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**IEEPS**

Improving educational effectiveness of primary schools



Lifelong  
Learning Programme

# **HANDBOOK OF THE RESEARCH PROJECT**

## *“Improving Educational Effectiveness of Primary Schools (IEEPS)”*

### **Designing Evidence-Based Strategies and Actions to Promote Quality in Education**

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## Chapter 1

### Promoting quality: a dynamic approach to educational effectiveness and school improvement

#### Introduction

Schools are expected to deliver consistently high results in different domains of learning and subject areas. However, international evaluation studies reveal that in Europe approximately 20% of students are not equipped with basic skills in mathematics. While the latest PISA study revealed that 22% of European students were low achievers in mathematics, it also revealed that a 15-year-old student from a relatively disadvantaged home is 2.37 times more likely to be a poor performer (obtaining a score below the level 2 that measures basic skills in mathematics) than a student from an affluent family (see OECD, 2012). PISA also reports that 40% of the variation in student performance in mathematics is found between schools within a country and implies that there are significant differences in the performance of students attending different schools. Therefore, both school and classroom-based interventions for teacher professional development aiming to improve their teaching skills are needed. Also, research shows that interventions supporting primary school children who are at risk have stronger effects than those addressing students at secondary school level. Indeed, a synthesis of various effectiveness programs aiming to improve the attainment of primary students with low basic skills reveals that *whole school* interventions are more effective in this regard (Creemers & Kyriakides, 2012).

In this context, this project aims to support teacher professional development for improving quality of teaching using an evidence-based and theory-driven approach. This approach draws on a theoretical model which provides a dynamic perspective on the functioning and effects of education and refers to factors operating at different levels (i.e., student, classroom, school and context) that need to be addressed to promote quality in education. This dynamic model is briefly presented in the next chapter and the teacher and school level factors included in the model are described. Various national and international studies (including a European study) provided empirical support to the validity of the model and show that the factors of the model are associated with student achievement gains in different learning outcomes. Readers with special interest on the validity of the model can

find further information about these studies in this chapter. Chapter 2 provides an overview of the dynamic approach which highlights the importance of a close working relationship between the target teachers and schools and the Advisory and Research team (A&RTeam) to:

- i. Collect data on the functioning of teacher and school factors and identify improvement priorities:* The A&RTeam will provide support to teachers to help them establish/reinforce teacher self-evaluation mechanisms. Teachers will discuss the findings and decide whether their action plans will address one or more targeted priorities concerning the factors included in the theoretical framework.
- ii. Design teacher improvement strategies and action plans by considering research on promoting quality in education: Teachers* (in collaboration with A&RTeam) will make use of the literature on the factors that are to be addressed and then develop their strategies and action plans.
- iii. Monitor the implementation of the improvement project through establishing formative evaluation mechanisms:* As a result of establishing formative evaluation mechanisms and collecting data, school stakeholders and especially teachers can identify ways to improve their action plans. Thus, decisions can then be made as to how to make modifications taking into account the needs of those involved in each task and their implementation skills.
- iv. Measure the impact of this approach:* Finally, teachers and the A&RTeam will evaluate the impact of the implementation of these strategies/actions and identify under which conditions the use of an evidence-based and theory-driven approach can improve student learning outcomes.

In the next part of this chapter, the concept of quality is explained. The basic assumption of this project is that teacher professional development can contribute to improve teaching skills reflecting to student outcomes. As a consequence, this project aims to implement a dynamic approach to teacher professional development and evaluate its impact on promoting student learning outcomes.

### **Quality: the main dimension of educational effectiveness**

This section provides definition of the concept of quality. Schools and mainly classrooms are first and foremost places where learning takes place. Consequently, the objectives of education are primarily student learning outcomes. Teachers should be supported in such a way that educational objectives are reached and educational quality becomes a fact based on research which can offer a revealing insight into factors and variables that contribute to student achievement. In this context, the term learning outcomes is used in a broader sense and quality is treated as criterion for measuring effectiveness in schools. In the case of the *quality* dimension, *student achievement gains* in the cognitive, affective and psychomotor domains are examined (Creemers, Kyriakides, & Sammons, 2010). In the next part of this introductory chapter, we refer to the phases of the project to help teachers and other school stakeholders understand the rationale of this interventional project and how their improvement strategies and action plans can be designed, implemented and evaluated.

### **Phases of the project: Design – Implementation – Evaluation of an intervention to promote quality**

This next section describes the distinct phases of this project, what has already been done and what we intend to do in detail. Over the past few months we have developed and validated a battery of written tests for students, a high and two low inference observation instruments for measuring quality of teaching and validated a teacher questionnaire measuring school policy for teaching and the school learning environment based on teacher and school factors of dynamic model. By administering this questionnaire to the teachers of your school, we will help you identify the improvement area(s) upon which the intervention in your school can be based. Moreover, classroom observations for measuring teacher skills in relation to the factors of the model will be conducted. Throughout these pre-measures of teacher and school factors, we will identify the teaching factors that are needed to focus on in which there is scope for professional development program to improve your teaching skills significantly. Moreover, your school can identify its own improvement areas and develop an action plan to improve the functioning of the school factors addressed. A short report presenting the three

areas for school improvement will be sent to you. This report will also make explicit the area upon which this teacher professional development (TPD) program will be based.

In the second phase of the project, with your consent and cooperation, we intend to develop together the intervention action plan for your teaching practices. We think that our suggestions concerning the improvement areas of your school can help you develop school policy and better teaching strategies and actions for promoting learning and helping students to improve their learning outcomes in mathematics. At the end of the project, after the implementation of your strategies and actions in promoting quality of teaching, in order to find out if we managed to have success we will conduct final measures. By administering the teacher questionnaire, conducting external observations and administering the battery of tests to the students of your school, we will estimate together the progress that the teachers and schools participating in this project managed to make in regard to the student learning outcomes, the quality of teaching at classroom level, the school policy for teaching and the quality of the school learning environment (SLE). By comparing the final measures with the initial measures (i.e., taken before the implementation of the intervention) we will be able to measure the results of our efforts and the impact of your strategies and actions in promoting quality in your classroom.

In order to have success when implementing your plans, as you well know, the following elements should be incorporated in your strategies and actions to promote quality.

- The teacher body of the school should agree that their school can become a more equitable place where student background factors such as SES, gender, and ethnicity are not obstacles to student learning. In this way, a consensus about the importance of the general aim of this intervention (i.e., promoting both quality and equity) can be established. Moreover, teachers should be encouraged to have high expectations from all students irrespective of their SES, gender and ethnicity.
- **Researchers** involved in the project will support teachers and school stakeholders in the promotion of quality when you design, implement and reflect on your strategies and actions. They will be active participants in the whole process as they provide advice based on research evidence and assistance in interpreting evaluation data. The research team will also be available

to provide concrete, practical suggestions, to exchange ideas with you and to discuss any difficulties you may face during the implementation of your strategies and action plans.

- **The teachers should encourage the involvement of both parents and students in this process.** In this way, parents' expectations and student motivation may be increased and actions to improve the home learning environment can be taken by parents, teachers and students together. This focussed classroom intervention will consider the views and beliefs of parents and students on how quality of teaching and through that student learning outcomes can be promoted and, in so doing, build strategies and actions that take into account any potential concerns. Furthermore, teachers and other school stakeholders can encourage parents to contribute in implementing actions and strategies that are supported by the whole school community.
- To facilitate communication between the teachers and the A&RTeam, we suggest that you nominate one person from the teacher body participating in this project to act as a coordinator for the implementation of the project. In this way, it will be easier to provide support when necessary. In addition, as it will not be possible for us to be physically presented every day in your school, we recommend that the coordinator keeps a **log book** which will inform us about the whole process of implementing your improvement strategies and action plans (see also Table 3 in Chapter 3). Obviously, it is not necessary for the coordinator to put down your everyday progress but to mention anything which may impact upon the success of the project (e.g., problems that turn up, difficulties, achievements, remarks, hesitations). You can share these events with us and, in return, we can help you in your attempts to refine your strategies/actions.
- A **network** of participating teachers and schools will be established. In this way, you will be able to exchange ideas and experiences with national school partners, as well as discuss your attempt to respond to the learning needs of different groups of students (based on their background characteristics). You can also ask for suggestions on how to deal with obstacles and specific practical difficulties which may appear in implementing your strategies and actions to promote quality.

## **The aims and the structure of the handbook**

In this handbook we provide suggestions to schools, which are evidence-based and theory driven, on how to improve their effectiveness in respect of quality. These suggestions are underpinned by the theoretical framework of this project and the international research into educational effectiveness. Thus, the aim of this handbook is to encourage teachers to use the dynamic approach to teacher professional development creatively in meeting the challenges they face on a daily basis in their respective schools. In so doing, these teachers are equipped with the requisite skills to implement and evaluate action plans which promote quality in education.

To achieve this aim, the current handbook includes three chapters. In Chapter 1 we have already described the rationale of our project, provided definition of the concepts of quality and presented the phases of our project. In Chapter 2, we will detail the essential characteristics of the dynamic model of educational effectiveness and the specific factors operating at teacher and school level. Teacher and school level factors will be described in more detail and specific actions will be suggested to compensate for differences in student background factors. In this way, factors considering to the importance of differentiation not only at teaching but also in the functioning of teacher and school factors are stressed. Finally, in Chapter 3 we provide practical suggestions to teachers on how the dynamic approach can be implemented not only for improving quality of teaching but also for improving the functioning of school factors. Specifically, we offer guidelines to teachers and school stakeholders on how to establish self-evaluation mechanisms to identify their improvement priorities. We also offer suggested guidelines on how to develop strategies and actions to address these improvement priorities.

## Chapter 2

### **The Dynamic Approach to School Improvement: An overview**

#### **The dynamic model of educational effectiveness: Rationale**

The dynamic approach to teacher and school improvement has its own theoretical framework which is briefly presented in this chapter. Specifically, the rationale of the dynamic model of educational effectiveness (Creemers & Kyriakides, 2008) is outlined and factors operating at the teacher and school level found to be associated with student learning outcomes are described. The major steps of DASI are also presented in the second part of the chapter.

It is first of all important to note that the dynamic model is multilevel in nature (see Figure 1) which means that it refers to factors associated with student learning operating at different levels (student, classroom, school and system). Critically, the model was carefully designed in a way that supports policy makers and practitioners to improve educational practice by taking rational decisions concerning the optimal “fit” of the factors to the present situation in the schools or educational systems (Creemers & Kyriakides, 2010b). Furthermore, the dynamic model can be a useful tool in helping school stakeholders (school leaders, teachers, parents and students) realise that they can actively contribute to the promotion of positive student learning outcomes. It therefore has implications for school leaders, teachers and parents as they endeavour to improve school, classroom and home learning environments. It is also based on the assumption that the ultimate aim of any school reform effort must result in an improvement in student learning.

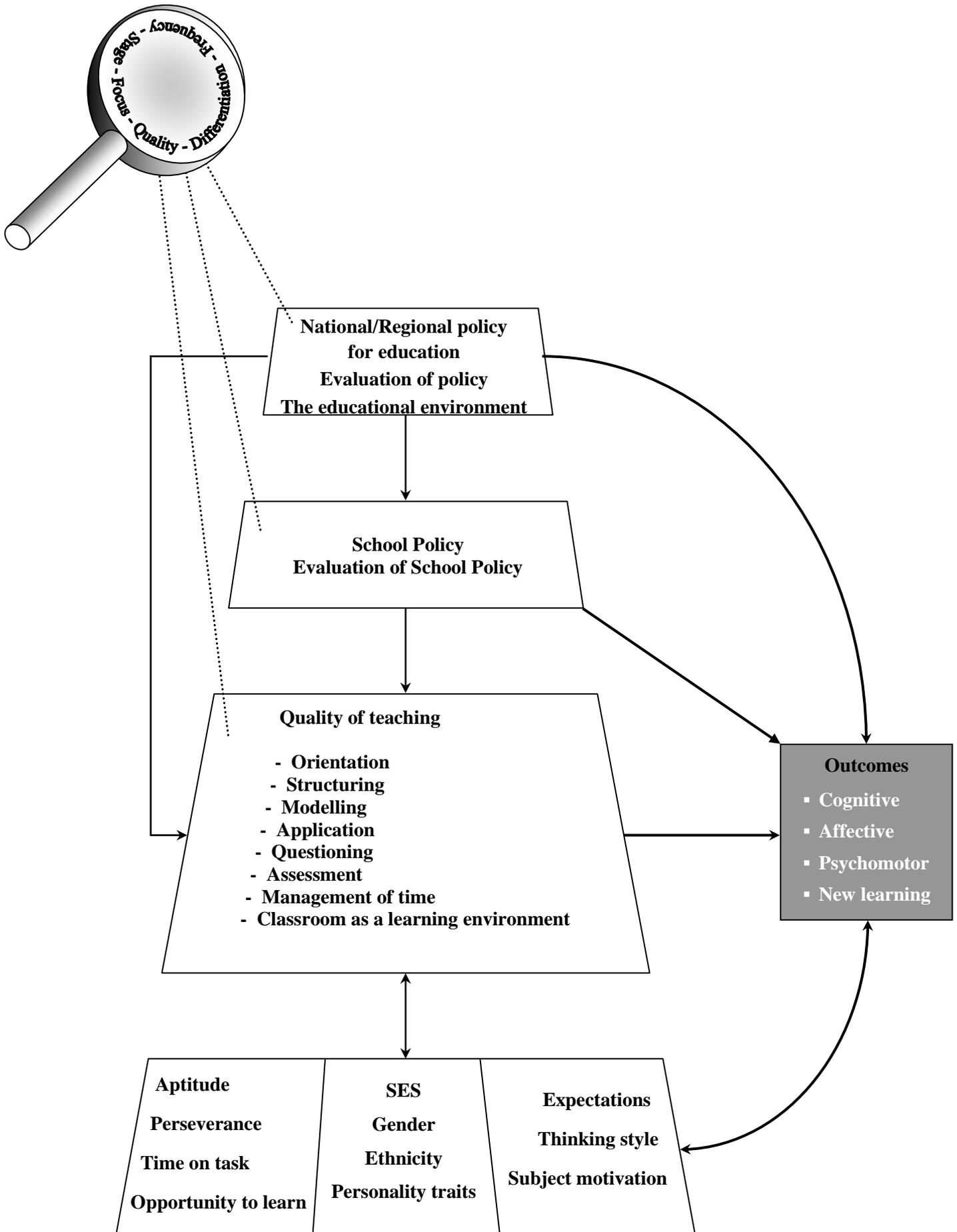


Figure 1. The dynamic model of educational effectiveness

The dynamic model introduces a specific *framework for measuring the functioning of factors*. Specifically, five measurement dimensions (see Figure 1) are taken into account: *frequency*, *focus*, *stage*, *quality* and *differentiation*. *Frequency* is a quantitative way to measure the functioning of each effectiveness factor (which we know from previous research helps to improve student learning), whereas the other four dimensions examine qualitative characteristics of the functioning of the factors and describe the complex nature of educational effectiveness. In the next paragraphs we explain briefly how each dimension is used to measure the effect of a factor on student achievement.

The *frequency* dimension refers to the quantity that an activity associated with an effectiveness factor is present in a system, school, or classroom. This is probably the easiest way to measure the effect of a factor on student achievement.

The factors are also measured by taking into account the *focus* of the activities associated with a factor. For example, in the case of school policy on parental involvement, the policy could either be more *specific* in terms of concrete activities that are expected to take place (e.g., it refers to specific hours that parents can visit the school) or more general (e.g., it informs parents that they are welcome to the school but without giving them specific information about what, how, and when). Moreover, an activity may be expected to achieve a *single or multiple purposes*. As far as the focus is concerned, teaching-modelling tasks can be examined in relation to the extent to which they refer to strategies which can be used to solve problems under various conditions (e.g., problems of different subjects). This measure refers to the specificity aspect of the focus dimension. Moreover, focus can be seen in relation to the extent to which teachers provide opportunities to students to use/develop more than one strategy to solve specific problems/types of problems (Kyriakides et al., 2006; Marshall, 1995).

Also, the activities associated with a factor can be measured by taking into account the *stage* at which they take place. We know from other research that the factors need to take place over a long period of time to ensure that they have a continuous direct or indirect effect on student learning. For example, school policy on student absenteeism is expected to be implemented throughout the year and not only through specific regulations announced at a specific point of time (e.g., only at the beginning of the school year). It is also expected that the continuity will be achieved when the school is flexible

in redefining its own policy and adapting the activities related to the factor by taking into account the results of its own self-evaluation mechanism.

The dimension *quality* can be determined in two different ways. The first one refers to the properties of the specific factor itself, as these are discussed in the literature. For instance, teacher assessment can be measured by looking at the mechanisms which have been developed in order to establish instruments which meet psychometric standards (e.g., valid, reliable, representative to the content taught). At the same time, teachers are expected to make use of the information gathered from assessment in order to meet their student's needs. In this way, teacher assessment practices will give more emphasis to the formative rather than the summative function of assessment.

Finally, *differentiation* refers to the extent to which activities associated with a factor are implemented in the same way for all the subjects involved with it. The importance of treating differentiation as a separate dimension of measuring effectiveness factors arises from the fact that students of any age and in any culture will differ from one another in various intellectual and psychomotor skills, in both generalised and specialised prior knowledge, in interests and motives, in their socio-economical background, and in personal styles of thoughts and work during learning (Dowson & McInerney, 2003). Thus, adaptation to specific needs of each subject or group of subjects will increase the successful implementation of a factor and will ultimately maximize its effect on student learning outcomes. Head-teachers are, also, expected to adapt their leadership to the specific needs of the teachers and other school stakeholders (e.g., parents, pupils) by taking into account the extent to which they are ready to implement a task. For example, information to parents (e.g., information letters about the school policy, regulations, excursions, activities, etc.) should be available to them in different ways such as written in their mother tongue (if they do not speak or understand English), orally through telephone communication, and online by email. The differentiation dimension does not imply that the subjects are not expected to achieve the same purposes. On the contrary, adapting the policy to the special needs of each group of schools, teachers, or students may ensure that all of them will become able to achieve the same purposes.

In the next part of this chapter, we will discuss more about the teacher and school level factors and explain the way that they affect student achievement. Here it is stressed that some student

factors, such as student motivation and expectations, are likely to change so the school management team and the teachers should take targeted actions to improve motivation and expectation. This can also be done indirectly by providing relevant guidelines and support to students and parents. Through your participation to this TPD program it is expected from you to adapt teaching strategies to promote quality of teaching at your classroom.

### **Teacher factors: Promoting quality for teaching skills improvement**

This section focus on the eight factors concerning teacher behaviour in classroom which according to the dynamic model, are related to student achievement gains. Specifically, based on the main findings of teacher effectiveness research (e.g., Brophy & Good, 1986; Darling-Hammond, 2000; Doyle, 1990; Dunne & Wragg, 1994; Kyriakides, Campbell, & Christofidou, 2002; Muijs & Reynolds, 2000; Rosenshine & Stevens, 1986; Wang, Haertel, & Walberg, 1993), the dynamic model refers to eight effectiveness factors which describe teachers' instructional role: *orientation, structuring, questioning, teaching-modelling, applications, management of time, teacher role in making classroom a learning environment, and classroom assessment*. These eight factors do not refer only to one approach of teaching such as the direct teaching model or the constructivist approach. On the beginning of this chapter, it was mentioned that an integrated approach in defining quality of teaching should be adopted. Therefore, we refer not only to skills associated with direct teaching and mastery learning such as structuring and questioning but also to orientation and teaching modelling which are in line with new theories of teaching. In recent years, constructivist and others who support the “new learning” approach (e.g., Choi & Hannafin, 1995; Collins, Brown & Newman, 1989; Savery & Duffy, 1995; Simons, van der Linden, & Duffy, 2000; Vermunt & Vershaffel, 2000) have developed a set of instructional techniques that are supposed to enhance the learning disposition of students such as modelling, coaching, scaffolding and fading, articulating, reflection, exploration, generalisation, collaborative, provision of anchors, goal orientation, and self-regulated learning. Creemers and Kyriakides (2008) has demonstrated that the eight factors of the dynamic model cover at least partly all these approaches. For example, the collaboration technique is included under the overarching factor contribution of teacher to the classroom learning environment. Most of these approaches are

subsumed in the factors teaching modelling and orientation. Thus, the eight factors of the dynamic model are described below and help us identify the importance of using the model to improve teaching practice.

### **A) Orientation**

Orientation refers to the teacher behaviour of providing the objectives for which a specific task, lesson, or series of lessons take(s) place and/or challenging students to identify the reason for which an activity takes place in the lesson. It is expected that the engagement of students with orientation tasks might encourage them to actively participate in the classroom since the tasks that take place become meaningful for them (e.g., De Corte, 2000; Paris & Paris, 2001, as cited in Creemers & Kyriakides, 2008). In this context, the measurement of this factor using the five proposed measurement dimensions is described below.

*Frequency:* The measurement of frequency is based on an examination of the number of orientation tasks that take place in a typical lesson as well as how long each orientation task takes place. These two indicators may help us identify the importance attached to this factor.

*Focus:* As far as the focus dimension is concerned, it is possible that an orientation task may refer to a part of a lesson, to the whole lesson, or even to a series of lessons (e.g., a lesson unit). This classification refers to the specificity of the orientation task. The second aspect of focus, which refers to the purpose of the activity, can be measured by examining the extent to which an orientation task is restricted to finding one single reason for doing a task or to finding the multiple reasons for doing a task. The measurement of this dimension of orientation reveals the extent to which teachers help their students understand the importance of finding the meanings of each task in which they are expected to be involved.

*Stage:* The third dimension of measuring orientation refers to the stage at which an activity takes place. It is expected that orientation tasks will take place in different parts of a lesson or series of lessons (e.g., introduction, core, ending of the lesson) and in lessons that are expected to achieve different objectives. Further, it is expected that the teacher will be able to take other perspectives into

account during these orientation tasks. For example, students may come with suggestions for the reasons for doing a specific task, which an effective teacher is expected to take into account (Gijbels, Van de Watering, Dochy, & Van den Bossche, 2006).

*Quality:* The measurement of the dimension *quality* refers to the properties of the orientation task, especially to whether it is clear for the students and whether it has any impact on their learning. For example, teachers may present the reasons for doing a task simply because they have to do it as part of their teaching routine, without having much effect on student participation. In contrast, others may encourage students to identify the purposes that can be achieved by doing a task and therefore increase their students' motivation towards a specific task/lesson/series of lessons (Kyriakides, Charalambous, Philippou, & Campbell, 2006).

*Differentiation:* Finally, differentiation is measured in a similar way for each of the eight factors. In the case of orientation, it is assumed that effective teachers are those who provide different types of orientation tasks to students by taking into account differences in the: a) personal and background characteristics of their students, b) teaching objectives, and c) organizational and cultural context of their school/classroom. Research into differential teacher effectiveness reveals the importance of adapting teaching by taking into account these three dimensions of differences (Kyriakides & Tsangaridou, 2008).

## **B) Structuring**

Rosenshine & Stevens (1986) point out that achievement is maximized when teachers not only actively present materials but structure it by: a) beginning with overviews and/or review of objectives; b) outlining the content to be covered and signalling transitions between lesson parts; c) calling attention to main ideas; and d) reviewing main ideas at the end. Summary reviews are also important since they integrate and reinforce the learning of major points (Brophy & Good, 1986). It can be claimed that these structuring elements not only facilitate memorizing of the information but allow for its apprehension as an integrated whole with recognition of the relationships between parts (Case,

1993). Moreover, achievement is higher when information is presented with a degree of redundancy, particularly in the form of repeating and reviewing general views and key concepts (e.g., Leinhardt, Weidman, & Hammond, 1987). It is finally important to note that structuring is measured through five dimensions in similar way to orientation.

### **C) Questioning techniques**

Muijs and Reynolds (2000) indicate that effective teachers ask a lot of questions and attempt to involve students in class discussion. Although the data on the cognitive level of question yield inconsistent results (Redfield & Rousseau, 1981), the developmental level of students defines, to a large extent, optimal question difficulty. It seems clear that most questions (almost 75%) should elicit correct answers (Anderson, Evertson, & Brophy, 1979; Brophy & Evertson, 1976) and that most of the rest should elicit overt, substantive responses (incorrect or incomplete answers) rather than failures to respond at all (Anderson et al., 1979; Brophy & Good, 1986). Optimal question difficulty should also vary with context. For example, basic skills instruction requires a great deal of drill and practice and, thus, requires frequent fast-paced review in which most questions are answered rapidly and correctly. However, when teaching complex cognitive content or trying to get students to generalize, evaluate, or apply their learning, effective teachers usually raise questions that few students can answer correctly or that have no single correct answer at all.

Brophy (1986) argues that issues surrounding the cognitive level of questions cannot be reduced to frequency norms. Researchers should take into account the teacher's objectives, the quality of the questions, and their timing appropriateness. As far as their timing appropriateness is concerned, Bennett, Desforges, Cockburn and Wilkenson (1981) pointed out that not only the frequency of errors is important but also their timing and quality. Early in a unit, when new learning is occurring, relatively frequent errors may be expected. Later, when mastery levels should have been achieved, errors should be minimal. It has been shown that there should be a mix of product questions (i.e., expecting a single response from students) and process questions (i.e., expecting students to provide explanations). Effective teachers are also expected to ask more process questions (Askew & William, 1995; Evertson, Anderson, Anderson, & Brophy, 1980).

#### **D) Teaching-Modelling**

Although there is a long tradition in research on teaching higher order thinking skills and especially problem solving, these teaching and learning activities have been given more attention during the last decade due to the emphasis in policy on the achievement of the new goals of education (Aparicio & Moneo, 2005; Boekaerts, 1997; Creemers, 1994). Thus, EER has shown that effective teachers help students to use strategies and/or develop their own strategies which can help them solve different types of problems (Creemers & Kyriakides, 2005). As a result of this, it is more likely that students will develop skills that help them organize their own learning (e.g., self-regulation, active learning) (Kraiger, Ford, & Salas, 1993).

#### **E) Application**

Effective teachers also use seatwork or small group tasks since they provide needed practice and application opportunities (Borich, 1992). This factor is linked to the direct teaching model (Rosenshine, 1983), which emphasises immediate exercise of topics taught during the lesson and direct feedback provided by the teacher either at an individual or group level.

#### **F) The classroom as a learning environment: The contribution of the teacher**

Classroom climate is a factor that teacher effectiveness research has found to be significant (e.g. Creemers & Reezigt, 1996; Kyriakides et al., 2002; Muijs & Reynolds, 2000). The climate is usually seen as associated with the behaviour of the stakeholders, whereas culture is seen as measuring the values and norms of the organization (Heck & Marcoulides, 1996; Hoy, Tater, & Bliss, 1990). It is supported that a healthy organization deals effectively with outside forces while directing its energies towards its goals. Classroom climate research is described as the stepchild of psychological and classroom research (Creemers & Reezigt, 1996). The classroom effects research tradition initially focused on climate factors defined as managerial techniques (e.g., Doyle, 1986). Management is necessary to create conditions for learning and instruction, but management itself is not sufficient for student results (Creemers, 1994). On the other hand, the psychological tradition of classroom

environment research paid a lot of attention to instruments for the measuring of students' perceptions of climate. Many studies report on their psychometric characteristics (Fraser, 1991), but climate factors (such as the way a teacher behaves towards the students) and effectiveness factors (e.g., quality of teaching) were studied as isolated constructs (Johnson & Johnson, 1993; Wubbels, Brekelmans, & Hooymayers, 1991). In this context, the definition of the classroom learning environment adopted here is an attempt to integrate elements of different research traditions. Thus, the dynamic model refers to the teacher's contribution in creating a learning environment in his/her classroom, and five elements of the classroom as a learning environment are taken into account: teacher-student interaction, student-student interaction, students' treatment by the teacher, competition between students, and classroom disorder. The first two elements are important components of measuring classroom climate, as classroom environment research has shown (Cazden, 1986; Den Brok, Brekelmans, & Wubels, 2004; Fraser, 1991). However, the dynamic model refers to the type of interactions that exist in a classroom rather than to how students perceive teacher interpersonal behaviour. The other three elements refer to the attempt of teachers to create a business like and supportive environment for learning (Walberg, 1986). The ways used to measure these five elements are briefly described below. Specifically, interactions are measured by taking into account the role of the teacher in establishing interaction between students (e.g., Rohrbeck, Ginsburg-Block, Fantuzzo, & Miller, 2003; Slavin, 1983; Slavin & Cooper, 1999) and between students and himself/herself (Emmer & Stough, 2001; Kosir, 2005).

As far as the other three elements of this classroom-level factor are concerned, they are measured by taking into account the teacher ability to establish rules, persuade students to respect and use the rules, and maintain them in order to create a learning environment in their classroom (Evertson & Harris, 1992; Marzano & Marzano, 2003). The first element refers to more general problems that can arise when students do not believe that they are treated fairly and are respected as individual persons by their teacher whereas the other two deal with specific situations in the classroom which might create difficulties in promoting learning (i.e., competition between students, classroom disorder).

## **G) Management of Time**

The comprehensive model of educational effectiveness (Creemers, 1994) considers opportunity to learn and time on task as two of the most significant effectiveness factors, which operate at different levels. Moreover, opportunity to learn is related to student engagement and time on task (Emmer & Evertson, 1981). Therefore, effective teachers are expected to organize and manage the classroom environment as an efficient learning environment and thereby to maximize engagement rates (e.g., Creemers & Reezigt, 1996; Emmer, Everston, & Anderson, 1980; Wilks, 1996). In this context, the dynamic model supports the argument that management of time is one of the most important indicators of a teacher's ability to manage classroom in an effective way.

## **H) Assessment**

Assessment is seen as an integral part of teaching (Delandshere, 2002; Stenmark, 1992; Willis, 1993); formative assessment is especially one of the most important factors associated with effectiveness at all levels, especially at the classroom level (de Jong et al., 2004; Kyriakides, 2005a; Shepard, 1989). Information gathered from student assessment should enable teachers to identify their students' needs as well as to evaluate their own teaching practice (Krasne, Wimmers, Relan, & Drake, 2006; Kyriakides, 2004).

This section aimed to present you the factors related to classroom/teacher level based on Dynamic model of Educational Effectiveness. It is major to remember that each one of these factors are measured through five dimensions, *frequency*, *focus*, *stage*, *quality* and *differentiation*, their context was analysed on previous section. These five dimensions help to facilitate the eight teaching strategies in your classroom and improve your teaching skills in a more effective way. Following, we will present you the school factors based on Dynamic Model, in order to be able to design your own action plans to improve your teaching and the learning environment in your school.

In the next part, we refer to school factors which could also be addressed in your attempt to promote quality in education. Specifically, teachers participating in this teacher professional development course may encourage the school management team to use the dynamic approach and

develop strategies action plans in order to improve the functioning of school factors and through that promote student learning outcomes.

### **School factors: Promoting quality by taking actions to improve school policy for teaching and the learning environment**

Factors at the school level are expected to influence classroom-level factors, particularly teaching practice. It is for this reason that schools which take initiatives to improve the functioning of school factors will ultimately provide extra support to their teachers participating in this project. Since learning takes place both inside and outside the classroom, the model emphasises not only on how to improve *teaching* but also the school learning environment. Based on the assumption that the essence of a successful organisation in the modern world is the search for improvement (Hopkins, 2001), the processes and the activities which take place in the school in order to improve the teaching practice and the SLE are examined. For this reason, the processes which are used to evaluate the school policy for teaching and the SLE are also investigated. Thus, the following four factors at the school level are included in the model:

- a) School policy* (School policy for teaching does not refer to one particular policy necessarily, but to the collection of school policies that focus on particular subjects and/or pedagogical practices in the schools) *for teaching and actions taken for improving teaching practice*
- b) Policy for creating the SLE and actions taken for improving the SLE*
- c) Evaluation of school policy for teaching and of actions taken to improve teaching*
- d) Evaluation of the SLE*

In order to explain concisely how and under what conditions school policy may have an impact on student achievement, we present a framework (Kyriakides, Creemers, Antoniou, Demetriou, & Charalambous, 2015) containing the main assumptions of this impact (see Figure 2). The first assumption, which is supported by various effectiveness studies (see Reynolds et al., 2014) posits that there are many factors associated with student achievement which operate at four different levels: the student, classroom, school, and system levels. Second, the framework places emphasis on the school

policy and actions taken to improve teaching and on the school policy and actions taken to improve SLE.

Third, the framework assumes that the impact of school policy depends on the extent to which stakeholders implement the policy guidelines. This is based on research suggesting that viewing implementation failure as a result of poor policy clarity neglects the complexity of human-sense making processes consequential to implementation (Spillane, 2005). For example, a school may develop a clear policy on partnership, which includes the involvement of parents in teaching. However, not all teachers may be persuaded to implement this policy, especially if they believe that parental involvement may jeopardize their professional autonomy. This implies that stakeholders' actions may have a direct impact on improving the SLE and teaching practice, whereas school policy may have an indirect impact by changing stakeholders' actions.

Fourth, it is assumed that there is a reciprocal relationship between school policy and school stakeholders' actions. Changes in school policy may have an impact on changing the actions of school stakeholders. At the same time, it is also possible that the stakeholders' actions might influence school policies by stressing the need to change the policy or policies in order to address current stakeholders' needs. To illustrate this reciprocal relationship, consider student absenteeism. A new school leadership team appointed in a school with student absenteeism problems might develop a policy on student absenteeism to ensure that it is minimized. This move indicates the direct impact that a change in policy might have on changing stakeholders' actions. In contrast, in schools where the greatest majority of students regularly attend school, there is no need to develop such a policy. This illustrates the effect of the stakeholders' actions on setting or changing school policies.

Finally, the framework assumes that school policy has a situational effect on student achievement implying that its impact may vary depending on the current situation of the school under investigation. This situational character of school policy suggests that, in developing the school policy, school leaders should take into account the *abilities and readiness* of those who are expected to implement it. For example, take a school that originally had no minority ethnic students from a particular country and had to teach a Geography lesson on that country mainly by using secondary sources of information (e.g., books, internet). When students from that country join the student

population, the school could for example invite the parents of these students to talk about their country.

Three elements of school policy are considered. First, it is expected that school policy should *clarify all stakeholders' role* in improving learning. When the school policy is clear, the stakeholders are more likely to judge its recommendations and decide whether it is worth making the effort to change their actions. Guidelines are seen as one of the main indications of school policy. In using the term guidelines, the dynamic model refers to a range of documents. These include: staff meeting minutes, announcements, and action plans. These make the policy of the school more concrete to school stakeholders. However, this factor does not imply that each school should simply develop formal documents to install policy. The factors concerned with the school policy mainly refer to the **actions** taken by the school to help teachers and other stakeholders have *a clear understanding* of what is expected from them to do. Second, the framework assumes that in introducing a school policy, *the skills and the willingness of school stakeholders* should be taken into account. If a certain policy expects stakeholders to undertake roles they do not have the skills to perform or they are strongly opposed to, it is unlikely that the policy will be implemented effectively. The third element of school policy is concerned with the *support* that the school management team should provide for stakeholders to help them change their actions. Introducing a policy on teaching and/or the SLE that addresses these three elements is likely to influence stakeholders' actions. Below, the elements of the school factors are presented in detail to clarify the concepts upon which school stakeholders' actions should be based.

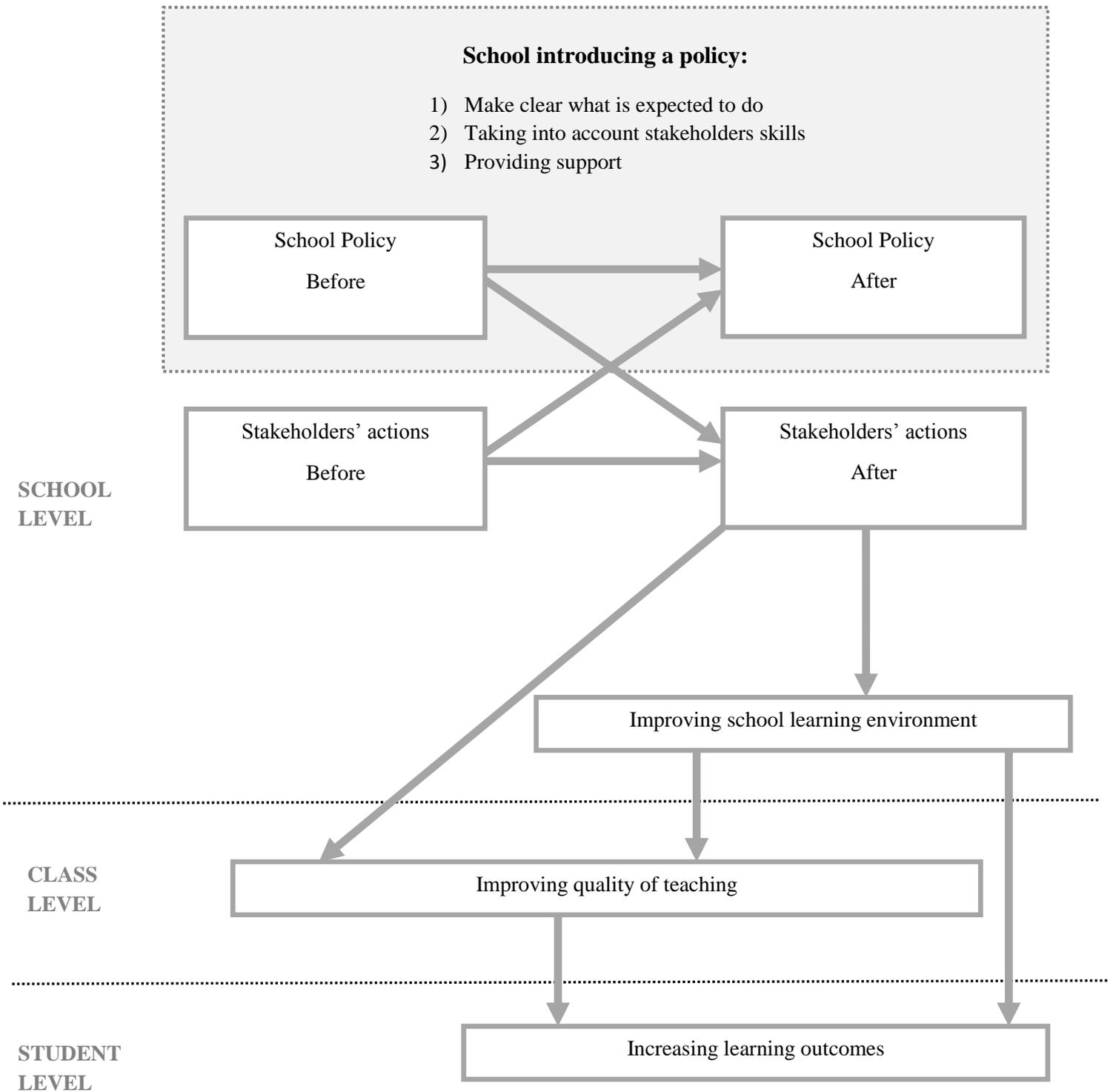


Figure 2. A theoretical framework investigating the impact of school policy on teaching and school policy for SLE on student learning outcomes

### ***A. School policy for teaching and actions taken for improving teaching***

The definition of the dynamic model at the classroom level (see the previous section) refers to factors related to the key concepts of *quality*, *time on task*, and *opportunity to learn*. Therefore, the model attempts to investigate aspects of school policy for teaching associated with a) the quantity of teaching, b) provision of learning opportunities, and c) quality of teaching. Actions taken for improving the above three aspects of teaching, such as the provision of support to teachers in improving their teaching skills, are also taken into account.

#### *1) Policy on quantity of teaching*

The following aspects of school policy on quantity of teaching are taken into account:

- School policy on the management of teaching time (e.g., lessons start on time and finish on time; there are no interruptions of lessons for staff meetings and/or for preparation of school festivals and other events)
- Policy on student and teacher absenteeism
- Policy on homework
- Policy on lesson scheduling and timetable

#### *2) Policy on provision of learning opportunities*

School policy on provision of learning opportunities is measured by looking at the extent to which the school has a mission concerning the provision of learning opportunities beyond those included in the formal curriculum. Therefore, school policy on long-term and short-term planning and school policy on providing support to students with special needs is examined. Furthermore, the extent to which the school attempts to make good use of school trips and other extra-curricular activities for teaching/learning purposes is investigated.

#### *3) Policy on quality of teaching*

School leaders are expected to encourage teachers to discuss, what they consider to be, the characteristics of effective teaching. By drawing on teachers' views and on the literature on effective

teaching, guidelines on effective teacher behaviour in the classroom are expected to be produced, resulting in a school policy of teaching. Since the dynamic model refers to specific teacher factors found to be associated with student achievement (see previous part), it is expected that policy on the quality of teaching will refer to these eight factors measuring teacher behaviour in the classroom. The school management team should also identify ways to support teachers improve their teaching skills accordingly.

Therefore, the way school policy for teaching is examined reveals that effective schools take decisions on maximising the use of teaching time and the learning opportunities offered to their students. In addition, effective schools support their teachers in their attempt to help students learn by using effective teaching practices (Hallinger & Heck, 2011; Heck & Moriyama, 2010). In this context, the definition of this factor implies that the school management team strives to ensure that:

- i. Appropriate and adequate teaching time is provided for students.
- ii. Students are provided with learning opportunities beyond those offered by the official curricula.
- iii. Teachers take actions to improve the quality of their teaching

#### ***B. School policy for creating the SLE and actions taken for improving the SLE***

Since learning does not only take place inside classrooms, we also need to explore the impact of the school policy for improving the SLE. The dynamic model refers to the extent to which a learning environment has been created in the school and therefore, we only focus on policy initiatives which aim to improve stakeholders' learning, and through that student learning. This is accomplished by focusing on the following school factor concerned with policy for improving SLE:

##### *- Collaboration and interaction between teachers*

It is important to note here that the term *learning* does not refer exclusively to student learning. For example, collaboration and interaction between teachers may contribute to their professional development (i.e., learning of teachers) but may also have an effect on teaching practice and thereby may also improve student learning or a school may have a policy for promoting teacher professional development. However, this might not be enough- especially if some teachers do not consider

professional development to be an important issue. In this case, actions may be taken to help teachers develop positive attitudes towards learning, which may help them become more effective.

### *C. School evaluation*

The dynamic model also refers to the mechanisms used to evaluate school policy for teaching and the SLE. The following paragraphs aim to clarify how school evaluation is examined by taking into account the five measurement dimensions of the dynamic model described above.

*Frequency:* Frequency is measured by exploring how many times during the school year (if at all) the school collects evaluative data concerning its own policy for teaching or its own policy for the SLE. Emphasis is also given to the sources of data that are used. Previous research tells us that effective schools use various sources for collecting evaluative data, and that this data is collected periodically during the school year, not only at the beginning and at the end of the school year.

*Focus:* Evaluation and reflection on school policy may attempt to measure the properties of the school policy (e.g., clear, concrete, in line with the research literature), its relevance to the problems which teachers and students have to face, and its impact on school practice and student outcomes. It also considers whether each school evaluates not only the content of the policy for teaching and the actions taken to improve teaching practice but also the knowledge/ understanding and readiness of those who are expected to implement the policy. Moreover, the focus dimension is measured by looking at the extent to which information gathered from the evaluation is too specific or too general. Research on school self-evaluation reveals that data collected should not be too specific or place blame on any individual (e.g., Fitz-Gibbon, 1996; Hopkins, 2001; Visscher & Coe, 2002) because such an approach serves the summative purpose of evaluation and does not help the schools to take decisions on how to improve their policy. At the same time, information gathered from evaluation should not be too general but should be focused on how to influence decision-making. In particular, the process of allocating responsibilities to school partners in order to introduce a plan for improving the effectiveness of their school is essential (Kyriakides & Campbell, 2004; MacBeath, 1999; Meuret & Morlaix, 2003).

*Stage:* The stage dimension is examined by looking at the period in which evaluative data are collected. More effective schools are those who conduct evaluation regularly and systematically (i.e. not just at the end of school year); they establish evaluation mechanisms which operate on a continuous basis during the whole school year. More effective schools are also those that review their own methods and systems of reflection and evaluation adapting them in order to collect appropriate and useful data (Cousins & Earl, 1992; Torres & Preskill, 2001).

*Quality:* Quality is measured by looking at the psychometric properties (i.e., reliability, validity and use) of the instruments schools use to collect data. It also is expected that evaluation data will be used for formative rather than summative reasons, as school evaluation is seen as closely related to the school improvement process (Hopkins, 1989; Kyriakides, 2005b).

*Differentiation:* Finally, the differentiation dimension is measured by looking at the extent to which the school places a greater emphasis on conducting evaluation for specific aspects/reasons of the policy for teaching. This is especially relevant to those aspects which refer to the major weaknesses of the school. For example, if policy on homework is considered problematic the school may decide to collect data related to homework practices more often and in greater depth instead of collecting data for any other aspect of school policy for teaching.

### **Testing the validity of the dynamic model**

Some material supporting the validity of the dynamic model has been produced since 2003, when the model was first developed (see Creemers & Kyriakides, 2015). Specifically, the model has received empirical support (see Table 1) from national studies (e.g., Antoniou & Kyriakides, 2011; Creemers & Kyriakides, 2010a; Kyriakides & Creemers, 2008; Azigwe, Kyriakides, Panayiotou & Creemers, 2016), international studies (e.g., Kyriakides, Archambault, & Janosz, 2013; Panayiotou et al., 2014), and two meta-analyses (quantitative syntheses) of studies investigating the impact of teacher and school factors (i.e., Kyriakides, Chistoforou, & Charalambous, 2013; Kyriakides, Creemers, Antoniou, & Demetriou, 2010) as well as from empirical and theoretical reviews (see Heck & Moriyama, 2010; Hofman, Hofman, & Gray, 2010; Sammons, 2009; Scheerens, 2013). These studies reveal that factors included in the dynamic model are associated with achievement gains in different

learning domains of primary students. In addition, research also suggests that the greatest difference can be made in schools that are in underprivileged communities and/or initially low-achieving students (Kyriakides, 2007; Reynolds et al., 2014).

Therefore, all the above mentioned teacher and school factors are important in promoting quality of teaching in education (see Kyriakides & Creemers, 2011). We are interested to explore if teachers and schools, can simultaneously improve the quality of what they do through this TPD intervention. In the next chapter we propose specific actions that can be taken in classrooms and schools in order to improve the functioning of the teacher and school factors and the student factors that are likely to change (e.g. motivation, expectations, and opportunity to learn). In this way, the classroom school and the home learning environments might be improved. In the final section of this chapter, the rationale of the dynamic approach to school improvement (DASI) and its main steps are concisely presented. This approach is used to help teachers and schools improve their effectiveness in terms of quality.

*Table 1.* Empirical evidence supporting the main assumptions of the dynamic model emerging from empirical studies and meta-analyses

<b>Assumptions of the dynamic model</b>	<b>Studies</b>	<b>Meta-analyses</b>
1. Multilevel in nature	All	All
2. Five dimensions can be used to measure		
a) teacher factors	1, 2, 4, 5, 7, 8	
b) school factors	1, 3, 4	1
3. Impact of teacher factors on learning outcomes	1, 2, 4, 5, 6, 7	2
4. Impact of school factors on learning outcomes	1, 3, 4, 6	1
5. Situational character of school factors	1	
6. Relations among factors operating at the same level: stages of effective teaching	1, 2, 5, 6, 7	2
7. Changes in the functioning of school factors predict changes in the effectiveness status of schools	3	
<i>Negative results in relation to any assumption</i>	None	None

**Studies:**

- 1) A longitudinal study measuring teacher and school effectiveness in different subjects (Kyriakides & Creemers, 2008).
- 2) A study investigating the impact of teacher factors on achievement of Cypriot students at the end of pre-primary school (Kyriakides & Creemers, 2009).
- 3) A follow-up study testing the validity of the model at the school level (Creemers & Kyriakides, 2010a).
- 4) A European study testing the validity of the dynamic model (Panayiotou et al., 2014).
- 5) A study in Canada searching for grouping of teacher factors: stages of effective teaching (Kyriakides, Archambault, & Janosz, 2013).
- 6) An experimental study investigating the impact upon student achievement of a teacher professional development approach based on DASI (Antoniou & Kyriakides, 2011).
- 7) A study investigating the impact of teacher factors on achievement of primary students in Ghana (Azigwe, Kyriakides, Panayiotou & Creemers, 2016).

**Meta-analyses:**

- 1) A quantitative synthesis of 67 studies exploring the impact of school factors on student achievement (Kyriakides, Creemers, Antoniou, & Demetriou, 2010).
- 2) A quantitative synthesis of 167 studies searching for the impact of generic teaching skills on student achievement (Kyriakides, Chirstoforou, & Charalambous, 2013).

## **The dynamic approach to school improvement: Rationale and major steps**

DASI has its own theoretical framework (i.e. the dynamic model of educational effectiveness) which refers to teachers and school factors that need to be considered in implementing change. It is also based on the assumption that school stakeholders (i.e., teachers and the school management team) decide themselves which improvement actions and tasks (at classroom and school level) should be carried out. However, school stakeholders are not left alone to develop their improvement strategies and action plans. This approach is based on the assumption that an *Advisory and Research Team (A&RTeam)* will support school stakeholders and share its expertise and knowledge with teachers in order to help them develop strategies and action plans that are in line with the knowledge-base of research in this area. Finally, DASI emphasizes the role of teacher and school evaluation and self-reflection (especially its formative function) in improving student learning outcomes.

Figure 3 illustrates the main steps of DASI. It highlights the fact that school stakeholders and the A&RTeam are expected to be actively involved in each step of DASI. Their ability to work together and exchange skills, expertise and experiences is critical to the success of any teacher and school improvement project. While the main purpose of DASI is to implement an improvement plan for promoting quality in schools, it is essential that each step of this approach should be followed.

**Step A: Establishing clarity and consensus about the general aims of teacher and school improvement by considering student learning as the main function of the school.** It is important to start with a clear understanding of the aim of the project and how improvement in quality of education will be achieved. Therefore it is important to establish procedures to ensure clear understanding among all school stakeholders about the ultimate aim of teacher and school improvement. The project is based on the premise that teacher and school improvement is centred on the promotion of student learning (i.e., quality).

**Step B: Establishing clarity and consensus about the aims of teacher and school improvement by addressing teacher and school factors which influence teaching and learning.** The dynamic model and its factors are presented to the school stakeholders. This presentation will help teachers understand how and why addressing specific teacher and school factors promote student learning.

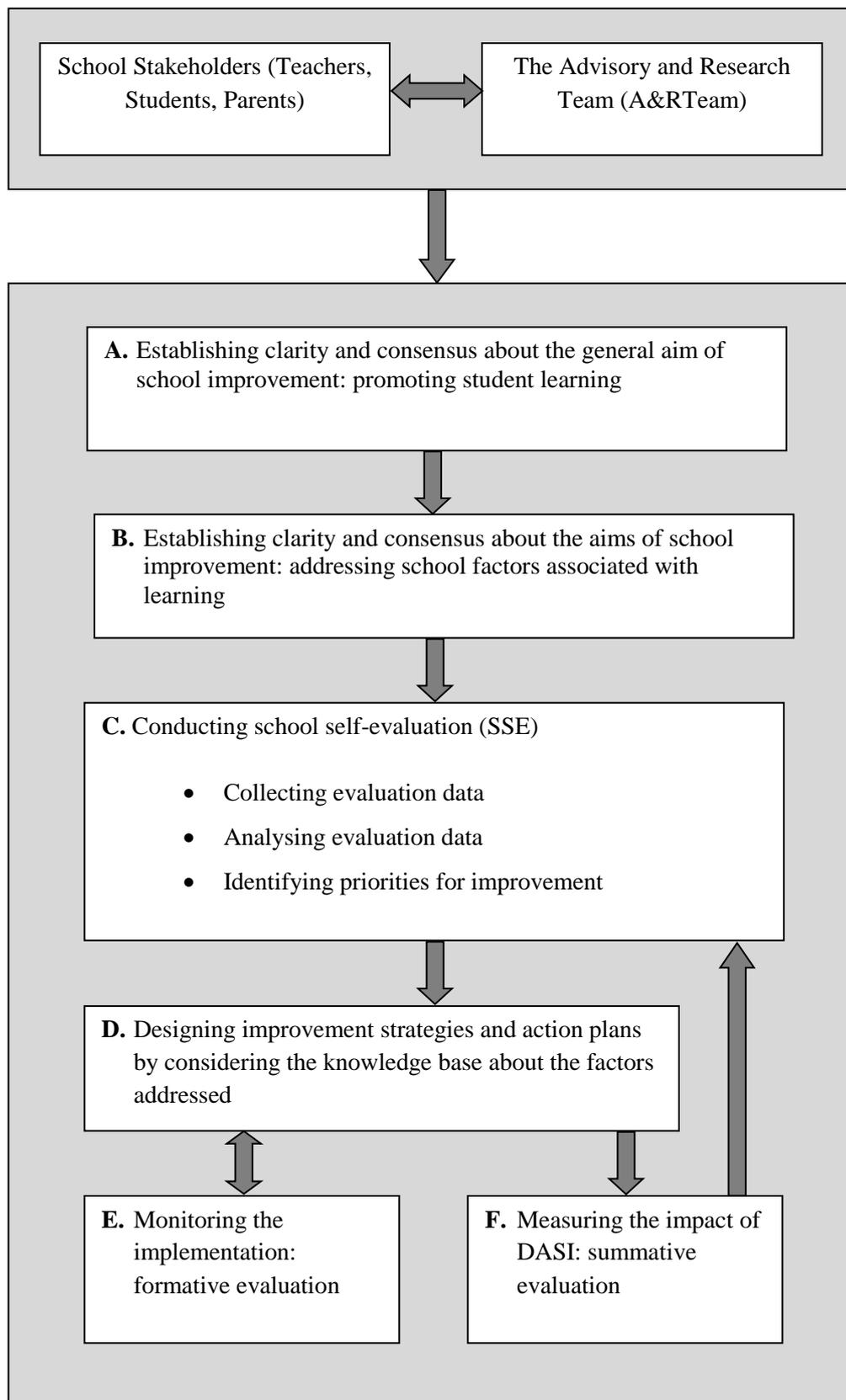


Figure 3. The major steps of the Dynamic Approach to School Improvement (DASI)

**Step C: Collecting evaluation data and identifying priorities for improvement.** The collection of the evaluation data will be undertaken jointly by the research team and the school stakeholders. In the case of the TPD, the research team will conduct classroom observations and share its findings with the teachers in order to identify their improvement areas. The research team could also proceed in analysing the school data and help school stakeholders identify their priorities for improvement. The improvement areas will then be announced to the whole school community and suggestions will be considered in order to define the specific area/areas of improvement.

**Step D: Designing teaching and school improvement strategies and action plans by considering the available knowledge base concerning the factor(s) to be addressed.** This step is one of the most important steps of DASI. Members of the research team will share their expertise with school stakeholders providing additional input to existing ideas, experiences and knowledge in order to help teachers and schools develop their own strategies and action plans. Whilst the research team is expected to provide suggestions for school stakeholders, which are based on research evidence, it is the teachers and schools themselves that must decide on the content of their action plans, having considered their evaluation data, needs and abilities as well. In developing action plans it is important to specify which tasks need to be undertaken, who is going to be responsible for implementing each task, when each task is expected to be implemented and which resources should be provided for the stakeholders to implement these tasks.

**Step E: Monitoring the implementation of the improvement project by establishing formative evaluation mechanisms.** School stakeholders should not only develop strategies and action plans, but should also establish formative evaluation mechanisms in order to be able to take decisions on how to improve these action plans. Both school stakeholders and the research team will be involved in conducting formative evaluation. In addition, an internal teacher and school evaluation mechanism should be developed where in school stakeholders may reflect upon their abilities not just to implement the action plans, but also to improve the functioning of teacher and school factors. As a result of establishing formative evaluation mechanisms and collecting data, school stakeholders can identify weaknesses in their action plans and take targeted measures to improve them.

**Step F: Measuring the impact of DASI.** Finally, the A&RTeam and the school stakeholders should develop summative evaluation mechanisms in order to measure the impact of DASI on promoting student learning. This step may also reveal the importance of identifying a new priority area for improvement. If summative evaluation reveals that a teacher and/or a school has managed to substantially improve the functioning of the factor(s) addressed, teachers and the A&RTeam may decide to collect new evaluation data and identify a new priority improvement area. By conducting teacher and school evaluation (moving back to Step C) the new priority area will be identified and a new improvement project will be developed and implemented. It can be argued, therefore, that Figure 3 shows that more effective teachers and schools always search for improving their effectiveness status irrespective of how effective they are.

#### **The impact of DASI on promoting quality in education**

Table 2 presents the five previous experimental studies which have been conducted in order to identify the impact of DASI on promoting student learning outcomes. The first two studies detailed in this table are concerned with the use of DASI for improving teacher effectiveness. These studies have shown that DASI was more effective than either the Competency Based Approach (CBA) or the Holistic Approach (HA) to teacher professional development which are considered as the two dominant approaches to teacher professional development internationally (see Creemers, Kyriakides, & Antoniou, 2013). Teachers employing DASI managed to improve their teaching skills substantially and, as a result, improve the learning outcomes of their students. The other three studies were concerned with the use of DASI at school level and demonstrate the added value of using DASI to promote student learning outcomes. It is also important to note that one of these studies was conducted in different European countries and showed that DASI had an impact not only on improving the functioning of school factors but also on reducing bullying. Finally, the fifth study took place in socially disadvantaged schools and revealed that DASI had an impact on promoting not only quality but also equity.

*Table 2.* 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 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 CBA to offer INSET course on assessment (n=240)	DASI had a stronger impact than 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
5. Using DASI to promote quality and equity in socially disadvantaged schools (n=40)	DASI had an impact on school factors.	DASI had an impact not only on student achievement, but also on reducing unjustifiable differences between students’ achievement.

**Studies:**

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).
5. Promoting student learning outcomes in socially disadvantaged schools (Charalambous, Kyriakides, & Creemers, 2016).

In the aforesaid studies, teachers and schools were given guidelines on how to design strategies and actions to improve their effectiveness. Those actions were based on the teacher and school effectiveness factors of the dynamic model. Consequently, in the next chapter we will provide suggestions to help teachers and schools make use of DASI and design strategies and action plans to improve their effectiveness in order to promote quality of teaching.

## **Chapter 3**

### **Using DASI for teacher and school improvement purposes: Translating the approach into actions**

This chapter provides practical suggestions to help school stakeholders use DASI, its design strategies and action plans to improve the effectiveness of their teaching skills. In the first section of this chapter, we explain the importance of conducting School Self-Evaluation (SSE) as this is one of the major steps of DASI. In the second and third section of this chapter, we give examples of strategies and actions which teachers could undertake in order to improve the functioning of each teacher and school factor, while the fourth section offers examples of how each teacher could monitor the implementations of their action plans. In the last section, the main conclusions emerging from this handbook are outlined.

#### **Using teacher and school self-evaluation to identify improvement priorities**

Self-evaluation mechanisms are an essential part of DASI (see step C of Figure 3 in Chapter 2), therefore there are two overarching goals when it is implemented: to improve the quality of the school and to improve teaching and learning. For this reason, teacher self-evaluation is conducted for formative reasons. In practice, it implies that teachers which conduct self-evaluation are not simply expected to collect data and announce results on what works and what does not work in teaching, since this is usually the task of external teacher evaluation.

Our approach to teacher improvement using DASI is based on the assumption that should be targeted and concerned with specific teacher factors that we know from previous research are strongly associated with student achievement. In this way, we view DASI as a very practical and strategically focused approach for teacher improvement; as such it does not focus on everything that happens in classrooms. To be able to identify the areas of improvement, the teachers in schools will be asked to complete a teacher questionnaire and they will be observed during their teaching at the beginning and at the end of the school year to collect data about the functioning of each one of the teacher and school factors of the dynamic model (see Chapter 2). Also, since it was agreed that the ultimate aim of

DASI is the improvement of learning and learning outcomes, data on students' achievement in mathematics (basic skills) will be collected at the beginning and at the end of the school year.

Another vital element of self-evaluation process that is taken into account in designing improvement strategies has to do with its participatory character. The idea of self-evaluation promotes that *all school stakeholders should be involved in the evaluation of their school*. Therefore, as soon as the teachers attempt to design an improvement project, stakeholders must be brought together and each given a role to play in the project. Readers are reminded that the dynamic model refers to partnership as a school factor. More effective schools are known to improve this important aspect of the school learning environment. For this reason, DASI refers to the importance of conducting teacher self-evaluation rather than any other form of internal evaluation which might be the initiative of only a specific group of school stakeholders (e.g., school evaluation conducted by the school management team). To be effective it must involve the whole school community.

The A&RTeam has a very crucial role to play in helping teachers design the improvement project, analyze data emerging, identify priorities for improvement and develop their strategies and action plans for teacher and school improvement. The members of our research team are therefore expected to take an active role in sharing their knowledge and insights to school stakeholders at all stages of DASI. The A&RTeam may not only provide suggestions for based on research evidence but may also help teachers either develop their own instruments to measure their teaching actions or help the stakeholders to use relevant tests that have good psychometric properties and were used in previous studies. Although the A&RTeam has technical expertise and may have to conduct the analysis of evaluation data, school stakeholders should have a say for this process too. For example, the A&RTeam may analyze the results and produce a report to school stakeholders but anyone may ask from members of the A&RTeam to run extra analysis and give them answers to questions that may be of interest to them.

It is finally important to note that one of the major assumptions of self-evaluation processes is that "human beings can learn from their experiences" (see Kyriakides & Campbell, 2004). This implies that self-evaluation encourages teachers to reflect on their practice and identify their weaknesses. In this way, realizable targets can be created in order to contribute to student learning.

DASI takes into account this value assumption of teacher self-evaluation but it also moves a step forward and reminds us that, while reflection is important, it alone is not enough to promote student learning. We recognize that school stakeholders need support from the A&RTeam to reflect on their practice and identify ways to improve practice in their classrooms. In this context, the involvement of school stakeholders in self-evaluation mechanisms is not only expected to encourage them to reflect about their practice but to reflect by bearing in mind the literature which refers to best practice when dealing with other challenges that their classroom is facing. At this point, school stakeholders are expected to make use of the dynamic model and the A&RTeam to reflect on the functioning of their teacher and school factors that promote learning and learning outcomes.

In the next two sections of this chapter, we refer to the actions that school stakeholders and the A&RTeam can take, in order to design their improvement strategies and action plans. It is first of all stressed that when developing their action plans, teachers should bear in mind how and why each aspect of the overarching teacher and/or school factor addressed, are related to learning and the learning outcomes. The policy should also outline the *roles, responsibilities and procedures* for staff and other adults, including parents and community volunteers who may be involved in DASI and the specific teacher and school improvement project. When developing school policy and designing action plans and strategies, it is also very useful for school stakeholders and the A&RTeam to take into account the following:

- A. The term ‘school policy’ does refers not only to the various formal documents or letters sent to different school stakeholders which explain the policy of the school, but also to the various actions that the school management team (teachers, deputy heads, and administrator) undertake, to improve the quality of teaching and the school learning environment. It is further important for the format of the policy to be clear, especially in the messages that are delivered to the teachers and other stakeholders. This is because they provide specific direction for the role that each individual involved has to undertake, in regard to the implementation of the various aspects of school policy.
- B. During the designing of action plans, it is suggested that school stakeholders and the A&RTeam take into account the knowledge and skills of teachers, students and parents in

implementing the intervention policy. For example, encouraging teachers to visit each other's classrooms to observe specific teaching skills, may not be an appropriate decision to make if this is not usual practice in the school. On the other hand, more approachable actions and strategies, such as staff meeting presentations of the successful approaches teachers may use, could have a positive impact on the effectiveness of the intervention. Equally they should ensure that the stakeholders are willing to be involved in implementing the policy, and that the school is further able to provide them with the support needed to implement the policy.

The strategies and action plans described below can be modified according to your school and teachers' specific needs, yet they should remain in line with the skills of the various stakeholders of the school. Therefore, recommendations presented beneath may assist readers to make decisions for the effective development of a teacher and school improvement project.

### **Designing strategies and actions to improve school policy for teaching**

In this part, suggestions regarding the three aspects of the first overarching factor can be found, which are concerned with school policy on teaching and the actions taken to improve teaching (see Chapter 2). The three aspects of this domain concern: *a) quantity of teaching, b) provision of learning opportunities, and c) quality of teaching.*

#### ***A) Quantity of teaching***

This factor refers to the ability of the teacher to tackle problems that may reduce teaching time. Teaching time is very important for achieving any of the cognitive and affective goals and for carrying out activities that can reduce differences in achievement among students particularly since teachers have to run differentiated tasks that need time to be organized and completed. Thus, two types of reactions are presented regarding the four aspects (*absenteeism of students, teacher absenteeism, management of teaching time and policy on homework*) of this factor: the first regarding methods of persuading school stakeholders to avoid reducing teaching time (i.e. kind of disciplinary actions) and the second identifying techniques for regaining lost teaching time (or in part), by offering extra time for learning.

*i. Absenteeism of Students*

Student absenteeism is an aspect of this factor that has direct and negative consequences to the quantity of teaching offered to students. Some actions for reducing this phenomenon and for replacing the lost time are given below.

*Actions for reducing the phenomenon:* Firstly, teachers, if they do not already do so, could keep records of student absenteeism on a daily basis and if possible, selected school stakeholders could be responsible for analysing them, by searching for general trends of which students are missing lessons and when this is occurring. Although schools usually keep record of student absenteeism, this is typically done only for managerial purposes. Schools may also choose to present the results and send a short report to parents, which may display when the phenomenon is occurring, or on which days the students are usually absent. The analysis of data can also help school stakeholders to set targets that will be announced to all stakeholders, in order to reduce the phenomenon. Moreover, if the figures show that a greater number of students are absent on specific day(s), the school management team may investigate the possible reasons for this trend by discussing such findings with the absent students. For example, if mass absenteeism occurs on the same day as an organised school trip, the reason for the students' lack of attendance could simply be that they did not want to participate in the event. Similarly, if a relatively high percentage of students are regularly missing on a Friday, it may be due to particular families purposefully extending their weekends. In such cases, there would be a need to contact these parents to request that teaching time is respected. Another trend may indicate that students tend to be absent from a particular subject (i.e., Mathematics). Again, the reasons should be sought and taken concrete steps to reduce the phenomenon. Also, through the record books we can see if some students who are repeatedly absent belong to specific groups (e.g., ethnic minority) students or students in challenging circumstances and to look for the reasons why they are absent. The approach should be one of openness and a desire to understand the reason for the absenteeism. We must be very careful and to focus our attention on absenteeism. The findings should not be exported arbitrarily but after discussion and gathering of relevant data.

Secondly, teachers should announce their policy on student absenteeism to parents and students, clarifying that there should be a serious justification for students not attending school. In

addition, it can be reiterated to students and parents who missed lessons or a school day for an acceptable reason (e.g. illness, participating in competitions, representing the school in events), that they should provide supporting documents detailing the reason for their absence. These documents should be given promptly to the school staff members responsible for dealing with absenteeism and checked if necessary. On the other hand, those students who missed lessons or school days without acceptable reasoning should be addressed individually and measures should be taken to avoid absenteeism in the future.

Thirdly, teachers can develop a “Sign in book” where every student who is late to school is required to ‘sign in’ at the front reception. A book for this activity is held at the front of school with columns such as:

<i>Date</i>	<i>Name</i>	<i>Class</i>	<i>Time in school</i>	<i>Reason for lateness</i>	

The final column can be used for admin purposes – such as indicating that time has been caught up, reason verified as reasonable cause for lateness, parent contacted or similar. Senior teachers monitor this book to ensure there are not repeat offenders. Calls home are made as necessary. Such a book could be signed by pupils and/or parents.

*Regaining the lost teaching time:* In some schools, each student is expected to nominate or have classmates whose responsibility is to inform him/her of what happened during the day and of any homework that was assigned whilst he/she was absent. In this way, the student will have the opportunity to work on the topic at home and the parents (or other members of the family) may help him/her to catch up with the lost time. In other schools and especially in the cases of students who may receive little or no support at home (e.g., students in challenging home circumstances), it may be the teachers that are expected to find extra time to inform and assist students in catching up with the part of the curriculum they have missed. This can be either when the student returns to the school or even during the period that they are missing the lesson for, at a place outside of the school (e.g. visit students at home to inform them about the lessons that they missed). The teachers could also send the

teaching material of the day to the students who were absent, either by email or through a close friend or through their own parents.

*ii. Teacher Absenteeism*

Teacher absenteeism is another important aspect of this factor that may have negative consequences to the quantity of teaching offered. Just as with student absenteeism, every effort should be made to ensure that teacher absenteeism is minimised and most importantly, that there are clear policies in place in relation to making up for any loss in teaching time when colleagues are absent.

With regard to the aspect of teacher absenteeism, school management should also consider stress in the workplace as a contributory factor which can especially occur in schools in challenging circumstances. The term 'teacher stress' refers to a situation "when the pressures upon a teacher exceed the resources to cope with those pressures" (INTO, 2003, p.1). It appears that teachers who experience personal satisfaction from their work seem to strive for success, meeting the requirements of their job in order to feel creative and self-fulfilled. Consequently, constant fulfillment is connected to teachers' encouragement of self-knowledge and improvement in terms of appreciation of their work by students and social support by the headmaster (Papastylianou, Kalia, & Polychronopoulos, 2009). To facilitate the above, what could be done is to arrange for practical training with the aim to enable the teacher to (1) solve problems resulting from the organization of the class-work and establish and maintain order in the classroom so that lessons will be as productive as possible, (2) solve problems resulting from the teaching-learning process, looking in depth at the problems posed by the psychology of teaching and learning, particularly at the difficulties many new teachers have in organizing their teaching to make it accessible to all of their students (Cole & Walker, 1989).

*Regaining the lost teaching time:* Teachers who know in advance that they will be absent (e.g. have to attend a course offered externally) may be required to prepare teaching materials which can be used during their absence by replacement teachers. In cases when absenteeism cannot be predicted (i.e. teacher illness), other available teachers may be asked to cover the lessons affected. In those cases that there is no teacher available to run the lesson(s), students may be given the opportunity to

undertake extra-curricular activities (e.g. going to the library and studying under the supervision of the librarian, playing educational games, developing a project by using the internet). If no action is taken, then students may lose the teaching time and could even cause problems for other classrooms as well, as misbehaviour is likely to occur especially if being without supervision.

### *iii. Management of teaching time*

School policy on the management of teaching time is also an aspect of the factor concerned with quantity of teaching. In defining this policy, the dynamic model refers to several aspects of the management of teaching time, such as ensuring that: a) lessons start on time and finish on time; b) there are no interruptions of lessons for staff meetings, announcements, or preparation of school events. Resultantly, school stakeholders ensure that the time allocated for teaching is used to achieve the aims of the official curriculum.

*Actions for reducing the phenomenon:* Schools can take several actions to reduce the interruption of lessons and guarantee that they start and finish on time. For example, schools may have an official policy (which will be announced to all school stakeholders) that lessons will not be interrupted by anyone (e.g. other teachers, deputy heads or heads) or for any managerial reason (e.g. for making an announcement or collecting money for school trips/charity reasons etc.). The starting and finishing times of the lessons can also be announced to the teachers, students and parents which the school management team should enforce, by ensuring that students and teachers go to class on time after each school break. The school and teachers should officially inform the parents with a brochure on the exact time by which all students should be at school. This brochure could explain clearly to the parents that the timely arrival of the students is very important in order not to waste any teaching time. Consistency in the arrival time serves the learning objectives and favours the development of multiple activities since the teacher has the opportunity to differentiate his/her teaching and give more time to the students who need it.

Moreover, it is often the case that some head teachers “extend” the break time to discuss an important matter with the staff and to take certain decisions. Such habits should be avoided and the head teacher should wait until the end of the day or take some time before the lessons start in the

morning (when all teachers and staff members can meet and they do not have any teaching responsibilities) to discuss any emerging issues.

Teachers can also consider the possibility of keeping record of students who are not on time to attend the lesson. In some schools these results are announced to various stakeholders and are also communicated with parents (for disciplinary reasons). If students arrive late in the morning, teachers can request that their parents bring them to school on time. Certain schools may enforce punishment for those arriving late in the morning, for example by not allowing them to enter the class, yet stakeholders should be aware that this approach can create more problems, as further teaching time is lost. Similarly, teachers who regularly start lessons late or not finish on time should be addressed individually by the head teacher and appropriate measures should be taken to avoid this phenomenon (e.g. warnings, negative evaluation) in the future. Also, when a student is consistently arriving late to class, the teacher has to contact his parents personally to seek the reason of delay. If there is a serious reason for this, (e.g. because of the nature of the work of parents or if there is no transportation to school) then the school must provide adequate support to parents and arrange timely transportation to the school (e.g., with the school bus).

*Regaining the lost teaching time:* Students who are late can be asked to spend extra time in school or to do extra homework to compensate for the lost time. Therefore, not only is the lost teaching time regained, but students are also discouraged from arriving late to school. Some schools require late students to stay during their break time to discuss with their teacher how to compensate for the learning tasks they have missed.

#### iv. *Policy on Homework*

Schools are expected to have a policy on homework and the policy should be accessible to teachers, parents and students. Policy on homework should cover the following aspects:

- 1) *Amount of homework given to students:* This should be differentiated according to the needs of students. There are students who will not be able to complete all their homework either because they will not have any support by their parents or because of the difficulties that they will encounter in undertaking the activities (e.g., low achievers).

- 2) *Type of homework that should be given:* This should be also differentiated according to the needs of students. For example, research has shown that students with low SES benefit more from structured exercises that guide the student through the steps they have to follow to complete them (Brophy, 1986) and with exercises that link the lesson of the day with their daily lives (Hopkins & Reynolds, 2002). Homework must be “doable”, for example, it is unrealistic to give homework which requires a search on the internet when a group of students do not have a computer at home.
- 3) *The role of parents in supervising homework:* Parents are only expected to check that their children spent time doing the homework and not solve the problems/tasks that their children are supposed to do. Teachers may also encourage parents to have regular communication with them and provide feedback on how their children behave whilst doing homework and the kind of problems their children face. Teachers may also prepare a logbook where the parents of the students could indicate how much time their child has spent on completing the homework for each lesson. This information will help teachers indicate if the amount and difficulty level of homework was appropriate. Finally, teachers should emphasize the importance of the place and time where homework is completed. A quiet place early in the afternoon could be a suitable choice when students are completing their homework.
- 4) *Teacher evaluation of homework and feedback given to students on the homework assignments:* It is important that teachers keep records of the students who neglect their homework and seek possible reasons for not accomplishing it, as students with no acceptable reason for doing so can be addressed individually and appropriate measures can be taken to reduce this problem. Equally, the importance that teachers place on homework should be conveyed to the students and parents alike. In cases where parents cannot provide their child with the necessary support to complete the homework at home, then the teacher need to find ways to support this student (completion of the homework at school under the supervision of the teacher or provision of remedial teaching in certain subjects).

### ***B) Provision of learning opportunities***

Providing learning opportunities for students is a very important aspect of school policy for teaching to offer equal educational opportunities and to promote simultaneously quality in learning. The development of this aspect gives the opportunity to students who are unable to be engaged in educational activities outside the school (e.g. students with low SES and/or ethnic minority students), to enrich their knowledge by reducing the differences that they have with students with high performance. In particular, we argue that effective schools in promoting quality are those where teachers provide appropriate and well-designed learning opportunities designed to meet the relevant cognitive and affective objectives of different groups of students. School policy on long-term and short-term planning and on providing support to students with special needs is also examined under this aspect. Furthermore, the extent to which teachers and schools attempts to make good use of school trips and other extra-curricular activities for teaching/learning purposes is investigated.

#### *i. Making good use of school trips and other extra-curricular activities for learning purposes*

Regarding this aspect, it is important to note that some teachers may adhere to the notion that school trips are only for fun and not for educational purposes, presenting the impression that learning and fun cannot go together. However, school policy on provision of learning opportunities consists of ensuring that numerous learning opportunities are offered to children both inside and outside of the classroom. For this reason, teachers should consider school trips as a very good opportunity to show children that what is learnt in school has significant relevance to everyday life. For example, a school trip to another city could include a visit to a local museum, which would offer the children additional learning opportunities and could provide an integrated approach to teaching history/geography/art. School stakeholders can therefore be informed that the various events and extracurricular activities that students are involved with are chosen on the basis that they can offer learning opportunities to students without negatively affecting the time that is offered for teaching a specific subject. This implies that the school management team should select their students' activities through specific criteria, which are used whenever a suggestion for a trip or involvement in a project is made. This further suggests that teachers will have to offer different extracurricular activities to different groups

of students (e.g. Year 1 students are likely to visit a different place than Year 5 students) by taking into account their learning needs. Evaluation of the impact that these activities have on student learning could also be undertaken.

Additionally, school stakeholders may realise that the involvement of students in activities that do not provide any learning opportunities have a negative impact on student learning, because teaching time is simultaneously reduced. It is for this reason that the school management team should place a great deal of emphasis on the selection of activities offering learning opportunities to students that cannot be offered through the formal curriculum.

Finally, teachers should be informed of the various events taking place in the community as well as the various competitions and programs organized, to accordingly inform students who want to participate. This is very important especially for children from minority groups who may not have the opportunity to learn about them through their parents. Also, it will be very helpful if the teachers of the school ask their students about their experiences so far (e.g., if they have ever visited a museum, if they went to another country, etc.) so that they could provide them with the appropriate learning opportunities that address their special needs. Moreover, parents of students might also be invited to participate in certain school trips or events, especially if their knowledge and background can support the learning of the students.

*ii. School policy on long-term and short-term planning*

Some schools expect teachers to provide their short-term plans to head teachers or other school staff members (e.g. deputy heads, subject coordinator). Whilst this can be viewed as a method of ensuring that teachers are accountable for covering the curriculum in the time frame required, there may be some scope for improvement. Consideration could be given to providing teachers with feedback and support in relation to short term goals. This could for example include support on time management and ultimately improve the quality of their teaching. Groups of teachers should cooperate and prepare their long-term planning together. For example, teachers of a specific subject (i.e., Music or Art teachers) or of a specific age group of students may be asked to develop their planning for the year at the beginning of the school year, which should be adapted at the end of each term. The teaching

materials produced for each course could be free of access to all teachers of the school and include differential activities for each course for each student group which can be used by all teachers according to the needs of their class. Suggestions for improving this material could be provided throughout the school year and in this way a "bank" of educational materials is created at school for all grades, for all subjects and for all the different groups of students covering different learning needs.

Teachers may also consider the announcement of the long-term planning to students and/or parents. In this way, the parents are aware of what takes place in the school and especially into classroom and may also be encouraged to find ways to support the implementation of the planning, both inside (e.g. by providing resources to teachers) and outside of the school (e.g. by monitoring the homework or offering relevant opportunities in the trips or other events that they are organising as a family).

In some schools, the long-term planning does not only cover the curricular activities, it also refers to the extra-curricular activities which are expected to contribute to the achievement of specific aims of the curriculum such as: a) Student conferences in which students will take part in decision-making, b) Organisation of volunteer groups for different purposes, c) Active involvement in discussions in the classroom on issues such as racism, and d) classroom or school trips and events during the school year. In this way, the long-term planning takes into account that some teaching time may be spent on extra-curricular activities and is thereby an accurate portrayal of what will eventually happen during the school year.

*iii. School policy on providing support to students with special needs*

In some schools, additional time outside of school hours is allocated to children with special needs, including gifted or talented children, to support their learning in different domains (e.g. Art, Music, Physical Education, Mathematics, Language, and Science). Schools may also ensure that teachers are available during the school hours to provide support to children with special needs, in order to facilitate and promote their learning in the regular classrooms. Other schools provide relevant support outside of the classroom, yet within school hours (e.g. during school breaks). Educational provision

for students with special educational needs may be implemented through a “Staged Approach”. At the first stage, students with special educational needs are identified through a combination of teacher observation and informal curricular assessment. The class teacher and parents are encouraged to discuss the nature of the student’s difficulties and, following this discussion, an appropriate intervention is designed. However, in some cases, teachers may not be in a position to address all the student’s individual needs. Thus, at Stage 2, School Support is provided to teachers. Specifically, the class teacher will work collaboratively with additional support teachers (e.g. Learning Support/Resource), where available. This may require the involvement of outside personnel (e.g. Educational Psychologists) in the formal assessment process. An individual education plan will then be developed for the student, in collaboration with the student’s parents, principal, class teacher and support teachers and relevant outside personnel. The individual education plan will provide a detailed overview of the student’s individual strengths and needs and educational goals and priorities for the student for the coming school year will be identified. Announcement to students and/or parents of the school policy on providing support to students with special needs is essential. Various methods can be employed to announce such policy (e.g. documents including the official policy can be sent to parents, the policy can be made available on the web page of the school). In this way, parents of children with special needs are informed of the opportunities offered to their children, whilst other parents can encourage the positive attitudes of their own children towards their classmates who have special needs.

### ***C) Quality of teaching***

Policy on quality of teaching mainly refers to the eight teacher factors included in the dynamic model (see chapter 2). When developing school policy to improve teaching, one should pay close attention to each of these eight factors, because they have been found to be associated with student achievement gains (Creemers & Kyriakides, 2015). For example, if a teacher has not developed his/hers time management skills or does not handle misbehaviour and disorder effectively, then he/she will face disciplinary problems in the classroom and teaching time will resultantly be reduced. In contrast, if the teacher creates a business-like and supportive environment for learning, misbehaviour may

become a rare occurrence and teaching aims are more likely to be achieved. Therefore, effective schools are those which develop clear, specific and concrete policy on the quality of teaching, whilst encouraging teachers to create the appropriate positive conditions for learning and instruction in the classroom. Below our suggestions are outlined for developing school policy on the quality of teaching, in regard to the eight teacher factors included in the dynamic model.

The school management team should encourage teachers to undertake activities which promote quality in their teaching and therefore improve their teaching practice. Initially, teachers could be informed during staff meetings of the importance of the eight factors and their five dimensions. Subsequently an exchange of teachers' ideas and views could take place, concerning the creation of a classroom climate which is supportive for learning and stimulates positive child behaviour. It could further be determined that certain staff meetings will not only deal with administrative issues, but will also establish a *clear and concrete policy on the quality of teaching*. In such meetings, issues concerned with the quality of teaching should be discussed, including classroom strategies for improving teaching practice, as well as methods of dealing with misbehaviour problems effectively. Further suggestions are provided below for practices that can be used to create a safe learning environment in the classroom which can promote quality.

Firstly, we recommend that teachers avoid the negative aspects of competition among the students in the classroom, because of the potentially negative impact on those children who come last which could extend across a range of valued classroom activities. Such feelings are likely to cause frustration and negative attitudes towards learning.

The head teacher should engage teachers in positive student-student and student-teacher interactions and mobilise them to promote those interactions actively in the classroom. Teachers should assign students cooperative activities where they can work together in small groups to achieve mutual learning goals. If teachers need to strengthen the interactions between their students, they should attempt to create cooperative experiences in the classroom. Such experiences can encourage the students' commitment to: a) contributing to the wellbeing of other students, b) accepting responsibility to add to their partners' work, c) displaying respect for the efforts of others, and d) behaving with integrity, compassion and an appreciation for diversity. Teachers should also manage

their classroom by focusing on promoting mutual goals that require self-regulation and productive interactions.

Another aspect that the school management team should consider is the lack of direct teaching skills some teachers possess. Such teachers are considered insufficient when observed to lack skills of the direct teaching approach, such as: classroom management skills, application, management of time, structuring of the lesson, monitoring students behaviour, organisation of activities (e.g. preparation, distribution of materials) and discipline. Therefore, the school management team could identify teaching needs for professional development and support teachers in order to upgrade their skills.

In regard to the classroom assessment, it should be seen as an integral part of teaching; formative assessment is especially one of the most important factors associated with effectiveness at all levels, especially at the classroom level (de Jong et al., 2004). Information gathered from student assessment should enable teachers to identify their students' needs as well as to evaluate their own teaching practice. Teachers should use different techniques for measuring student needs and/or different ways to provide feedback to different groups of students by taking into account their background and personal characteristics. It also is considered important for teachers to take into account the fact that students' perceptions of the importance of testing may vary due to differences in their background characteristics, and this variation in perceptions may explain variation in achievement. In addition, ability and achievement tests that assume a high need for achievement may result in underestimates for such groups of students. Initial evaluation is a very important aspect of classroom assessment to specify each student's abilities and needs. Continuous and final evaluation should take place by using different types of assessment tools and their results should be announced to parents and students giving them a clear understanding of the areas that need to be improved.

Some schools may also offer common non-teaching time to a group of teachers (e.g. teachers of the same subject or teachers of the same age group of students). In addition they may encourage each group of teachers to visit other classrooms and provide feedback to help each other to improve his/ her teaching skills.

It is finally important that school policy for the quality of teaching is clearly communicated to the teachers (either described in documents or placed on notice boards). The policy may refer to factors related to generic teaching skills and support should also be provided to ensure that each teacher can improve their skills. Research is clear that school policy on quality of teaching can have an effect on student achievement (in respect to quality dimension) if this is implemented consistently by the teachers in their classrooms and discussed and evaluated during staff meetings.

### **Designing strategies and actions to improve school policy for creating a learning environment at classroom/school**

In this part, suggestions regarding the aspect of the second overarching factor can be found, which is concerned with the school policy on the SLE and actions taken to improve the SLE (see Chapter 2) related to *collaboration and interaction between teachers*:

#### ***Collaboration and interaction between teachers***

Collaboration and interaction between the teachers is particularly important because it can contribute to improving teachers' teaching skills and their everyday practice. It therefore has a positive effect on learning outcomes (cognitive and affective). In effective schools, teachers interact on issues associated with learning and teaching, in order to create a business-like environment which can promote students' learning and knowledge. This can subsequently lead to the achievement of cognitive and affective outcomes in education. What is more, since provision of equal educational opportunities to students is regarded as a challenge in the present project and since effective schools are also those who managed to reduce the initial differences between students, teachers could work together not only to improve their teaching quality and achieve better learning outcomes, but also to work together and exchange ideas and practices on how to reduce the differences between their pupils' outcomes.

Some schools are characterised by teacher collaboration only at the level of personal and social interaction, without also involving cooperation on the tasks that are expected to be undertaken. For those schools, it is considered important that teachers have good relations but they do not

necessarily expect them to interact on issues associated with their teaching practice. Nevertheless, interaction and collaboration among teachers can only be beneficial if focused on the tasks teachers undertake, which could boost quality in the classroom and school learning environment. This active interaction on issues associated with teaching is also needed for teacher professional development purposes.

In order to encourage teacher collaboration, in the development of the timetable, attention is given to provide to groups of teachers *common non-teaching* time that provides opportunities for such interactions. The collaboration may refer to the short or long term planning, the use of specific teaching aids/handouts/materials for delivering an aspect of the curriculum or the design of a common assessment instrument.

Teachers may also be encouraged to exchange visits to each other's classrooms. During such visits, the observation of teaching by using specific observation instruments, in line with the policy on quality of teaching, could be promoted. The results from observing their colleagues can be discussed and help teachers learn from each other. This activity is very useful especially in the case that the teachers need to differentiate their activities in the classroom. Information from other teachers experiencing the same challenges in their classrooms on how to organise their application tasks and use their teaching time effectively, could be valuable.

In addition, a very useful strategy in this domain is the development of a *system of mentors* (more experienced teachers). More experienced teachers and/or the head teachers can provide support to younger teachers on how to improve their teaching skills. For example, the school management team could organize a program with mentors (i.e. teachers who have previous experience in participating in relevant projects) supporting the other teachers to implement the proposed strategies and action plans.

Teachers' collaboration may also be enriched by targeted teamwork training. To develop an effective team, training consisting of team-building exercises may be organised. The school may arrange for workshops and/or seminars which will focus on supporting and encouraging each team member to reflect upon and value diversity, to recognise other people's contributions and, consequently, to help resolve potential conflict. Teamwork among teaching staff may also profit from

their participation in instructional consultation groups. These groups, which deal with individual cases of students whose learning difficulties, have proved particularly challenging for the counsellor and consultee may be led by a group leader (usually a school/educational psychologist) with participating representatives from all school stakeholders.

Finally, teachers could collaborate on how they can support parents of students and on how they can provide them with the appropriate information in order to support their students at home. Also, they should cooperate on how to organize any extra learning activities for students at classroom who do not have the opportunity to be engaged with any learning material at home.

### **Monitoring the implementation and action plans**

Teacher evaluation is seen as one of the most important factors for improving the quality of teaching (Kyriakides et al., 2010; Scheerens, Seidel, Witziers, Hendriks, & Doornekamp, 2005). Specifically, effective schools have to develop continuous evaluation mechanisms that measure the effects of their strategies and actions on student learning and use these results (for formative rather than summative reasons) to further improve their actions and strategies on classroom and school learning environment. In fact, the development of formative evaluation mechanisms at the classroom and school level will also help teachers and the school management team to identify areas for improvement. Effective schools also review the impact of their strategies and actions and identify any errors that occur (see step E of Figure 3 in Chapter 2). In this way, they can define new actions and strategies, as well as modify and redesign their action plans for improvement.

The main aim of the teacher and school evaluation process is to identify general trends associated with the strengths and weaknesses on the existing teaching and school practices for improving classroom and school learning environment. In order to collect valid and reliable data on the impact of these strategies and actions on improving teaching and learning environments more than one source of evaluation data is needed. This is because one cannot 'trust' a single source of data or rely only on the stakeholders' opinions. The use of systematic observations should also be considered, since using different sources of data enables one to test the internal validity of the school evaluation data.

School stakeholders should also decide how many times during the school year they need to collect evaluation data concerning their policy for teaching, the SLE and the actions taken for improving teaching and the SLE. The need to establish continuous formative evaluation mechanisms should be taken into account. These mechanisms are expected to help the teachers modify their strategies and actions according to the circumstances and specific needs of different groups of the school population.

In addition, the quality of the instruments used to collect data should be evaluated (i.e. student tests, questionnaires, observation instruments). Special attention should be given to investigating the validity (the extent to which a measurement instrument or a test accurately measures what it is supposed to measure) of these instruments. Obviously, teachers and schools are not expected to use advanced statistical techniques to test the validity of their instruments, but the use of triangulation (i.e. searching for the extent to which different instruments provide similar data) is recommended.

Moreover, the purposes for which the evaluation data are collected should be explained to all stakeholders. The stakeholders should also be aware that the teacher and school evaluation is done for formative and not for summative reasons. This implies that evaluation is a natural part of the improvement efforts that teachers and schools try to develop. The school management team should guarantee that the teachers will make use of the information gathered from evaluation, in order to meet their students' needs and thereby give more emphasis to the formative purpose of evaluation.

Moreover, all participants involved (school management team, teachers, parents, children) should be informed that confidentiality will be maintained throughout the procedure. To achieve this, the teachers responsible for the school evaluation must use specific software with restricted access, so as to prevent unwanted entry to the data files. Code numbers will also be assigned to students, teachers and schools to ensure confidentiality. Repeated efforts should be made to convince all stakeholders of the confidentiality of the evaluation process and the anonymity of the answers. At the same time, the school management team should make explicit to all stakeholders that in addition to openly reflecting upon the current policy, they should also give suggestions on how school policy can be redefined. In this way, a climate of openness is gradually developed in the schools and the

classrooms, while each stakeholder is encouraged to be actively involved in the design of strategies and action plans for improving quality of teaching.

At all stages and especially in developing action plans, members of our research team will also be invited to support teacher's effort to develop their action plans. Since decisions about the monitoring of the implementation have to be taken in advance, in Table 3, you can find a sample of an action plan that you can use to help you develop, implement and evaluate the strategies that will take place in your school. You may use the structure of the sample given or you are free to choose any other way of keeping records of your activities, but please try to include in any of your log-book the main headings of the example.

Table 3. Sample of action plan to develop strategies at schools aiming to promote quality

ACTION PLAN TO DEVELOP STRATEGIES AIMING TO PROMOTE QUALITY AT MY SCHOOL	
<b>School Name:</b>	
<b>Coordinator Name:</b>	
<b>Time Period:</b>	
<b>A. Focus of Strategies (put an X):</b>	
<i>Policy for creating the school learning environment (SLE) and actions taken for improving the SLE</i>	
<ul style="list-style-type: none"> <li>▪ Collaboration and interaction between teachers</li> </ul>	
<i>School policy for teaching and actions taken for improving teaching practice</i>	
<ul style="list-style-type: none"> <li>▪ Quantity of teaching (time on task )</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Provision of learning opportunities</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Quality of teaching</li> </ul>	
<b>B. Action Plan (describe briefly the following):</b>	
<b>PLAN</b>	<b>DEVELOP A PLAN</b>
	a) Brief description of the priority your school has chosen/strategy your school is developing or will develop (in general):
<b>ACT</b>	<b>IMPLEMENT THE PLAN</b>
	b) Specifically, at what stage are you concerning your strategy/priority?
	c) Who is involved at this stage? <ul style="list-style-type: none"> <li>○ in your school (besides yourself):</li> <li>○ from outside/from the community (e.g., parents, in-service trainer, counsellors etc.):</li> </ul>
	d) What is your time frame for this?
<b>CHECK</b>	<b>EVALUATE THE EFFECT OF THE PLAN</b>
	e) When and how will you evaluate your priority/strategy? <ul style="list-style-type: none"> <li>○ periodically (i.e. once a month):</li> <li>○ at the end of the project/school year:</li> </ul>
<b>IMPROVE</b>	<b>CONTINUE OR ADJUST THE PLAN</b>
	f) As a result of the evaluation, and if it is the case, what needs to be adjusted?

In your action plan, it is important not only to *specify activities* that can be taken but also to indicate *who is supposed to do it*, what the *time-schedule* is and what *resources* are needed. In order to specify

activities that will take place, you can make use of the suggestions provided in this chapter and also identify further suggestions if you like by looking at the *Extra Supporting Material* section at the end of this handbook.

In order to have success and achieve your goals except for undertaking a significant number of actions, you should also bear in mind that these actions have to be well allocated in time and provided throughout the year. The actions/strategies need to take place over a long time period in order to have results. Also consistency and flexibility in redefining the school policy and in the implementation of your actions is needed (stage dimension). For example, many teachers when developing their teaching plans undertake a lot of their actions during the beginning of the year (e.g., October, November) when there is openness for the intervention. However, this does not have a long lasting impact and the efforts will end up in failure because the actions were constrained in a small period. Achievement of your aim to promote quality partly depends on the extent to which activities associated with each teacher factor mentioned above are provided *throughout the school year*.

Moreover, during designing your school policy and actions, you have to keep a balance between those actions that are too specific and those that are too general. General instructions to the parents or the teachers can help them undertake initiatives, but when the problem is serious and they are not ready to face it, we have to be more specific on what they can do to solve this problem. Our activities, actions, and strategies should not always be either too specific or too general but sometimes give the opportunity to teachers and the other stakeholders to design their own actions whereas in other cases specific suggestions addressing a serious problem should be given (focus dimension).

Additionally, you have to be flexible and modify your actions according to the specific needs of each student/teacher and each stakeholder. For instance, activities do not need to be implemented in the same way for all the teachers involved. It is expected that adaptation to the specific needs of each school stakeholder will increase the successful implementation of your strategies and actions to promote quality in your school (differentiation dimension). Finally, through monitoring the implementation of your intervention, it is very likely that you will identify practical difficulties and probably weaknesses in your action plans. It is essential that *immediate actions are taken to improve and redefine* your action plans in order to achieve your goals. You will find out that in some cases you

have to make changes in your plans even four times during the school year. This does not necessarily imply that your original action plans were insufficient but merely that they are not fit for long time periods. On the contrary, we will be surprised to experience that a specific action plan developed at a certain period of time can remain the same over a long period of time. If this is the case, it might be an indication that the monitoring system does not provide you with valid data (e.g., everybody likes to please you by indicating that all the actions are implemented sufficiently and major progress is made). The timely changing of your action plans will contribute to achieving your aims and reduce the chance to find out at the end of the school year that no progress was made due to the fact that your action plans were either not implemented properly or could not contribute to the promotion of quality. The above procedure stresses the importance of a share responsibility of the whole school community in developing and implementing strategies and actions to improve the effectiveness of your teaching and school policy teaching practices. However, it should also be acknowledged that the role of teachers and their active involvement is crucial for the success of this intervention. Therefore, we like to recognise that the successful implementation of such a project depends on the *active involvement of teachers* and their contribution in designing the action plans by bringing their knowledge and experiences.

### **Main conclusions emerging from the handbook**

In this handbook we have described the rationale of our project and presented its main phases (Chapter 1). We have then provided an overview of a dynamic theory on educational effectiveness which will be used to offer this teacher professional development program on a school basis and search for ways of promoting quality in education. Beyond describing the main assumptions and the factors of the dynamic model, it is pointed out that the model has received sufficient evidence to support its validity. In this handbook, it was also argued that the dynamic model can also help to improve educational practice. Thus, an evidence-based and theory driven approach to teacher and school improvement was recommended (DASI) (see Chapter 2). Finally, in Chapter 3 we provided practical suggestions to teachers on how DASI can be implemented. Specifically, we offered guidelines to teachers and schools on how to establish self-evaluation mechanisms to identify their

improvement priorities and we provided them with guidelines on how to develop strategies and actions to address these improvement priorities in order to improve quality of teaching and through that promote student learning outcomes.

We hope teachers and schools will make use of these guidelines to improve the functioning of the factors that they will choose in order to also enhance students' achievement gains. Next to the contribution to the theory and research on educational effectiveness and improving quality of teaching, which is our core focus, we hope that the dynamic approach could help teachers improve their teaching skills and schools to improve their policies and actions for teaching and SLE through their participation in this TPD project.

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### **Extra Supporting Material**

**Web-pages of relevant research projects in which the DASI has been used:**

<http://ucy.ac.cy/promqe>

<http://ucy.ac.cy/equality>

<http://ucy.ac.cy/esf>

<http://ucy.ac.cy/jls>



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