

International Conference

Quality and Equity in Education: Theories, Applications and Potentials



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University
of Cyprus



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SYMPOSIUM

PROMOTING QUALITY AND EQUITY: A EUROPEAN EXPERIMENTAL STUDY



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



**Evi Charalambous¹, Margarita Christoforidou²,
Declan Fahie³, Julia Griaznova⁴, Elena Kokkinou¹
Evaggelia Tserpeli⁵, Athanasios Verdis⁵**

¹Department of Education, University of Cyprus, Cyprus,

²Cyprus International Institute of Management, Cyprus,

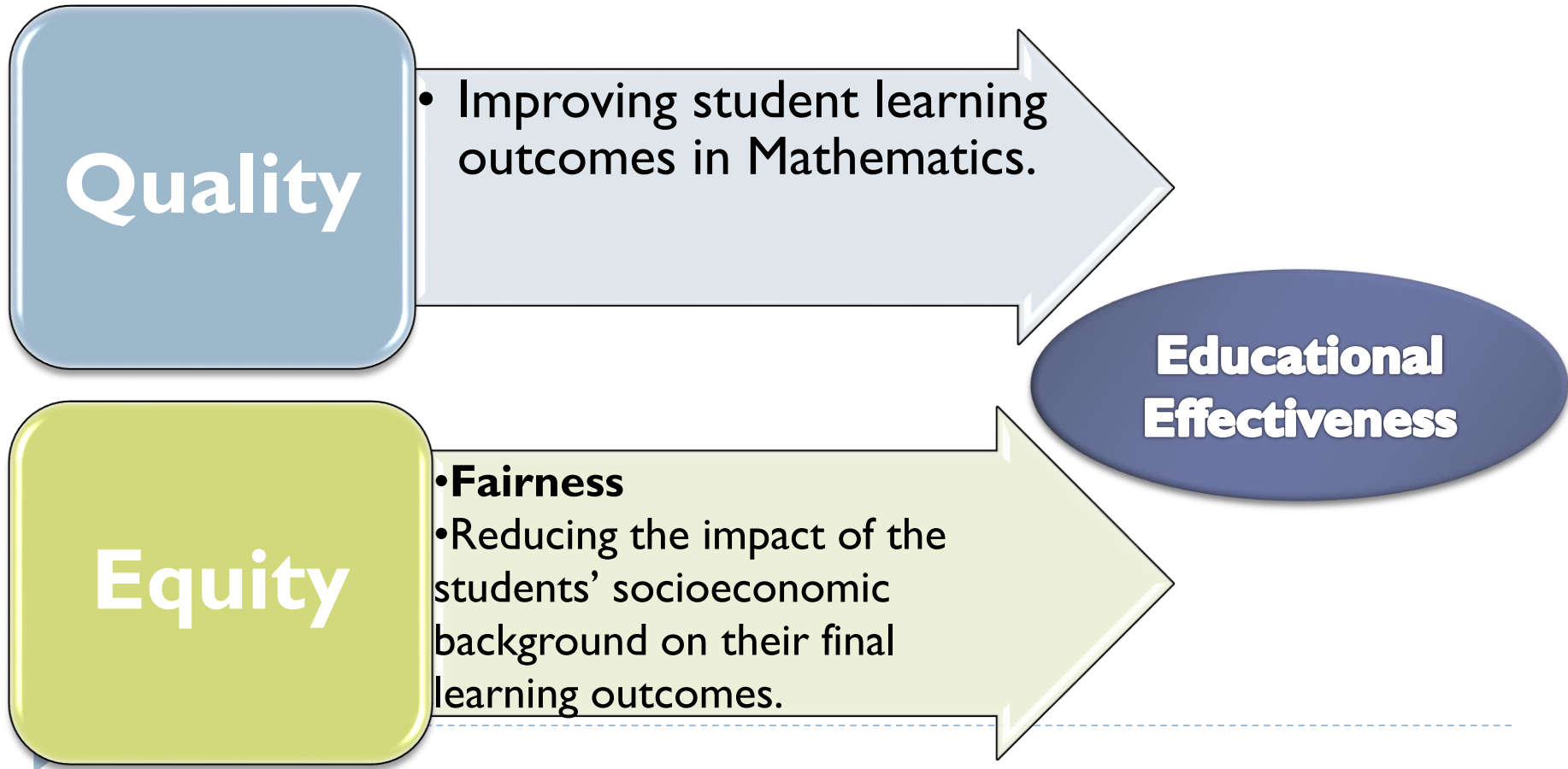
³School of Education, University College Dublin, Ireland,

⁴University of Cambridge, UK,

⁵ Faculty of Philosophy, Pedagogy and Psychology, National and Kapodistrian University of Athens, Greece

The Two Dimensions of Educational Effectiveness: Quality and Equity

In this study...



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).

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

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).

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).

Measuring the socioeconomic background of students

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

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					Number of schools
	Grade 3	Grade 4	Grade 5	Grade 6	Total	
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.
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Methodology: Phase 2- *The intervention*

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 regarding 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.
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Methodology: Phase 2- *The intervention*

The treatment offered to the experimental group:

4. Announcement of the results of the teacher questionnaire during a staff meeting (November 2015).
5. The A&R Team provided support to the schools to help them develop their actions plans based on the handbook given in order to address the priorities identified (November-December 2015) (see step D of DASI).
6. A template of the **action plan** was also given to schools.
 - 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**.



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

- | | |
|---|--|
| <input type="checkbox"/> Student behaviour outside the classroom | |
| <input type="checkbox"/> Collaboration and interaction between teachers | |
| <input type="checkbox"/> Partnership policy (i.e., relations of school with community, parents, and advisors) | |
| <input type="checkbox"/> Provision of sufficient learning resources to students and teachers | |

School policy for teaching and actions taken for improving teaching practice

- | | |
|---|--|
| <input type="checkbox"/> Quantity of teaching (time on task) | |
| <input type="checkbox"/> Provision of learning opportunities | |
| <input type="checkbox"/> 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? <ul style="list-style-type: none"> ○ in your school (besides yourself): ○ 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? <ul style="list-style-type: none"> ○ periodically (i.e. once a month): ○ 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?

Methodology: Phase 2- *The intervention*

The treatment offered to the experimental group:

7. Frequent monitoring of the implementation of the action plans (once every 6 weeks) was carried out from early December 2015 until May 2016 (step E of DASI).
 - 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).
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The role of the research team

- 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.

The role of the school stakeholders

- 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	<ol style="list-style-type: none">1. Provision of sufficient learning resources to students and teachers2. Quality of teaching3. Quantity of teaching
School 2	<ol style="list-style-type: none">1. Partnership policy
School 3	<ol style="list-style-type: none">1. Quality of teaching2. Student behaviour outside the classroom
School 4	<ol style="list-style-type: none">1. Quantity of teaching2. Quality of teaching
School 5	<ol style="list-style-type: none">1. Partnership policy2. Provision of sufficient learning resources to students and teachers
School 6	<ol style="list-style-type: none">1. Quantity of teaching2. Quality of teaching3. Partnership policy
School 7	<ol style="list-style-type: none">1. Provision of learning opportunities
School 8	<ol style="list-style-type: none">1. Quality of teaching2. Partnership policy
School 9	<ol style="list-style-type: none">1. Partnership policy
School 10	<ol style="list-style-type: none">1. Quality of teaching
School 11	<ol style="list-style-type: none">1. Quality of teaching
School 12	<ol style="list-style-type: none">1. Student behaviour outside the classroom2. 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 :
 1. The definition of each effectiveness factor
 2. Why it is vital to the learning process
 3. 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.

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

- ▶ More information on the action plans of the schools participating in the project (experimental group) will be given during Workshop 2 (in Greek):
*From theory to practice in school improvement:
Making the connections by drawing on successful school practices*



Methodology: Phase 2- *The intervention*

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&R Team 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

1. ***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.
2. ***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.

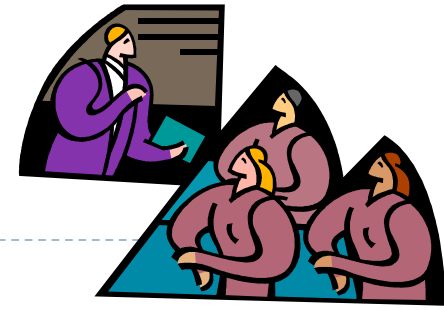


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Thank you for your attention!

For more information on this project please contact the coordinator of the project **Prof. Leonidas Kyriakides**

Contact details:

Department of Education, University of Cyprus,

P.O. Box 20537, 1678 Nicosia, CYPRUS

Tel. 00357-22892947, Fax: 00357-22894488

Email: kyriakid@ucy.ac.cy

And/Or

▶ Visit our project webpage: www.ucy.ac.cy/promqe

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