in order to improve teacher effectiveness. As a result of this research, teacher learning has gone through a "reform"

movement in which prevailing belief links high-quality professional development (PD) to higher-quality teaching and high-quality teaching to student achievement (Darling-Hammond, Wei & Andree, 2010; Smith, 2010).

It is critical for educators to engage in professional development in order to support their pedagogical practice given the current needs and demands of 21st century societies for learners (Arrow & Finch, 2013) (Figure 1). Implementing a professional development programme such as MAP, offers practical instantiation of DigiLitEY's objectives identified by Marsh, Kontovourki, Tafa, and Salomaa (2017) to promote greater use of digital literacy in primary classrooms through effective continuing professional development (CPD) by responding to the need to engage practitioners in hands-on design activities in which they themselves are creating digital, multimodal texts (Rosaen & Terpstra, 2012). This is in line with other research findings exemplifying the need for effective training (Gotkas, Yildirim & Yildirim, 2009) and how increasing this professional development training, results in more use of computers and tablet computers in the classroom (Blackwell, Lauricella, & Wartella, 2014).
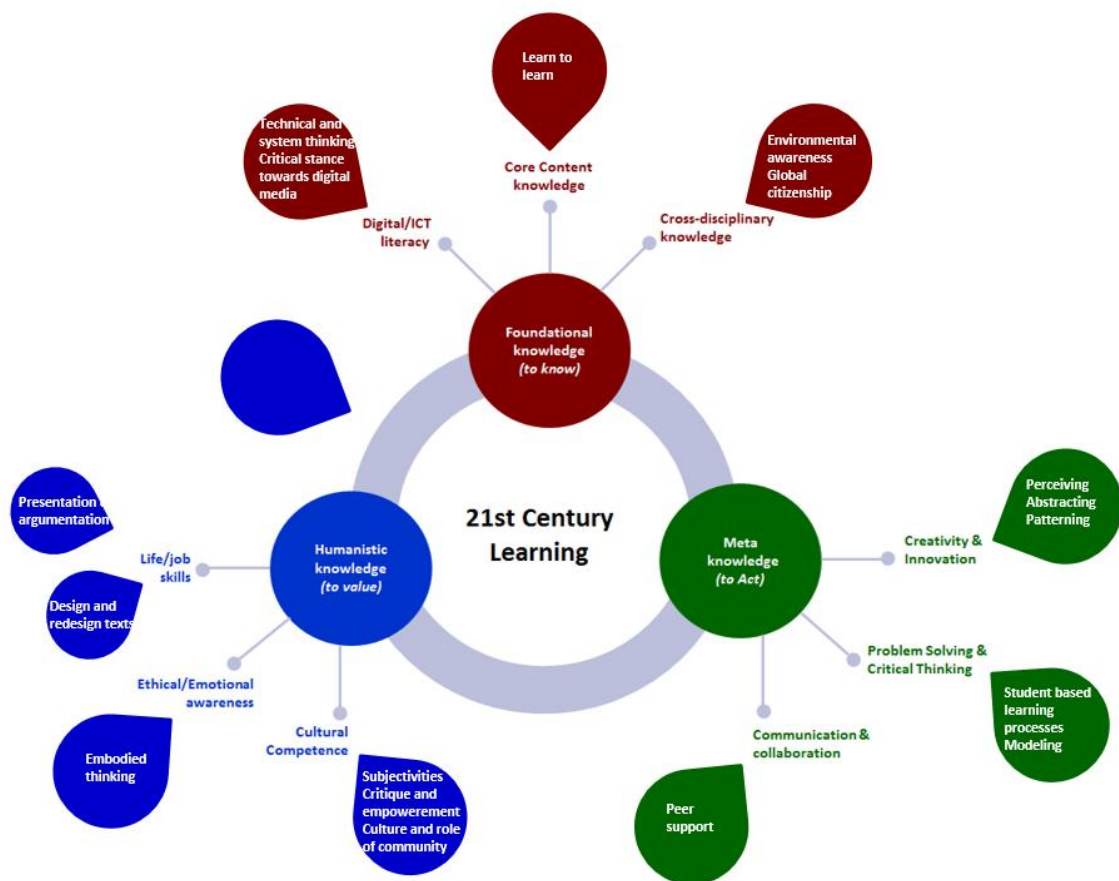

Figure 1: 21st Century learning (Savva, 2017)

The conceptual framework

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Taking into consideration the unique characteristics of the contemporary 21st century environment, a theory-based framework, the Multiliteracies Affinity Practice (MAP) is proposed for 21st century schooling (Figure 2). The MAP relies on a creative overlap between the theory of a pedagogy of multiliteracies introduced by the New London Group (NLG, 1996, 2000), the Learning by Design Model developed by Cope and Kalantzis (2000), and the theory of affinity spaces proposed by Gee (2004).

Multiliteracies Affinity Practice (MAP)
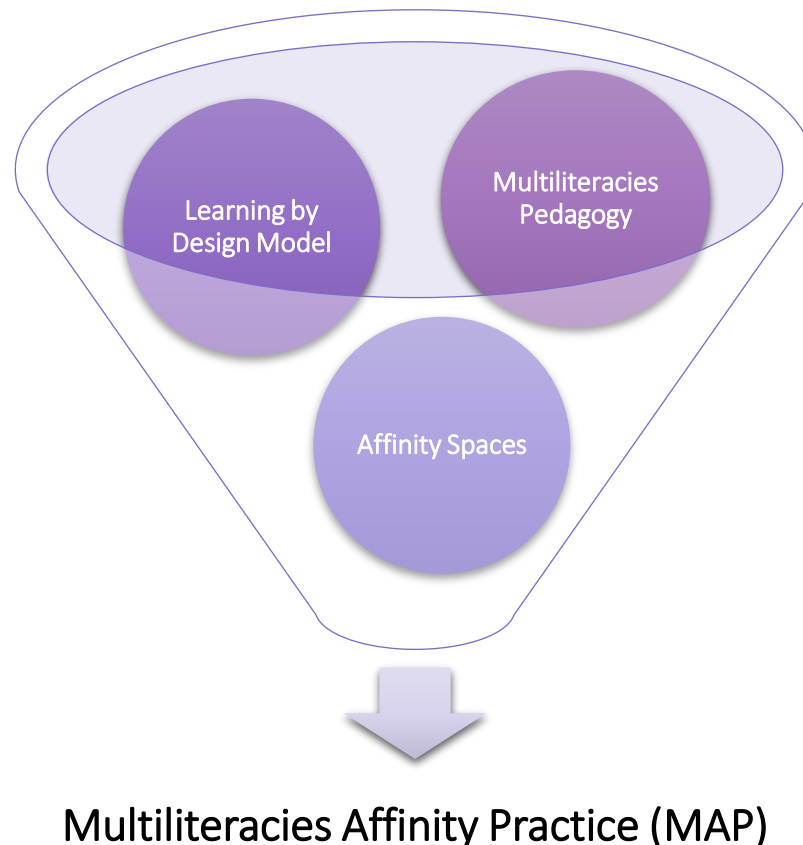
Figure 2: The pedagogies interacting in the Multiliteracies Affinity Practice framework (Savva, 2016)

Multiliteracies theory introduces the notion of design to describe the codes and conventions of meaning-making modes and posits that there are six identified modes of meaning showing regularities or grammars (NLG, 1996: 74). These existing design elements can be linguistic, visual, audio, gestural, spatial or multimodal designs (NLG, 1996, pp.73–74; 2000). In a multiliteracies driven curriculum, two important ideas prevail: Learning by Design and Multimodality (Kalantzis & Cope, 2005). Learning by Design is building into curriculum the idea that not every learner will bring the same Lifeworld experiences and interests to learning (Kalantzis & Cope, 2012), as well as acknowledging that every learner is not on the same page at the same time (Kalantzis & Cope, 2005).

The goals and ideas of multiliteracies pedagogy could be served only if a holistic approach to schooling applies. To elaborate on the latter, the theory proposed by Gee

(2004) known as *affinity spaces* is brought into the foreground of the discussion for a re-conceptualisation of schools as learning environments in the 21st century. Gee has opposed that traditional schooling system persists and promotes dominant discourses and hierarchies and suggests an alternative view of schools. To make a claim on the previous, Gee suggests that we think of spaces where people interact. An affinity space is a place – virtual or physical – where informal learning takes place. Spaces can be real tangible spaces, like a classroom, or virtual spaces, like an online discussion forum or game (Gee & Hayes, 2009).

Methodology

This research examines the feasibility of the MAP to inform teachers' professional development and how to expand their repertoires of literacy. Three research questions were formed:

1) What are the characteristics of an effective professional development programme that adequately supports multiliteracies learning and teaching in Cyprus?
2) How can a professional development programme be practically designed and implemented to enhance Cypriot primary teachers' pedagogical knowledge and skills in relation to integration of technology in literacy teaching?
3) What impact does this professional development programme have on teachers' pedagogical repertoires of literacy practices?

The MAP project adopts a Design Based Research (DBR) methodology (McKenney & Reeves, 2012), an emerging paradigm of research which involves cycles of iterative development of solutions as applied to pragmatic and complex educational problems in schooling contexts (McKenney & Reeves, 2012). Figure 3 provides an overview of the phases and proposed activities for each phase of the research which are briefly described below.
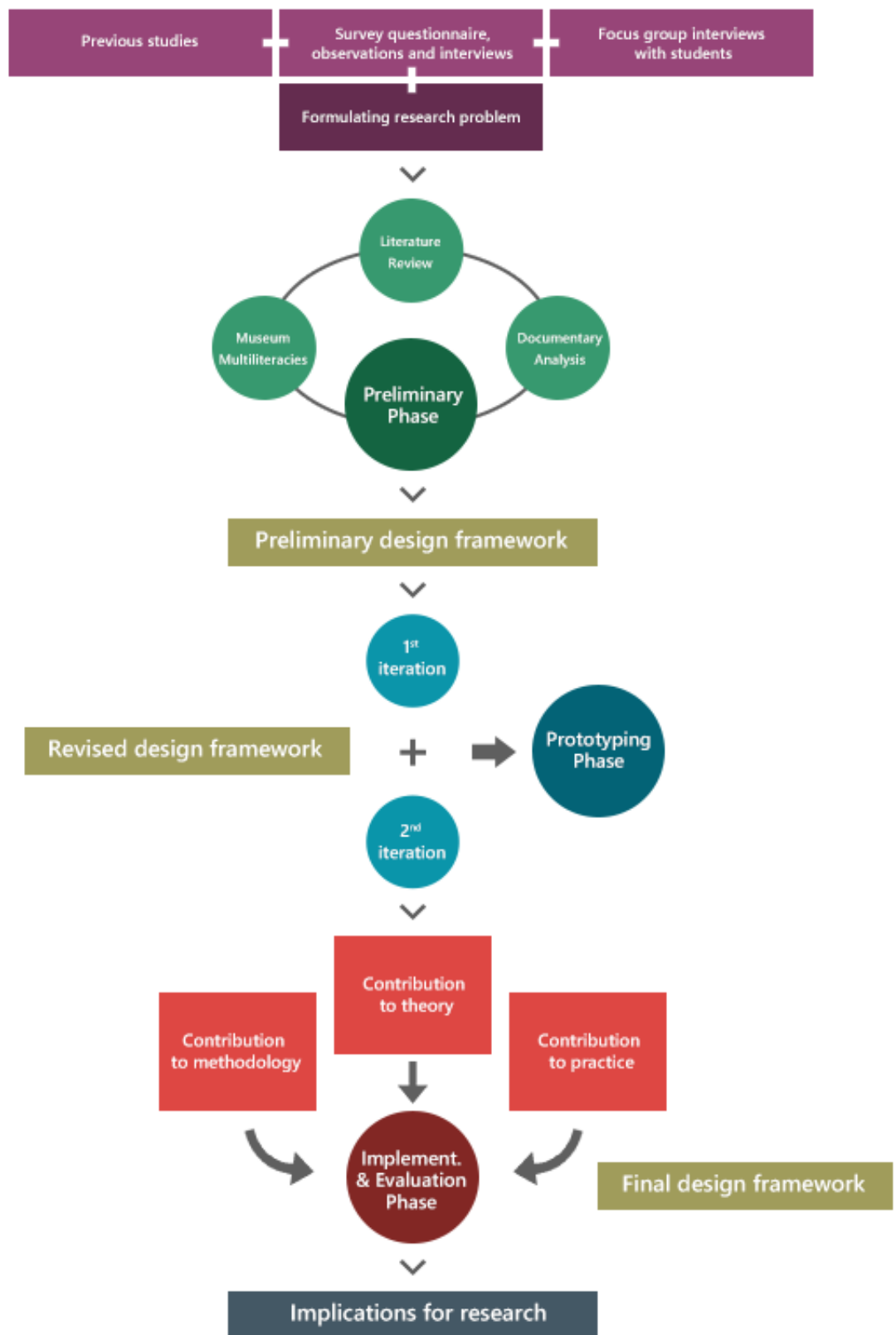
Figure 3: The research framework (Savva, 2016a)

Phase 1. The first phase of the research process involves the preliminary analysis of identifying the problem, diagnosis and the design elements that could lead to a potential solution. We shall engage in context analysis, field-based investigation, and a literature review to determine the current situation for developing successful professional development programmes and how to engage teachers in relation to multiliteracies.

Phase 2. This phase consists of the design and testing, through a prototyping approach involving successive iterative cycles of prototypes tested, design, formative evaluation, analysis, and revision. The basic interest is in developing the MAP infrastructure including: a workshop, curriculum materials, school follow up coaching and relevant activities, and finally ensuring a supportive school environment is in place for the development of the programme (Figure 4).
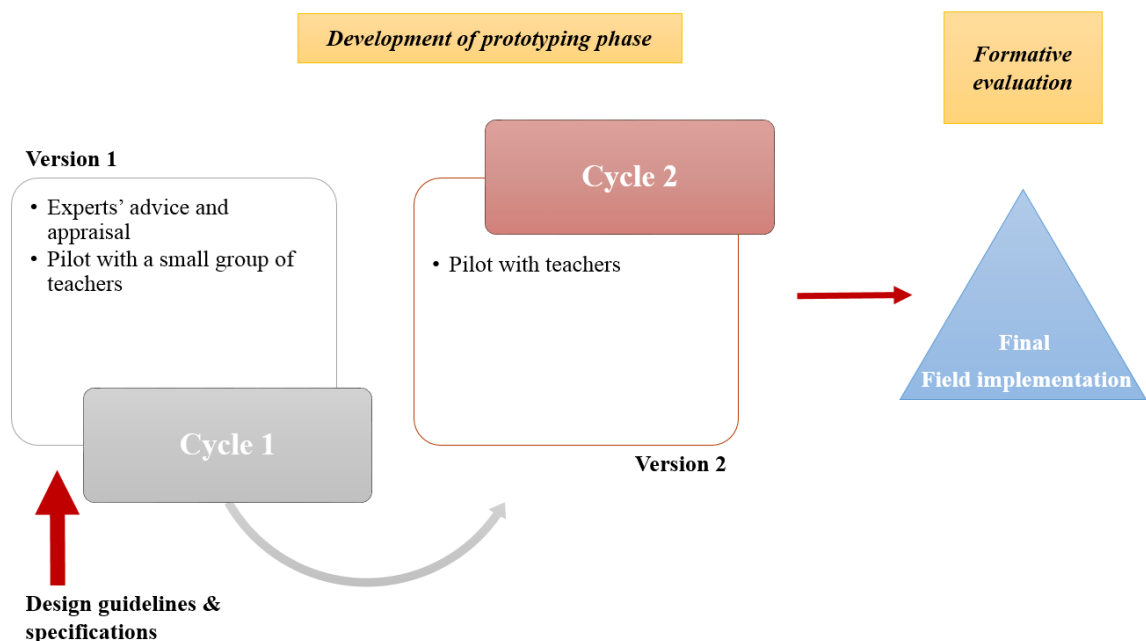

Figure 4: The iterative cycles of action (Savva, 2017)

Phase 3. The implementation and evaluation is the third phase of the MAP programme. The intention of evaluating the enactment of the programme is to determine how effective the refinements made were (Smith & Ragan, 1999, p.5). There is also provision for production of specific outputs for research, policy-making and practice derived from the design principles developed.

Data collection tools:

An array of data will be collected to cross-reference interpretations (Yin, 2012) including:

    i)   Researcher-facilitator video-recorded observations of interactions reported in field notes;

    ii) Questionnaires with teachers;

    iii) Focus group interviews with teachers prior and after the implementation;

Triangulating the wealth of data from the various methods will result in the overall evaluation of the implementation of the PD.

In relation to the **target population** of this study, the preliminary phase has involved a comparatively large number of teachers to identify the needs of the population. However the implementation will only involve a smaller sample of approximately 30 teachers as cases, where drawing on the larger group, the aim is to work more closely with these teachers on a regular basis to design and implement teaching, which they share with the larger group; this larger group addresses other needs of PD, most times taking a broader look at material, providing feedback, trying-out smaller parts of the designed curriculum, etc.).

Educational importance of this study

The implementation of the proposed project is expected to have long-term value and benefit at a local and regional level given the proliferation of technologies and how this environment shapes literacy education. Concurrently, current economic and social conditions in the European Union with the increasing flow of immigrants and refugees make it imperative to nurture cultural participation and inclusion.

Theoretically speaking, the project addresses a knowledge gap as it contributes to a limited body of knowledge on how professional development programmes can enhance in particular the pedagogical literacy repertoires of teachers.

Research-wise, although there has been a growing effort to develop efficient professional development programmes for educators with a literacy focus, the development and documentation of such projects is limited both in Cyprus as well as other European countries.

Therefore, the study has both practical and theoretical significance. It contributes to in-service learning of Cypriot teachers through development of a PD programme and teacher support curriculum materials with specific learning strategies and an instructional sequence. Findings of this research will also provide evidence and challenges to educational stakeholders responsible for designing teachers' professional development programmes in Cyprus, in the hope that it will stimulate a more systematic use of literacy-driven strategies for in-service training.

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Promoting Positive Social Behavior through Physical Education in Primary Schools in Cyprus

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The purpose of this study is to present the role of Physical Education (PE) lesson as a venue for promoting positive behavior in the primary education, between migrant and Greek-Cypriot children. The study presents how the international literature (or support this endeavor) informs this phenomenon from a sociocultural perspective so as to uncover how children are emotionally supported through the PE lessons. The qualitative approach of this study will be presented and suggestions will be introduced in regards to the educational effectiveness in the field of PE in Cyprus.

Extended summary

Introduction

The purpose of this study is to fill a gap in the existing literature in the field of (PE) and the ways positive behavior could be promoted in the elementary education in Cyprus. By critically reviewing previous studies and specifically using Hellison's model (1978) as a starting point it will allow me to identify how (PE) supports the social interaction between children. A goal is to provide evidence that would stimulate new thinking around policies regarding the promotion of positive behavior through the lessons of (PE) between migrant and Greek-Cypriot children. The proposed methodology of this study will be presented in regards to the data collection tools.

Setting the context – Identifying the problem

Cyprus is an island located in the southeast of Europe and it lies between three continents: Europe, Africa and Asia. Due to its position, - being a crossroads of these three continents – it has been at the center of conflict between powerful empires throughout the world's history. Cyprus developed as a multicultural and multi-ethnic society as it was occupied by several empires (Mallinson, 2008). In 1960, Cyprus became an independent nation after years of anticolonial struggle against the British Empire (Varella, 2006). Inter-communal conflict between the Greek-Cypriots and Turkish-Cypriots even after the establishing of 1960 constitution, eventually, led to the involvement of the Greek Junta on 15 July 1974. After 1974, up until day, Cyprus has been separated into two major ethnic and communities: Greek-Cypriots and Turkish Cypriots. Another milestone of migration influx into Cyprus was in 2004, when it joined the European Union and as a result there has been an impressive increase in the number of European immigrants (Hadjioannou, Tsiplakou & Kappler, 2011).

In addition, the refugee crisis in the Middle East owing to the Syrian war starting in March 2011, has been another source of migration. Nationals from neighbouring countries including Jordan, Iraq and Palestine have started to arrive in Cyprus as asylum seekers (Eurostat, 2015) to avoid the political conflict in their countries. As result of this new influx of migrants, Cyprus has further developed a multicultural character. This increasing diversity in the wider societal context is also reflected within the educational system.

In regards to the national curriculum of (P.E) in Cyprus (2010), the aim is to equip students with the skills and abilities that are required by the society of the 21st century. As far as the social and emotional dimension, the P.E curriculum in the primary education in Cyprus, focuses on the development of the respect of each other, on the social interaction, on the positive self- expression kai on the responsible social behavior inside and outside of the sports context.

This study focuses on the aforementioned dimensions as my professional background as teacher who is actively involved in teaching PE to both Greek Cypriot and minority children through a program funded by the European Union, *School and Social Inclusion Action*s (MoEC, 2015) has further stimulated my understanding that there is a need to engage in rigorous research pertaining to positive behavior through (PE). This programme was promoted by the Ministry of Education and Culture to support migrant children for the development of their linguistic and social skills. However, there is no research presenting how migrant children are actively involved and accepted by the Cypriot educational context. In Cyprus, there is luck of research focusing on the role of PE lesson in promoting social interaction between migrant and Greek-Cypriot children. In their study, Christodoulides, Derri, Tsivitanidou & Kioumourtzoglou (2012) examine whether the nationality affects the students' perspectives for their social skills in the Cypriot context. The results have shown that the students' perspectives differ based on their age, gender and ethnicity. Understanding the affect of these factors, the authors suggest the need for designation and implementation of P.E lessons. These lessons will aim on the development of children's social skills. and there was improvement in their athletic performances. However, this study did not examine the positive behavior of children through the P.E lesson.

My role as a teacher gave me the opportunity to experience situations of troubling behavior within the community of migrant and Greek-Cypriot children. I aim to gain a better understanding of this phenomenon by critically engaging with the literature and by providing evidence through my own empirical study. My interest in (P.E) and multicultural education lie behind my decision to explore one of the most significant changes in migration pattern for Cyprus in recent times: the arrival of new groups of migrants mainly from the Middle East. The general aim of this project is to support these children through the Cypriot system and effectively contribute to the field of educational effectiveness. This study will use Hellison's model (1978) of (P.E) and will

appropriately adjust it to the Cypriot context so as to examine which factors contribute to the promotion of children's positive behavior. The following section describes the two theoretical orientations of this project.

Theoretical framework: PE from a Sociocultural perspective
Drawing on the social aspect of PE, I will use the main concepts of sociocultural theory: mediation and zone of proximal development (Vygotksy, 1987) to uncover how children's practices are supported through the PE lessons and used as mediating tools for the development of their positive behavior to their peers.

Vygotsky (1978) refers to the Zone of Proximal Development (ZPD) as the difference between what a learner can achieve without assistance and what he can do with assistance. Recent studies have used the umbrella of sociocultural perspective to investigate its role in PE and teaching practices (Cliff, Wright & Clarke, 2009). The scholars argued that approaching PE through a sociocultural perspective we construct our knowledge, emotions and social skills. Similarly, in this case I consider PE as a mediatonal tool for learning and promotion of positive behavior between children so as to be able to peacefully coexist with each other.

The role of developing good character, and of socializing students into becoming good citizens, is one that has been regularly allocated to PE and sport (Pitter & Andrews, 1997). This popular belief that sport develops character is almost as old as the origins of sport itself (Cecchini Montero, Alonso, Izquierdo & Contreras, 2007). However, these beliefs remain current with contemporary scholars (Hellison, 2011; Gordon, 2010) continuing to champion PE and sport as potential contexts for social and moral development (Gordon & Doyle, 2015). According to Cecchini et al. (2007) of all of the educational programmes available, one of the most consistently successful is the personal and social responsibility programme developed by Hellison (1978). This programme, *Teaching Personal and Social Responsibility* (TPSR) follows a holistic approach designed to empower students by explicitly focusing on positive values to maximize the development of personal and social skills among inner-city young people. The personal and social responsibility development model has five levels of responsibility. At the first level students, must listen to their teacher and respect their classmates feelings. In the second level students, must be in position to participate in class activities and being self-motivated. Moving to the third level students must be in in dependent and knowing their personals needs and setting short- and long-term goals. The fourth level is trying to teach to the students to work cooperatively for the group's good and at the last level students must be able to apply what they have learn not only in the lesson but in their everyday lives.
According to Ripple & Drinkwater (1982), transfer of learning is a fundamental assumption of educators. We trust that whatever is learned will be retained or remembered over some interval of time and used in appropriate situations.

Gordon (2011) refers to a national study in New Zealand in secondary schools where the teachers of P.E where taught on how to use Hellison's model in their lessons. When they asked whether these models had positive outcomes not only in the P.E lesson but in other modules as well, the teachers responded positively.

Therefore, the TPSR seems to be the appropriate one to draw on and examine how positive behavior is being developed in the Cypriot context among Greek Cypriot and migrant children. The aim will be to develop the activities that encourage children to develop the necessary skills, knowledge, and attitudes in order to be able to corporate, accept and respect each other. The collected data of these activities will be used to develop the intervention practices so as to examine how children use them so as to interact with each other and promote equity.

Given the two theoretical orientations of this study (educational effectiveness through physical education and sociocultural perspective), this study aims to combine the two and reveal good practices based on the empirical research. The following section outlines the methodological framework of the study.

Methodology of intervention
This study will follow a qualitative approach for research and it is an action research case study. It will be a case study as it will be investigating a particular context, which is a school, specifically the P.E lessons (Yin, 2014). It will be an action research because it will be developing interventions to develop positive attitudes between children through P.E lesson. Somekh (1995) defines action research as a method which bridges the gap between research and practice. In this case this research will be used to benefit educational policies and practice in Cyprus. A qualitative approach will allow to interpret participants' lived experiences and practices through P.E lessons and construct their social reality. Also, using qualitative case study methodologies we explore how teachers can create the appropriate condition for multicultural communities to peacefully interact (Turner & Kim, 2005). The aims of this study are to investigate the practices that children and teachers use to promote positive behavior through P.E lessons in Cyprus. Also, which practices from Hellison's model (1978) are suitable to use in the Cypriot context and finally at an intervention phase, how these practices foster children's social and positive interactions between Greek Cypriot and migrant children.

The data collection tools that be will used are questionnaires, participant observations, interviews with the children and the teachers, designation and implementation of P.E lessons based on Hellison's model (1978).

Importance of this study - Connection to the themes of the congress
The study is of particular importance at the moment in the educational institutions in Cyprus as they aim at tackling the challenges posed by the new waves of migration provoked by the ongoing war in the Middle East. This action research case study will

reveal how one European country's primary sector is coping with this phenomenon and how the (P.E) lessons support the positive interaction between Greek Cypriot and Migrant children. Providing answers to the aforementioned questions by following an action research case study it will bridge the gap between research and practice and will attempt to establish links between the educational effectiveness research and school improvement. The study should prove to be of particular use to those working in the Cypriot primary sector, while at the same time being of use to teachers, researches and policy makers in Cyprus and beyond.

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Research methods and the spatial turn in education

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This paper presents the research methods of the so-called 'spatial turn' in education: hierarchical linear modelling, spatial autocorrelation analysis, and geographically oriented narrative inquiry. The usefulness of maps in depicting educational inequalities, provision, and strategies is underlined. The theoretical framework of spatially oriented studies in education is presented, with an emphasis on the sociology of education and the movement of school effectiveness.

Extended summary

Introduction

A 'spatial turn' is currently gaining place in the humanities and the social sciences (Löw, 2016). This move has opened new questions in educational research methodology. It has drawn out attention to the spatial aspects of power relations in educational systems (Robertson, 2010); it has questioned the precedence of time over space in comparative education research (Larsen & Beech, 2015); it has paved the way for the publication of books like the *Geography of Education* (Brock, 2016). In this context, the purpose of the current paper is to discuss the research methods for studying the spatial dimension of educational outcomes, provisions and strategies.

Theoretical framework

In the study of educational quality and equity, spatiality is a rather new addition. This is regardless of the fact that one of most cited reports on equality of educational opportunity (Coleman et al., 1966) lead to court-enforced desegregation of schools, neighbourhoods and public transportation in the United States. With his famous 'boat' metaphor, James Coleman, the author of the eponymous report, theorised in his *Foundations of Sociological Theory* (Coleman, 1990) that social phenomena are born at a macro sociological level but progress through processes that take place at the micro level.

In an alternative sociological model, social space (experienced or perceived) mediates between the 'macro' and the 'micro' level. The idea for a 'meso' level in sociology was central in the early works of the scholars of the 'Chicago School', who used ethnographical and anthropological methodologies to study racial segregation and

inequality in urban areas. The study of spatial dynamics is also apparent in more recent American sociological thought. Such are the works of Julius Wilson (1987) on the urban poor, the 'Moving to Opportunity' experiment (Chetty, Hendren, & Katz, 2016) in five American cities, and Sampson's (2012) neighbourhood-centered sociological work in Chicago. As a matter of fact, the opening paper for the international movement of school effectiveness is attributed to Ronald Edmonds (1979), an urban sociologist at Harvard University. Similarly, the first sociological study in education to be published in Greece (Eliou, 1976) was also geographicaly oriented.

Still, educational researchers are somehow perplexed in the grammar of this 'meso' level (Robertson, 2010). This is mainly due to the complexity of the multilayered social spaces that mirror 'rubrics of globalization' and 'geometries of power' in education (Ibid). Different approaches to spatialisation have been used in educational research, as researchers try to embrace the concerns of sociologists. Among these approaches are Durkheim's notion of 'social space' (Buttimer, 1969), especially as it has been brought out by the neo-Marxist philosopher Henri Lefebvre (1991), Bourdieu's notions of *habitus* (1977) and 'social capital' (2008), Lévy's (1994) notion of 'spatial capital', and Giddens's (1984) notion of *locales*. Issues related to the new public management in education, like school choice and marketisation, have most frequently been approached from a spatial perspective, especially in the United States (Logan, Minca, & Adar, 2012; Lubienski & Dougherty, 2009).

Quantitative approaches

Quantitative educational researchers have used two types of analyses in spatial approaches: hierarchical linear modelling (see Goldstein 1999) and spatial autocorrelation. In the former, neighbourhoods and larger geographical areas are used as units of analysis. Brattbakk (2014) has examined the optimum number of levels in modeling spatially nested educational data. Hierarchical models are well documented in the school effectiveness literature (see Creemers, Kyriakides, & Sammons, 2010). Spatial autocorrelation is a new addition. Educational researchers have used Moran's I statistics i.e. the normalised sum of the cross products of the deviations from the means between neighbouring geographical areas (Moran, 1950). A positive value of this statistic indicates spatial clustering as opposed to spatial dispersion. At a later stage, Moran's I is compared with its expected value under the null hypothesis of spatial randomness and a z score is produced.

The power of quantitative studies in the spatial turn, however, lies with the creation of maps. To give an example, in Figure 1 we present the map of access to higher education in Greece, in which municipalities, the second level in the nomenclature of spatial units for statistics, create the 'cartographic homogenization impulse', as Fotiadis (2009, p. 44) defines. The mapping of educational inequalities, provisions and strategies can broaden the scope of educational research and strengthen evidence-based policies. Maps are 'narratives with a purpose, stories with an agenda', according to Short (2003, p. 24). As Larsen (2009, p. 138) has written in his first novel, 'a map does not just chart,

it unlocks and formulates meaning, it forms bridges … between disparate ideas that we did not know were previously connected'.
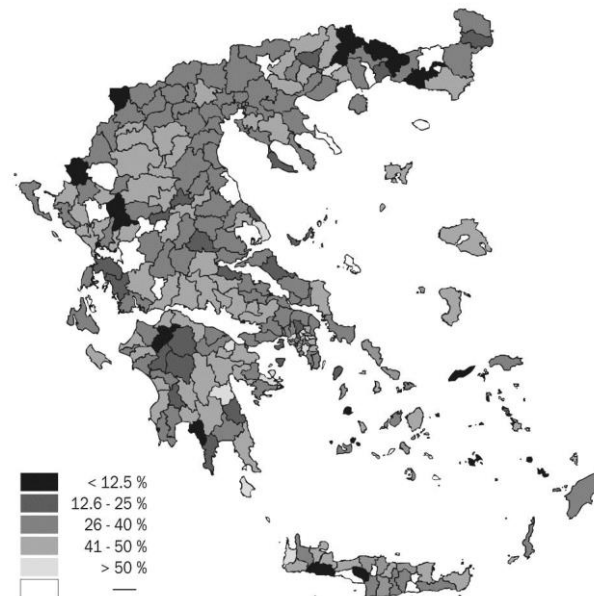

Figure 1. Percentages of scores over the third quintile across 325 municipalities (*Panhellenic* examinations 2013).

Qualitative approaches

Participatory and narrative research are well established qualitative research methodologies in education (Elliot, 2005; Ellis, 1997; Griffiths, 2009; Hyvärinen, 2008; Sikes, 2005). In social geography participatory and narrative research does not call for extended period of researcher's engagement in the field (Allsop et al. 2010). To give an example, we will present our narrative from a visit to 'Pomakohoria' in October 2013.

> On the slopes of Rhodope Mountain lie 25 small villages known as *Pomakohoria.* Their name has derived from the Bulgarian word 'Pomachamedanci' that means 'Islamicised'. Most of the people in these villages represent what Tsitselikis (2012) has described as the 'historical Muslim minority' of Greece.
> Accompanied by the principal of the local high school, a teacher of theology, we drove to *Echinos* at the heart of the local Muslim community. We entered the *cafeneio* (the local traditional café) where men with callused hands slurped their Turkish coffee. Young women in colorful hijabs were walking across the central square. This was not a common sight in the eyes of the Athenian visitor because more than 95% of the population in Greece belongs traditionally to the

Greek Orthodox Church.

Most of the young men in the *cafeneio* work at their families' livestock. Some others have found work abroad and were visiting their families. The author preferred not to record the conversations but to put down his notes only when he was alone. A company of young men came to our table, happy to recognize their former teacher. Among the greetings, the handshakes, and the friendly pats on the back they told him that although they preferred his school as kids, social pressure made them opt for a minority school in the city of Xanthi. This was not a surprise for the middle-aged theologian. The area has been the focus of discussion on national identity by Turkey (Katsikas 2012), which offers special scholarships for the members of this religious minority to study in its universities.

From 1995 onwards Greek successive Greek governments have introduced a number of affirmative policies for the community of Muslim Greeks in the region of Xanthi. A 0.5% of the places in the Greek university departments are reserved each year for the Muslim participants whose origin is that specific area (Ziaka, 2009). Between 1996 and 2009 2,925 Greek Muslims have found a place in tertiary education due to this affirmative action (Zachos & Chavva, 2015).

Conclusion

Geography has followed the development of the mainstream sociological thought and can be an important tool in educational research. Both quantitative and qualitative methods have found their way to the spatial turn in education. The use of free geographical information systems software can produce helpful visual representations of educational inequalities, provisions and strategies and facilitate the use of big data educational research.

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Parent Associations in Greece and their Potential Contribution in School Implementing DASI: Challenges and Possible Solutions

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Parents as school stakeholders have a significant role in DASI. Drawing from the author's experience, the potential contribution a Parents' Association could have with regards to improving school policy for creating a learning environment at school is discussed reflectively. Two examples of actions related to the partnership policy and provision of sufficient learning resources to students and teachers aspects respectively, are presented. Indicative challenges and possible solutions are mentioned. Suggestions for future research are also made.

Extended summary

Parents as school stakeholders have a significant role in DASI. Drawing from my experience as a Parents' Association (PA) member in a Greek primary school, the potential contribution a PA could have with regards to improving school policy for creating a learning environment at school is discussed reflectively. Two examples of actions are presented each related to the two aspects of the aforementioned factor i.e. partnership policy and provision of sufficient learning resources to students and teachers. Indicative challenges and possible solutions are presented. The aims of this paper are threefold: a) to be informative/instructive for PA members themselves, b) to be informative to other school stakeholders about the possibilities the PA role bears and c) to offer suggestions for future research.

My positioning and the resulting reflective thoughts presented in this paper stem from my next two statuses: a) that of having been a research assistant involved in the "Promoting quality and equity: a dynamic approach to school improvement" (PROMQE) project running in Greek primary schools [which resulted in my acquaintance with the Dynamic Approach of School Improvement, DASI (Creemers & Kyriakides, 2012)] and b) that of having been elected a member of the Parents' Association board at the school that my child attends.

"When schools work together with families to support learning, children tend to succeed not just in school, but throughout life" (Henderson & Berla, 1994, p.1). Adopting the above argument, my viewpoint is that it is imperative for schools to invest in these relations, and to learn to know how to establish and maintain them.

"Partnership policy" is the term used to refer to the relations the school builds with the community, parents and other stakeholders (Kyriakides, Creemers, Antoniou, & Demetriou, 2010). The significance partnership policy has as a factor linked to school effectiveness is paramount; this has been documented by research (Fan & Chen, 2001; Kyriakides et al., 2010).

Family and school collaboration presupposes parents' involvement (so forth referred to as parental involvement); one of the frameworks to describe parental involvement is that put forward by Epstein (1995) who has grouped the various forms parental involvement takes in the following six categories: 1) parenting, 2) communicating, 3) volunteering, 4) learning at home, 5) decision-making, and 6) community collaboration.

Parental involvement is deemed a prominent indicator of school effectiveness (Poulou & Matsagouras, 2007) and has been shown to be positively related to children's academic performance (e.g. Topor, Keane, Shelton, & Calkins, 2010; Wilder, 2014), including that of minority children too (Jeynes, 2003).

In this paper, the focus is on Greek Parents' Associations as an actor of parental involvement. Greek Parents' Associations are the institutional body established by law (Law 1566, 1985, article 53) which represents all parents whose children attend a school and is regarded to be a school's "important social partner" (Papageorgakis, 2013, p. 17).

Maridaki-Kassotaki (2011) argued that the collaboration between parents and school tends to be limited to providing financial assistance for minor repairs and merely buying equipment. She called for a more active participation of the Parents' Association in educational issues as their engagement may prove to be beneficial.

Next, two actions are presented as an example of a more active participation of a PA. The first had to do with organizing a school celebration for first grade students, a couple of months into the school year. The rationale behind this initiative was to offer an opportunity for students and parents coming to school for the first time to get to know each other (this links with the aspect of partnership policy in DASI). This event was supported by volunteers and entailed a minimal financial cost. The second was a more costly endeavour which had to do with supporting the school to introduce Science, Technology, Engineering, Mathematics (STEM) education in classrooms. The PA paid for the robotics software and provided the school with a number of extra desktops (this links with the aspect of providing sufficient learning resources to students and teachers in DASI).

The above examples demonstrate how a project falls in place if all involved parties are open to communication, value working in partnership, encourage and support initiatives beneficial to school. They also portray how an initiative put forward by a PA may be carried out successfully.

However, it should not be taken for granted that the above successful projects constitute the norm of any established partnership. Although, school-family collaboration is deeply valued in the world-wide literature, practical reasons make it difficult to achieve; with the most notable one being not knowing how to form and maintain a successful collaboration (Poulou & Matsagouras, 2007). The headteacher and the teachers seem to play a crucial role in building positive relations with parents (Saiti & Saitis, 2012). With regards to the headteacher's role, this has been given special emphasis by Sanders (2008a) as it has been argued that the school leader may facilitate the development of collaborative relations, if he/she applies the appropriate supportive mechanisms. With regards to the teachers' role, research conducted in Greece and Cyprus with pre-service and in-service teachers about their roles found that teachers believe that parents and teachers have separate roles and view their collaboration in a rather narrow and school-centered way (Angelides, Theophanous & Leigh, 2006; Poulou & Matsagouras, 2005; Symeou, 2003; as cited in Poulou & Matsagouras, 2007, p. 84). Shifting these attitudes may prove to be beneficial for the evolvement of the school-parents' partnership.

The current literature underlines the role the headteacher has as an institutional leader for forming an effective partnership. It seems, however that the capacity for a Parents' Association to exercise in its fullest its potential depends on the headteacher's leadership style and attitudes towards parents' role (and parents' associations consequently). Drawing from the examples described above, the proposed argument here is that PAs may serve as agents of change and thus their potential should not be undermined.

Besides the above, there are other factors that affect the school-family relations: those that have to do with parents. These include, among others, parents' low socioeconomic status and educational background, parents' attitudes about their role and the school's role, their previous experience (for a more detailed account see Naoum, 2014; Papageorgakis, 2013). From those mentioned above, I consider being quite important parents', and especially PA board members' perceptions about their role and aspirations. Unless a PA member has already had some previous experience, newly elected members might not know how to sustain or improve the established collaboration. In my experience, there is no such manual in place.

Moreover, PA board members educational background and personal ideologies might not allow them to become aware of the available opportunities there are for the PA to contribute to pedagogic issues. They might believe that their role is limited to arranging for minor repairs and buying equipment. Last, as the headteacher's leadership style is fundamental to the relation, I regard equally vital the PA president's leadership style. An insightful leader will acknowledge that the PA in its entity constitutes a sizeable human resources pool and that the skills of the parents who comprise it should be exploited to the benefit of the school.

Given that DASI highlights the role parents have as school stakeholders, it is argued that schools implementing it encourage the creation of a supportive environment whereby PAs contribution to schools may be maximized.

The scope of this paper has not been to provide an exhaustive account of challenges and solutions to the PAs participation in schools. The aim has rather been to illustrate some of these and argue with the aid of two empirical examples that they can be overcome should the channels of communication of all involved stakeholders are open.

Concluding, it should be noted that research about teachers and parents perspectives' regarding the Parents' Associations role and its contribution to school development (and consequently school effectiveness) in Greece, remains limited (Papageorgakis, 2013). This, in combination with the reflections presented previously, has set the ground for future research. A research proposal is currently being formulated with the aim to explore qualitatively the views parents and teachers have as to how a PA may become actively involved in school issues, identifying at the same time the perceived challenges and proposed solutions.

The educational importance of the proposed study lies in the identified gap in the literature and it is linked to the "educational policy making and the politics change and improvement at school and country level" theme of the congress.

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Improving preschool mathematics education classroom practice quality by establishing links with research

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How can research on mathematics education in preschool have a larger impact on the quality of everyday classroom practice? In what ways can research in mathematics education in preschool influence the quality of everyday classroom practice? The aim of this paper is to present how research findings in preschool mathematics education, concerning teaching effectiveness and programme quality, became the focus of an in-service preschool teacher professional development programme. The programme presented in this paper began as an attempt to establish links between research findings concerning preschool mathematics education effectiveness with everyday classroom practice improvement. This we did through educating preschool teachers about the specific research findings concerning the improvement of preschool mathematics education quality and learning outcomes and how these can inform their everyday classroom practice. Our results show that establishing links between educational effectiveness research and classroom practice improvement is not only possible but beneficial as well; the "putting theory into practice" nature of our programme is what gave the participants the chance to inform, alter and improve the quality of their everyday classroom practice.

Extended summary

Objectives
The aim of this paper is to present how research findings in preschool mathematics education, concerning teaching effectiveness and programme quality, became the focus of an in-service preschool teacher professional development programme. More specifically the questions we shall answer are:
- How can research on mathematics education in preschool have a larger impact on the quality of everyday classroom practice?
- In what ways can research in mathematics education in preschool influence the quality of everyday classroom practice?

Theoretical framework
Mathematics education research is often not considered in practice; practitioners often make and implement decisions about mathematics curricula, classroom teaching, and assessment without regard to research. On the other hand, in recent years, educational researchers have underlined the failure of mathematics educational research to have a

transformative effect on educational practice despite repeated reform efforts (Battista et al., 2007; Boerst et al., 2010; Heck et al., 2012; Heid et al., 2006; Herbel-Eisenmann et al., 2016; Langrall, 2014; Silver, 2003). The chasm between research and practice deepens due to existential factors; the object of research is to create knowledge aiding the analysis and understanding of a problem whereas, the object of teaching is to solve problems (Wiliam, 2003; Labaree, 2003).

The professional development programme was created based on research findings (Shiakalli, 2013) showing that four-year-old preschool children's continuous and consistent engagement with the mathematical problem solving process improved not only their cognitive skills but also their social skills and attitudes towards mathematics. More specifically, the study focused on how multiple solution mathematical problems, graphical representations of solutions as well as teacher-child and child-child interactions aided the development of the children's mathematical thinking through the development of cognitive and social skills and attitudes (Shiakalli and Zacharos, 2012; Shiakalli and Zacharos, 2014; Shiakalli and Zacharos, 2015; Shiakalli et al, 2015).

Method of inquiry
The professional development programme, which took place in Cyprus, began in September 2013 and ended in December 2016 and was materialized as three hour workshops with no more than 25 participants at a time. Each participant had to cover a minimum of 15 workshop hours. In total 80 preschool teachers participated. Average workshop attendance was 18 hours. Attendance was voluntary and in the participants' own free time (after school hours). The aims of the workshops were for the participants to:
a) become familiar with the findings of the research study
b) become familiar with practical examples of how the research findings can be implemented in everyday classroom practice in order to improve teaching effectiveness and learning outcomes
c) design and implement mathematical activities in their classrooms
During the each workshop emphasis was given on both, educator/researcher-participant as well as participant-participant interaction. Apart from researcher-participant interaction during the workshops, each participant had continuous guidance and feedback by the educators/researchers not only throughout the duration of the programme but also after the completion of the participant's attendance.

Data sources
Data was collected through participants' evaluation of the programme (an open ended question asking the participants to comment on the positive aspects of the programme, the benefits of participating in the programme, free thoughts and feelings about mathematics education in preschool) and participants' reflective diaries.

Results and conclusions

Data show that the programme had a positive impact on all participants. Table 1 is a sample selection of the participants' views on the positive aspects and the benefits of the programme.

Table1: *Participants' views on the positive aspects, benefits of and feelings about the programme*

1. Positive aspects of the programme	2. Benefits of participating in the programme	3. Free thoughts and feelings about mathematics education
1.1 Interaction with colleagues has been the most important aspect for me	2.1 Mathematics education is becoming clearer. I feel more confident to organise math activities now	3.1 I wish there were even more workshops
1.2 New ideas and perspectives guided from research	2.2 After every meeting I feel motivated to improve my classroom practice even more	3.2 I never thought I would become so passionate about teaching mathematics
1.3 The freedom to contact the educator any time and talk about my worries and fears concerning the implementation of the activities	2.3 I have learnt: to guide children to observe, listen to each other and interact, organise a variety of activities, math should be fun and creativity	3.3 At last practical applications based on a grounded theory
		3.4 I used to believe that research is for scholars. Now I realise that research can be as useful to us practitioners as well.
1.4 A perfect connection between research, theory and practice.	2.4 Mathematics education isn't about us creating impressive teaching aids. It's about the children discovering mathematics- and that they can achieve with the simplest of materials- everything can become a manipulative in preschool.	3.5 After school I can't wait for the following day. The children's enthusiastic reaction to everything new I learn at the workshops and implement in class gives me energy and strength to learn even more.
1.5 Guidance from professionals with sound theoretical and practical knowledge		
1.6 Our active participation and the experiential nature of the workshops.		
1.7 Small groups. Everyone got the chance to ask questions and clarify ideas and misunderstandings	2.5 Through this experience I have learnt to listen to my children in class and let them lead the way. The workshops have taught me this.	3.6 Now I realise that in the past the way I organised my lessons was teacher centred and lacked investigation and child initiation.

1.8 I had the chance to work with new and different manipulatives and materials not on my own but with colleagues sharing the same questions and insecurities.	2.6 Never could I imagine that preschool children have such great ability of working with complex mathematical ideas	3.7 I didn't know what to expect of the programme. It has given me a new perspective, knowledge and practical experience
	2.7 Now I know that every mathematical experience in preschool has the possibility of becoming a unique mathematical experience	

Through their reflective diaries participants expressed their initial reluctances to take part in a long term and highly demanding programme. These fears were gradually replaced by feelings of content and professional self-efficacy (Table 2).

Table 2: *Quotes from participants' reflective diaries*

Quote 1	The long hours of the programme made me reluctant to participate. Now I realise that in order to change one needs encouragement, first hand experiences and time
Quote 2	Not all my children in class succeed in the same way while solving mathematical problems. But I see them all working patiently, persistently, not afraid to try out a new idea and take a risk- most importantly happy at the end of the process and proud of themselves
Quote 3	Through my participation in the programme I feel I have gained professionalization in teaching mathematics in preschool
Quote 4	We have been attending the workshops every Saturday morning for 2 months now. I never felt bored, tired or restless. I wish we could do more
Quote 5	The programme has given me energy to start learning mathematics under a different view- creatively and critically
Quote 6	A worthy experience I shall cherish. The fact that we had guidance and feedback every step of the way made all the difference
Quote 7	I used to do mathematics with around 10 children participating in the activities. Now every child is an active participant and every child has experiences of success in mathematics.

Concerning our first question, our data show that an effective way of research on mathematics education in preschool to have a larger impact on everyday classroom practice quality is through classroom teacher professional development programmes. As pointed out by the participants, the four elements of the programme having the greater impact on them becoming informed about research finding and how these can

be implemented in classroom practice in order to improve teaching effectiveness and learning outcomes were: a) small group numbers (participant answers 1.6, 1.7), b) systematic meetings with examples of how theory can be translated into practice (participant answers 1.2, 1.4, 1.6, 1.8; Quotes 1 and 4), c) interactions with colleagues and researchers (participants answers 1.1, 1.8) and d) constant guidance by the researchers while attempting to incorporate research findings into classroom practice (participants answers 1.3, 1.5).

Concerning our second question, our data show that research in preschool mathematics education influenced different areas of participants' classroom practice: a) preschool mathematics education methodological quality (participant answers 2.1, 2.2, 2.3, 2.5, 3.5, 3.6, 3.7 and Quotes 2,3,7) , b) preschool mathematics education ontology (participant answers 2.3, 2.4, 2.6, 2.7 and Quote 5).

Educational importance of this study
The programme presented in this paper began as an attempt to establish links between research findings concerning preschool mathematics education effectiveness with everyday classroom practice improvement. This we did through educating preschool teachers about the specific research findings concerning the improvement of preschool mathematics education quality and learning outcomes and how these can inform their everyday classroom practice. Our results show that establishing links between educational effectiveness research and classroom practice improvement is not only possible but beneficial as well; the "putting theory into practice" nature of our programme is what gave the participants the chance to inform, alter and improve the quality of their everyday classroom practice.

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Paper 4

The effect of teacher effectiveness and home learning environment on student achievement gains in mathematics: a longitudinal study

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The effect of teacher factors of the dynamic model of educational effectiveness and home learning environment (HLE) on student mathematics achievement, are investigated. Written tests were administered to grade 1 students (n=1444) of 48 primary schools at the beginning of year 1 and at the end of year 1, year 2, year 3. A parent questionnaire measured student background factors and the HLE, whereas external observations were used to measure the teacher factors. Only one aspect of the HLE (i.e., home learning materials) was associated with student achievement at the end of year 1 and also at the end of year 3. Almost all teacher factors were associated with student achievement at the end of year 1 and the end of year 3.

Extended summary

This longitudinal study investigates the effect of Home Learning Environment (HLE) and teacher effectiveness (TE) on student achievement gains in mathematics. It is argued that there are studies investigating either the TE or the HLE effect on student achievement but there is almost no study investigating the effects of both the TE and HLE. We therefore have almost no data on whether effective teachers can compensate for children with a poor HLE.

Researchers investigated the effect of the HLE, examined its impact on student achievement at the early years of education (e.g. Hartas, 2011; Melhuish et al., 2008). This could be attributed to the fact that the effect of the HLE at the early years was found to be bigger, than in other phases of schooling. Specifically, at these studies the impact of different background characteristics of parents, (i.e., educational and literacy level) (e.g. Christian et al., 1998) and the impact of educational resources that are available at home, such as books, computers and access to the internet (Hartas, 2012) were investigated. However, some studies took a broader view of the HLE and investigated the learning opportunities offered to students at home as well as the literacy habits of parents which may also be related to student achievement. Specifically, it is assumed that through learning activities that take place between parents and children (e.g. Bus, Van IJzendoorn, & Pellegrini, 1995), student learning will be improved. These learning activities are seen as components of the HLE. For instance, when parents read books with their children, play games with letters or numbers or visit the library or a historical site, student learning could be improved (Bus et al., 1995). Furthermore,

it was revealed that investments of parents on learning at home - money spent on books or games, but also the activities that take place between parents and children - are correlated with early language and cognitive development (Beals & De Temple, 1993). Therefore, all these studies are based on the assumption that the learning activities that take place between parents and children promote learning. In this paper, we take a broad view in measuring the HLE. Specifically we investigate the effect of background characteristics of parents, (i.e., educational level and occupational status), of the educational resources that are available at home, as well as the effect of learning opportunities that are offered to children (e.g., home learning enrichment activities, cultural activities, games with letters and numbers, and sports).

Variation on student achievement gains during the first years of primary school can also be explained by the teacher behaviour in the classroom. Drawn from the main findings of EER (e.g., Darling-Hammond, 2000; Scheerens & Bosker, 1997), the dynamic model refers to eight factors that describe the teachers' instructional role and are associated with student outcomes: orientation, structuring, questioning, teaching-modelling, application, management of time, teacher role in making classroom a learning environment, and classroom assessment. The dynamic model refers to skills associated with direct teaching and mastery learning (Joyce, Weil, & Calhoun, 2000) such as structuring and questioning. Second, factors included in the dynamic model such as orientation and teaching modelling are in line with theories of teaching associated with constructivism (Schoenfeld, 1998). Moreover, the collaboration technique is included under the overarching factor of teacher's contribution to the establishment of the classroom learning environment. Therefore, an integrated approach to quality of teaching is adopted. The dynamic model is also based on the assumption that each factor can be defined and measured by using five dimensions: frequency, focus, stage, quality, and differentiation. Frequency is a quantitative means of measuring the functioning of each effectiveness factor, while the other four dimensions examine the qualitative characteristics of the functioning of the factors and help to describe the complex nature of effective teaching (Creemers & Kyriakides, 2015). The dynamic model is based upon research evidence (Sammons, 2009; Scheerens, 2013) and is empirically validated by an international (Panayiotou et al., 2014) and several national studies (e.g., Azigwe et al., 2016; Creemers & Kyriakides, 2010; Kyriakides & Creemers, 2008) testing the effects of classroom level factors upon student achievement on both cognitive and affective outcomes.

At the beginning of the school year 2013-2014, 54 Cypriot primary schools were randomly chosen and 48 agreed to participate. All students of grade 1 of the school sample (n=1444) and their parents participated in this longitudinal study. To measure student achievement, external forms of assessment were administered to the student sample at the beginning of year 1 (September 2013) and at the end of year 1 (June 2014), year 2 (June 2015) and year 3 (June 2016). Information was collected on three student background factors: age, gender, and SES: father's and mother's education level, the social status of father's job, and the social status of mother's job. This

questionnaire was also used to collect data about the HLE at the beginning of year 1. Specifically, apart from the SES, the first part of the questionnaire was also concerned with the learning materials which were available at home (e.g. books, musical instruments, computer, access to the internet and encyclopaedias), and the date of birth of their child. At the second part, parents were asked how often specific home activities take place between themselves and their children. A two-factor model was derived from exploratory factor analysis of parents' responses to the items concerning home activities. The two factors consisted of items which refer to: (1) home learning enrichment activities (e.g. reading books to their children and asking questions, telling stories to their children), and to (2) games (e.g. sports, games with numbers). In this part of the questionnaire, parents were also asked how often out of home activities take place between themselves and their children. A two-factor model was also derived from exploratory factor analysis. The two factors consisted of items which refer to: (1) cultural activities (e.g. visit a museum, historical site, and gallery) and (2) enrichment experiences (e.g., go to the cinema, zoo, and park).

The teacher factors of the dynamic model dealing with teacher behavior in the classroom were measured by four independent observers. During each of the three school years, the external observer visited the classrooms of the student sample and observed three mathematics' lessons. To measure the five dimensions of each effectiveness factor, one high-inference and two low-inference observation instruments were used. These instruments were also used in a series of longitudinal studies investigating the impact of teacher factors on student achievement gains in different learning domains (e.g., Creemers & Kyriakides, 2010; Kyriakides & Creemers, 2008; Kyriakides, Creemers & Antoniou, 2009). The two low-inference observation instruments generate data for all the factors but classroom assessment, and the high-inference observation instrument covers the five dimensions of all teacher factors of the dynamic model. For each teacher factor of the dynamic model, separate confirmatory factor analysis (CFA) was conducted in order to identify the extent to which data emerged from different observation instruments can be used to measure this factor. Based on the results of the CFA analyses, nine factor scores for the performance of each teacher in teaching each subject were estimated.

For the purposes of this paper, multilevel modelling techniques (Goldstein, 2003; Snijders & Bosker, 2011) were employed to investigate the short-term effect of teachers and HLE. Three separate multilevel analyses of student achievement at the end of year1, year 2 and year 3 were conducted to measure the effects of teacher factors and the HLE on student achievement gains during a school year. The data were conceptualized as a three-level model, consisting of student at the first level, teacher at the second level, and school at the third level. The first step in the analysis was to determine the variance at the individual, teacher, and school without explanatory variables (empty model). Then, prior achievement, gender, and age of the student were entered into the empty model (model 1). In model 2, the HLE factors were added into model 1. In models 3a-3i all the teacher factors were added separately into model 2.

In all three analyses, the variance was found to be statistically significant at each level. Moreover, almost 60% of the variance was situated at the student level. The variance at the classroom level was bigger than the variance at the school level. In model 1, prior achievement, gender and age as well as aggregate scores at the classroom and school level were added to the empty model. All three analyses revealed that student background factors but gender, have statistically significant effects on final achievement. Apart from this, prior knowledge has the strongest effect in predicting student achievement at the end of the school year. Moreover, prior achievement is the only contextual variable that had a consistent effect on student achievement when aggregated either at the classroom or at the school level. Then, when the HLE factors were added in model 1, it was found that only two aspects of the HLE (i.e., home learning materials, home learning enrichment activities with parents) were associated with student achievement gains in mathematics at the end of year 1. However, only one of these aspects of the HLE (i.e., the home learning materials) had a direct effect at student achievement at the end of year 2 and at the end of year 3. Finally, in each version of model 3, the first-order factor scores of the CFA models, which refer to the teacher factors of the dynamic model, were added one by one to model 2. The fit of each model was tested against model 2 and revealed that variables measuring the teacher factors have significant effects on student achievement at the end of year 1, year 2 and year 3. One could claim that time stability in their effects can be identified since very similar results emerged by the three separate analyses searching for effects of teacher factors on student achievement gains during a school year.

The results revealed from this study, point out the importance of the home learning materials since only this aspect of the HLE was found to be associated with student achievement gains in mathematics during the three consecutive school years. Home learning enrichment activities were found to be associated with achievement in mathematics but only when students were at the end of year 1. This finding reveals that home learning activities that parents provide to their children matter for student learning only during the first year of primary. Furthermore, in opposition to most aspects of the HLE, the teacher factors of the dynamic model were found to have a statistically significant effect.

Finally, from this study policy implications can be drawn for teacher evaluation, teacher allocation and teacher professional development. For instance, teacher evaluation may assist in identifying effective teachers and recruiting them to schools where they will be able to make a larger impact on students coming from poor HLE. Apart from this, policy development regarding teacher allocation to schools based on specific criteria should be established. Through evaluation mechanisms, teachers' ability will be identified in order to increase learning opportunities and the same time reduce the gap among students coming from different socio-economic background and HLE. Also, continuous teacher professional development may help teachers adjust to changes in

social composition and improve their effectiveness status, in order to help their schools improve their effectiveness status in terms of both the quality and equity dimensions.

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