THE IMPACT OF DIFFERENT APPROACHES TO SCHOOL SELF EVALUATION UPON STUDENT ACHIEVEMENT: A GROUP RANDOMIZATION STUDY

Leonidas Kyriakides$^1$, Bert Creemers$^2$, and Demetris Demetriou$^1$
1: University of Cyprus,
2: University of Groningen
BACKGROUND

Quantitative studies should be conducted in order to examine the relationship between SSE and school effectiveness as it is measured through the performance of students. Such studies may identify the extent of contribution to school improvement that is made by SSE and may also identify which of the main approaches to establishing SSE mechanisms is more effective.
Three approaches to SSE

The first approach to SSE is related to the assumption that the involvement of school stakeholders in defining the criteria of SSE may encourage their active participation in using SSE for improvement purposes.

- Participation may enhance communication among teachers and administrators and improve the quality of decision making.
- Participation is promoted on the basis of ethical arguments for "professionalizing" teaching and "democratizing" school workplaces.
- A meta-analysis of school improvement programs provided support for using a systematic approach to change directed at internal conditions with respect to teaching and to support at the school level aiming to improve the quality of teaching.
- No evidence for the fact that the content of the improvement program has to be developed by the school was generated.
The second approach is concerned with the establishment of a climate in the school that supports change. It is based on the view of schools as mini political systems with diverse constituencies.

- The development of a SSE system is not just a technocratic affair, though it is determined by political influences.
- When introducing SSE the various constituencies groups within education which have the ability to influence educational arrangements may try to promote their own interests in order to increase their professional power.
- The success of SSE may be determined by the ways used to design and introduce the use of SSE for improvement purposes.
- Stakeholders’ concerns about SSE should be faced and reduced before encouraging them to establish SSE mechanisms and design improvement strategies and actions.
Three approaches to SSE

The third approach is based on the assumption that the knowledge-base of Educational Effectiveness Research (EER) should be taken into account in developing SSE mechanisms.

A major element of this approach is the emphasis on the evidence stemming from theory and research.

The dynamic model of educational effectiveness is used as a framework for establishing SSE mechanisms since it was developed in order to establish strong links between EER and improvement of practice.

A series of studies provided support to the validity of the model.
Three approaches to SSE

The dynamic model does not only refer to factors that are important for explaining variation in effectiveness but it also attempts to explain why these factors are important by integrating different theoretical orientations to effectiveness (Sammons, 2010).

Teachers and other school stakeholders involved in improvement efforts may become aware of both the empirical support for the factors involved in their project and the way these factors operate within a conceptual framework.

School stakeholders are offered the opportunity to use in a flexible way this knowledge-base, adapt it to their specific needs, and develop their own strategies for school improvement.
The main aim of this study was to identify the effect of each of the three main approaches of establishing SSE mechanisms on student achievement in mathematics.
A sample of 60 primary schools of Cyprus was selected. The school sample was randomly split into four groups. Different types of support were provided to the first three groups of schools to establish SSE mechanisms for improvement purposes whereas no SSE mechanism was established in the schools of the fourth group.
First group of schools:

- Group interviews with each group of school stakeholders were initially conducted.
- A questionnaire on the appropriateness of different criteria of SSE emerged from each interview and was administered to the relevant population of each group of school stakeholders.
- Analysis of data helped us to identify criteria of SSE which were considered important by all groups of stakeholders. By conducting a group interview with representatives of teachers, parents, and students, each school managed to design its own SSE mechanisms.
- Based on the results of SSE, stakeholders of each school designed their own strategies and action plans for school improvement purposes.
Second group of schools: Followed the same process to design SSE mechanisms as the first one.

Before introducing this approach, school stakeholders were encouraged to express their concerns about SSE and exchange them with each other.

For this reason, group interviews were conducted and support was offered to stakeholders in order to face and reduce their concerns about SSE.
Third group:

- Presentation of the dynamic model and its assumptions to school stakeholders.
- The instruments used to test the validity of the model were administered.
- The improvement priorities of each of these schools were identified.

The results of this investigation were presented to the school stakeholders and they were encouraged to design school improvement initiatives in such a way that one of the first three priorities of their schools could be addressed.

All three groups of schools were asked to develop mechanisms in order to monitor the implementation of their school improvement plans and the research team was available to provide support, acting as the critical friend of the school.
DATA COLLECTION AND ANALYSIS

**Dependent Variable (Student achievement in mathematics):**
- Tests in Mathematics were administered to all grade 4 and grade 5 students of our school sample (n=4212) at the beginning and at the end of school year 2007-2008.
- The written tests were subject to control for reliability and validity.
- Test equating was done by using IRT modeling.

**Student Background Factors:**
- Gender,
- Socio-Economic Status (SES).
- Five SES variables were available: father’s and mother’s education level, the social status of father’s job, the social status of mother’s job and the economical situation of the family
School climate:

- A questionnaire measuring teachers’ perceptions towards the climate of their school was administered to all teachers of the school sample (n=1316) and a high response rate (76.9%) was obtained.

- Confirmatory Factor Analysis provided support to the construct validity of the questionnaire.

- Two factors scores were estimated concerned with the extent to which:
  - the school gives emphasis to achievement (achievement press)
  - a climate of openness and trust
The priority area for which school improvement efforts took place:

The content of the priority area for which school improvement efforts took place in each school was classified into two groups by investigating whether each priority area was in line with the factors included in the dynamic model.

Schools of the first and second experimental group were not aware of the dynamic model but some of the schools of these two groups identified priority areas which were in line with the factors included in the dynamic model.
Implementation effort:

- Different sources of data were used to find out the extent to which each school had put effort to implement its improvement strategies.
- Content analysis of the reflective diaries that school coordinators kept.
- The constant comparative method was used to analyze data emerged from interviews with head teachers, school coordinators, and teachers.
- The analysis of data from each source of data helped us generate a scale measuring the extent to which schools put efforts to implement their improvement strategies and action plans (see Demetriou, 2009).
- The Rasch person estimates were used to estimate the effort that each school put in implementing the intervention.
RESULTS

Multilevel analysis was conducted in order to measure the impact of each of the three approaches of SSE on student achievement (see table 1).

In **model 1** the context variables at each level were added to the empty model. This model reveals that the effects of all contextual factors (i.e., SES, prior knowledge, sex) were statistically significant.

In **model 2** the school explanatory variables which are concerned with the school climate were added to model 1. Only the factor which refers to the extent to which pressure for success was put to teachers and students was found to be associated with student achievement.
In **model 3** the impact of the three school improvement approaches was tested by adding to model 2 three dummy variables.

- The first and the second group managed to achieve similar results and better than the control group.
- The **third treatment group**, concerned with the use of EER for establishing SSE mechanisms, had better results than any other group.
At the next step, we attempted to identify any variable that may explain the fact that the three approaches to school improvement had a differential impact upon student achievement in mathematics.

A multilevel analysis of mathematics achievement of all students but those participating in the control group was conducted (table 2).

The same variables which were found to be associated with achievement of the whole sample are also associated with achievement of students in the three experimental groups.
Model 3 revealed that the effect of the third approach was stronger than the other two approaches even when other explanatory variables concerned with the implementation of the school improvement approaches were taken into account.

The schools which had the smallest effect on student achievement were those schools of the first and second experimental group which designed an improvement strategy which was not in line with any of the factors of the dynamic model.
CONCLUSIONS

Beyond the fact that all three experimental groups had better results than the control group, implying that SSE can contribute in establishing effective school improvement strategies, the third approach to SSE had the strongest impact.

The essential difference of the third approach has to do with the fact that a specific theoretical framework guided the design of the SSE mechanisms.

The schools of this experimental group were asked to develop their improvement strategies and action plans by taking into account the evidence of EER which show how the functioning of school factors could be improved.
CONCLUSIONS

The dynamic model may contribute in the establishment of effective SSE mechanisms.

Not only the knowledge in the field about "what works in education and why" should be offered to the school stakeholders.

Support should be provided to schools in order to identify their priorities for improvement and design their strategies and actions to improve relevant school factors and ultimately improve their effectiveness.
There is a need for longitudinal studies which could provide answers on questions dealing with the effect of each approach to SSE such as its duration, and the contributory and inhibitory factors to duration.

Such studies could look at both the short and long term effect of each approach to SSE and help policy makers take decision on how to support schools establish SSE mechanisms which will have a significant and lasting impact on improving their effectiveness.
Thanks for being attentive ...