Quality and Equity in Education

Quality and Equity in Education draws attention to the importance of developing and testing theories of educational effectiveness and using these theories for improvement purposes. It makes a major contribution to knowledge and theory building in research on promoting quality and equity in education.

The book presents an improved version of the dynamic model of educational effectiveness based on the empirical data emerged from studies testing its validity, claiming that the proposed theory can be used for establishing links between educational effectiveness research and school improvement. Towards that end, the book presents the Dynamic Approach to teacher and school improvement, demonstrating its impact on quality and equity in education. The book not only proposes an agenda for further research on developing and testing the dynamic theory of educational effectiveness but also refers to research methods that can be used to test the assumptions of this theory and search for relevant cause and effect relations. The agenda also refers to the need of identifying the conditions under which the dynamic approach to teacher and school improvement can have an effect on student learning outcomes.

This book will be of great interest for academics, researchers and postgraduate students working in education research and the area of quality and equity in education. It will also be of interest to policymakers, school advisors and other stakeholders in education.

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Quality and Equity in Education

Revisiting Theory and Research on Educational Effectiveness and Improvement

*Leonidas Kyriakides, Bert P.M. Creemers, Anastasia Panayiotou,
& Evi Charalambous*

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Quality and Equity in Education

Revisiting Theory and Research
on Educational Effectiveness and
Improvement

**Leonidas Kyriakides, Bert P.M.
Creemers, Anastasia Panayiotou,
& Evi Charalambous**

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Preface

Twelve years ago, two of us published the first results of our joint efforts in the development of a dynamic perspective on educational effectiveness. In the last section of that book, it was claimed that our proposed dynamic model could not only be used for research and theoretical purposes, but could also contribute to the promotion of the improvement of education. In this respect, we argued for the need to establish an evidence-based and theory-driven approach to teacher and school improvement. To achieve this aim, we first of all conducted several national and international studies to test the main assumptions of the dynamic model and determine the impact of the factors included in the model on student learning outcomes. These studies generated some empirical support for the early version of the dynamic model, especially at the classroom and school levels. Our next step was to develop a specific approach to promoting quality in education, which is not only in line with the main findings of educational effectiveness research, but also takes into account the major lessons that have emerged from research on school improvement. Eight years ago, we published a book in which we proposed the use of a dynamic approach to school improvement that would attempt to contribute to the establishment of the merging of traditions of educational effectiveness research with school improvement efforts. During the last decade, evidence supporting the importance of employing the dynamic approach for teacher and school improvement purposes emerged from national and international experimental studies. However, the studies on using the dynamic model to develop an improvement approach were mainly concerned with the quality dimension of effectiveness. In this respect, a book arguing for the importance of promoting not only quality but also equity in education has recently been published by our research team. During the last five years, longitudinal studies exploring the relationship between the two dimensions of effectiveness and experimental studies concerning the use of the dynamic approach for promoting both quality and equity were also conducted.

After almost two decades of work on developing and testing a dynamic theory of educational effectiveness and on using this theory to develop an improvement approach and later on to test its impact on promoting both quality and equity, we are publishing a book that provides an overview of the main lessons that

have emerged from our journey. The lessons arising from the empirical studies that tested the dynamic model and from the studies that investigated the impact of the dynamic approach enabled us to propose an updated version of the dynamic model, which is presented in this book. We also made use of this work in order to propose an expanded version of the dynamic approach to teacher and school improvement. Therefore, the principal objective of this book is to make a major contribution to knowledge and theory building with respect to research on the promotion of quality and equity in education. The book is split into three parts.

In the first part of our book, we refer to recent theoretical developments in the field of educational effectiveness and argue for the importance of considering the dynamic nature of education. The assumptions and main elements of the dynamic model of educational effectiveness are presented. In the last chapter of this part, we refer to the empirical support that the dynamic model has received and present the results of a review of recent effectiveness studies, which have helped us to identify ways to improve the dynamic model further.

The second part provides an overview of research on school improvement and argues for the importance of using an evidence-based and theory-driven approach. In this context, the rationale and main features of the dynamic approach to school improvement are presented. We then refer to studies investigating the added value of using this dynamic approach in order to promote quality and equity. By presenting these studies, the readers are provided with concrete examples of school improvement strategies and action plans, which were developed by making use of this approach. We also demonstrate how this approach has been put into practice in different contexts and discuss the possibilities of establishing stronger links between theories of educational effectiveness and research on school improvement. In the last chapter of this part, we also present the main results of a synthesis of improvement studies, which reveal the importance of identifying the conditions under which the dynamic approach can be used for improvement purposes.

In the last part of the book, we propose a broadening of the research agenda on educational effectiveness and improvement and claim that research on developing and testing theories of educational effectiveness can contribute significantly to the establishment of an approach to teacher and school improvement that can make a major contribution to the promotion of quality and equity in education. Specifically, an improved version of the dynamic model is proposed, taking into consideration the results of studies that tested the validity of the model as well as the findings of a synthesis of effectiveness studies conducted during the last 12 years. We also propose ways of elaborating further the dynamic approach to teacher and school improvement and refer to the role of all stakeholders within an educational system (from parents to policy-makers) in promoting quality and equity in education. Implications for research, policy and practice are finally outlined in the last chapter of the book. In this way, the importance of merging the field of educational effectiveness with those of teacher and school improvement is stressed.

In the writing of this book, we received support from many colleagues, professionals in schools and our families. We would like to make a special mention of some of them. The research assistants in our research group, and especially our postdoctoral researchers Andria Dimosthenous, Elena Kokkinou and Margarita Christoforidou and our PhD students Ioannis Ioannou, Maria Anastasou and Tryfonas Papadamou provided us with comments from the perspective of young researchers in the field of educational effectiveness and improvement. Moreover, Sheila M. Hakin not only supported us in the process of linguistic editing, but she was also critical in helping us to clarify the meaning of the book. Finally, our universities were supportive in facilitating our academic efforts to write the book. We should like to thank them all for their help, and we hope that they will be pleased with the final product. Of course, any mistakes that remain are ours.

This book can be seen as the end product of the first phase of a journey that started almost 20 years ago, aiming not only to develop and test a theory on educational effectiveness that takes into account the dynamic nature of education, but also to gradually establish an evidence-based and theory-driven approach to the promotion of both quality and equity in education. We welcome comments, criticism and contributions to the further development of research on educational effectiveness and improvement from readers with different perspectives on education. We hope that you can join us in our journey to make education effective and more equitable.

1 Quality and equity in education

Aims and outline of Chapter 1

The principal objective of this book is to make a major contribution to knowledge and theory-building in research on the promotion of quality and equity in education. The book draws attention to the importance not only of developing and testing theories of educational effectiveness, but also of using these theories for improvement purposes. For this reason, in the first part of this book, we refer to recent theoretical developments in the field of educational effectiveness and argue for the importance of taking into consideration the dynamic nature of education. The assumptions and main elements of the dynamic model of educational effectiveness are presented. In the last chapter of the second part page, we refer to the empirical support that this model has received and present the results of a review of recent effectiveness studies, which help us identify ways to improve this model further. In the second part of the book, we discuss the extent to which links between Educational Effectiveness Research (EER) and research on school improvement can be established. Thus, the rationale and the main features of the Dynamic Approach (DA) to teacher and school improvement are presented. We then refer to studies testing the impact of the DA on the promotion of quality and equity. In the last chapter of this part, we also present the main results from a synthesis of improvement studies, which reveal the importance of identifying the conditions under which the DA can be used for improvement purposes. In the last part of the book, we propose a broadening of the agenda of research on educational effectiveness and improvement and claim that research on developing and testing theories of educational effectiveness can contribute significantly to establishing an effective approach to school improvement that can have a major impact on promoting quality and equity in education. Specifically, an improved version of the dynamic model is proposed, taking into consideration the results of studies testing the validity of the model as well as the results of a relevant synthesis of effectiveness studies conducted during the fourth phase of EER. In the last part, we also propose ways to elaborate further this DA to teacher and school improvement by considering the results of a relevant synthesis of recent teacher and

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school improvement studies conducted during the last 12 years (i.e., 2005–2017). Implications for research, policy and practice are finally drawn in the last chapter of the book. In this way, we reveal the importance of merging the field of educational effectiveness with the fields of teacher and school improvement. We initially present a review of theories and studies of effectiveness and improvement in two different parts of the book, but readers will see how research on effectiveness (presented in Part 1) is used to build a specific approach to improvement (presented in Part 2). In the last part, readers will also learn how research on improvement can help develop further the theoretical framework of EER and therefore that treating the fields of effectiveness and improvement separately is not productive. In the last part, we therefore argue that the ultimate aim of researchers in the field of effectiveness and improvement should be the promotion of quality and equity in education, and this can be achieved not only by developing further the theoretical framework of educational effectiveness, but also by using research findings to establish an evidence-based and theory-driven approach to teacher and school improvement.

In this introductory chapter, we discuss the importance of promoting both quality and equity in education for the benefit of individual students and the society. We point out that there are different views on what is socially just and how equity in education can be measured. We then claim that these views of equity can be divided into two broad categories: a meritocratic and an egalitarian view. Thus, in this chapter, the main arguments/assumptions of each of these two views are presented. In the third part of the chapter, we discuss the relationships between quality and equity in education and show that a number of researchers in the fields of psychology, sociology and economics of education have treated quality and equity as being in competition with each other and have supported different approaches to how to deal with the ‘cost’ of promoting the one rather than the other. This debate has arisen because the two dimensions of effectiveness (quality and equity) have never been explicitly defined, and consequently there is not enough research that has investigated the relationship between the two dimensions of effectiveness in classrooms, schools and educational systems; the result is a lack of evidence. Thus, we provide clear definitions of the concepts of quality and equity in relation to what schools can do to promote these two dimensions of effectiveness. We also argue for the importance of investigating the relationships between quality and equity and compare the effectiveness status of teachers, schools and educational systems in relation to these two dimensions. In the last section of this chapter, we argue for the importance not only of developing theories that can explain variation in educational effectiveness in terms of quality and/or equity, but also of using theories for improvement purposes. In this respect, we refer to the findings of research on differential educational effectiveness, which reveal that teachers and schools can achieve both quality and equity. Finally, the aims of the book and its structure are outlined.

Promoting quality and equity: the main purpose of education

Education is a powerful tool for improving all aspects of a person's life and a factor in the reduction of poverty (Kyriakides, Creemers, & Charalambous, 2018). School failure can have a negative long-lasting impact on a child's life, since leaving school without enough qualifications may result in finding a low-income job and having a poorer lifestyle, which may not allow equal participation in the civic and social aspects of modern society in comparison with children attending education for a longer period of time (Micklewright & Schnepf, 2007). Based on data from the Programme for International Student Assessment (PISA), it is estimated that if all 15-year-olds in the area of the Organisation for Economic Co-operation and Development (OECD) attained at least level 2 in the PISA mathematics assessment, they would contribute over USD 200 trillion in terms of additional economic output over the course of their working lives (OECD, 2010a). Thus, educational failure results in high costs for society since uneducated people cannot be actively involved in civic and political affairs and are more prone to crime, other illegal activities (OECD, 2010b; OECD, 2013; Torney-Purta, Lehmann, Oswald, & Schulz, 2001), and unhealthy habits, as they may face both economic and social problems (Cunha & Heckman, 2009; Heckman, 2008; Psacharopoulos, 2007). However, children are not all equal when it comes to educational failure. Evidence shows that children coming from socially disadvantaged homes are more likely to have worse school results and to drop out of school more frequently than are children coming from better-off families. For example, international evaluation studies like PISA have revealed that in Europe approximately 20 per cent of students are not equipped with basic skills in mathematics and 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 level 2 that measures basic skills in mathematics) than is a student from an affluent family (see OECD, 2012). Meta-analyses have also revealed that the socioeconomic status (SES) of students has an impact on student achievement (Sirin, 2005; White, 1982). Therefore, socioeconomic inequalities in education are an important issue for both researchers and policy-makers, and all agree that in a democratic society socioeconomic inequalities in educational outcomes should be minimal (Kyriakides & Creemers, 2018; Marks, Cresswell, & Ainley, 2006). Consequently, one of the major objectives of the education systems around the world is to understand which are the schooling processes that provide opportunities for all learners to succeed in school (Frempong, Reddy, & Kanjee, 2011) and thereby promote both quality and equity in education (Kyriakides & Creemers, 2011). To achieve this objective, not only should schools within these systems help students achieve learning outcomes, but they also need to function in such a way that students' success in learning is not determined by the characteristics of their background.

At this point, it should be acknowledged that there are different visions of how equity in education can be defined (Atkinson, 2015; Paquette, 1998),

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which can generally be divided into two broad categories: a) a meritocratic view and b) an egalitarian view. The meritocratic view is based on the assumption that ‘status’ in society should be the reflection of one’s own ‘merits’, ‘talents’ and ‘effort’ (Gulson & Webb, 2012; McCoy & Major, 2007). According to this view, differences in student learning outcomes may be attributed to differences between students in terms of their cognitive abilities, talents and amount of work dedicated to schooling (i.e., the effort they put in, in order to succeed). However, EER reveals that student learning outcomes are associated with various student factors, including background factors, such as SES, gender and ethnicity, which are given characteristics and which students are not in a position to change easily in order to achieve better learning outcomes. In the first part of this book, we explicitly refer to the main findings of EER and present theoretical models of EER that take into account the impact of student factors (see Chapters 2 and 3). This implies that even if students are provided with the same learning opportunities, variation in student learning achievement gains can be detected, and this variation can partly be explained by student background factors beyond their cognitive abilities and the effort that they put in to achieve these outcomes (Kyriakides & Luyten, 2009; Lim, 2013).

In this book, we argue that even if students are given the same opportunities within the school, not all students will manage to develop their talents since different hidden mechanisms in society, as well as differences in their home learning environment, will also affect their progress (see also Sammons, Toth, & Sylva, 2018). Based on the work of these critics and research findings, the egalitarian vision has evolved to become the mainstream view of equity, which implies that the main responsibility for achieving equity should be that of society (Van Damme & Bellens, 2017). In the case of education, national/state agencies and schools are expected to provide further support for those disadvantaged groups of students (based on their background characteristics, such as SES, gender and ethnicity) in order to ensure that differences in learning outcomes are substantially reduced (Kelly & Downey, 2010; OECD, 2012). This implies that positive discrimination of different groups is not only legitimated in order to obtain equity in education, but also seen as a characteristic of effective education (Kyriakides, Creemers, & Charalambous, 2018).

In this chapter, we therefore claim the importance of using two dimensions in measuring educational effectiveness. Specifically, we argue that effective educational systems, schools and teachers are not only those that contribute to the promotion of learning outcomes for all (*quality*), but also those that manage to reduce differences in student learning outcomes between groups of students with different background characteristics (*equity*). At the same time, it is acknowledged that differences in learning outcomes between different groups of students cannot be completely eliminated since these gaps can be attributed to other hidden mechanisms in society over which schools may have no control. In this way, we follow the same approach to measuring equity as we do to measuring quality, whereby we expect to see progress on the part of all students but do not anticipate that all of them will achieve the ‘same maximum’ results.

Measuring quality and equity at classroom/school/system level: the two dimensions of educational effectiveness

Work on equal educational opportunities conducted 50 years ago by Coleman and his colleagues (Coleman et al., 1966) and Jencks and his colleagues (Jencks et al., 1972) argued that student achievement can be predicted mainly on the basis of the background characteristics of students and especially their SES and their intelligence. These studies claimed that after controlling for student background factors, not much variation in student achievement remains to be explained by the influence of teachers and schools. These findings resulted in a pessimistic view of the contribution that teachers and schools can make in promoting student learning outcomes. In this context, two studies conducted independently in the USA (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979) and the UK (Rutter, Maughan, Mortimore, Ouston, & Smith, 1979) were concerned with examining evidence demonstrating the impact that teachers and schools can have on promoting student learning outcomes. As a consequence, early school effectiveness research and school improvement projects were underpinned, to a greater or lesser extent, by the idea of creating effective schools for the urban poor (Edmonds, 1979). In the 1980s, there was quite a lot of criticism levelled against this kind of school improvement and research because of its conspicuous sampling biases (Firestone & Herriott, 1982; Purkey & Smith, 1983; Ralph & Fennessey, 1983; Rowan, Bossart, & Dwyer, 1983). As a result, during the last four decades, various large-scale effectiveness studies have been conducted in several countries demonstrating the impact that teachers and schools can have in promoting student learning outcomes. Moreover, accountability systems have been developed in several countries, which treat the progress made by students as the main criterion for evaluating teachers and schools (Ray, 2006; Sanders & Horn, 1994). Furthermore, the great majority of effectiveness studies conducted in various countries have revealed that, after controlling for student background factors, a lot of variation at the school level remains (Chapman, Muijs, Reynolds, Sammons, & Teddlie, 2016; Townsend, 2007), and the variation that is left unexplained is treated as an indicator of the school effect on student learning outcomes (Goldstein, 2003; Thomas, Peng, & Gray, 2007). As a consequence, there is nowadays substantial agreement as to appropriate methods of estimating school differences or effects and the kinds of data required for valid comparisons to be made in relation to the promotion of quality (Creemers, Kyriakides, & Sammons, 2010; Dumay, Coe, & Anumendem, 2014; Goldstein, 1997).

With regard to the impact of teachers and schools on equity, some effectiveness studies have revealed that teachers and schools matter most for underprivileged and/or initially low-achieving students (Scheerens & Bosker, 1997). This implies that schools which are effective in terms of the quality dimension may also be effective in reducing the learning differences between students coming from different socioeconomic backgrounds. However, almost all

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effectiveness studies measure school effectiveness in relation to the quality dimension (Sammons, 2010), and therefore a methodology to measure the impact of schools in promoting equity has not yet been clearly developed (Kelly, 2012; Nachbauer & Kyriakides, 2020). Nevertheless, during the last decade an emphasis on investigating equity has gradually developed. Kyriakides and his colleagues (Kyriakides, Creemers, & Charalambous, 2018) refer to the importance of establishing a clear methodology for measuring equity and propose a specific approach that can be used for investigating the relations between the two dimensions of effectiveness: quality and equity. More specifically, equity is seen as being related to *fairness*, which implies that personal or socioeconomic characteristics, such as gender, ethnic origin or family background, should not be obstacles to success in education. This approach seems to be in line with the indicator for measuring equity at the country level proposed by the OECD, which is concerned with the impact that SES has on student achievement. It is argued that equitable educational systems are those in which SES has a relatively small effect on student learning outcomes. One could therefore evaluate teachers, schools and systems (as well as interventions) by investigating the extent to which the effect of SES on achievement has been ‘reduced’ during a school year. This implies that effective teachers and schools should not only be able to promote student learning outcomes, but also to contribute to the ‘reduction’ of the effect on student achievement of student background factors, which are given characteristics and which students are not usually able to change (e.g., SES, gender, ethnicity). It is also important to note here that a multi-dimensional approach to measuring equity can also be promoted since some schools and/or teachers may be found to be effective in terms of equity when a specific background factor is examined (e.g., SES) but not when another such factor is taken into account (e.g., gender). This assumption has received some empirical support through the analysis of data that have emerged from national and international studies (see Kyriakides, Creemers, & Charalambous, 2019).

In this chapter, it is also acknowledged that equity in education could be examined in two ways that are closely linked and might help us analyse the implications of school failure for teachers/schools/systems: equity as *fairness* and equity as *inclusion*. Specifically, school failure can be seen to be twofold in nature. On the one hand, it could be viewed as the failure of an educational system which is unable to provide an education of quality for all. In this case, overcoming school failure implies ensuring *inclusion* by providing a basic minimum standard of education for each and every student. Secondly, school failure can be attributed to the *fairness* perspective, which is based on the fact that factors beyond those that students can control are associated with student learning outcomes. Fairness implies ensuring that personal and social circumstances should not be an obstacle to educational success, and inclusion implies ensuring a minimum standard of education for all (Field, Kuczera, & Pont, 2007). In this book, we focus on *equity as fairness*, which may be used to evaluate the impact that teachers and schools can have in promoting equity in education.

Consequently, the equity dimension of effectiveness in education demands that students' expected learning outcomes should depend only on their own efforts and capacity, and not on considerations over which they have no influence (gender, ethnic origin, SES). This implies that teacher/school/system effectiveness status in terms of equity can be measured by looking at the extent to which differences in learning outcomes between groups of students with different background characteristics are reduced. The idea behind this is that education can contribute to social justice and democracy by closing the gap between students with regard to their background, especially the sociocultural status of their family.

The relationship between quality and equity in education: different theoretical orientations

By introducing two different dimensions with respect to measuring effectiveness, a question that arises is the extent to which teachers/schools/systems can be effective in terms of both quality and equity (Creemers & Kyriakides, 2015). Based on fundamental knowledge about quality education, effective schools are able to promote the learning of their students but may not be able to make a special impact on the socially disadvantaged students (Kyriakides, 2007). The research concerned with the influence of schools on different groups of students, so-called differential effectiveness research, concludes that those schools that achieve high results in pursuit of educational objectives in general manage to do so for specific groups, but they cannot significantly decrease the variance between students within classrooms (Campbell, Kyriakides, Muijs, & Robinson, 2004; Teddlie & Reynolds, 2000). However, research into educational effectiveness reveals that teachers and schools matter most when it comes to underprivileged and/or initially low-achieving students (Kyriakides, 2004; Scheerens & Bosker, 1997; Vanlaar et al., 2016). This reveals the importance of using both dimensions of effectiveness measurement (as shown in Figure 1.1), *quality and equity*, in evaluating teachers/schools/systems and in building theoretical models of educational effectiveness, which could involve factors promoting both quality and equity in education.

Even though a group of researchers in the fields of psychology, sociology and economics of education treated quality and equity as being in competition with each other and supported different approaches to how to deal with the 'cost' of promoting the one rather than the other (Whitty, 2001), Kyriakides and his colleagues (Kyriakides, Creemers, & Charalambous, 2018) attribute the debate about the relationship between the two dimensions of effectiveness to the lack of a clear definition of the two dimensions, especially equity. This has had an effect on the fact that a methodology for how equity in education can be measured has not been developed. As a consequence, there are very few studies that have investigated the effectiveness status of teachers, schools and/or systems in relation to the equity dimension (Kelly, 2012). In this book we argue that this question should be addressed by EER.

Figure 1.1 Dimensions of measuring educational effectiveness concerned with outcomes of schooling

With its origins in the research on inequality in education, it was evident that EER would examine the educational outcomes of disadvantaged children in particular and search for equity in schools. This meant looking at the extent to which schools were able to compensate for initial differences in defined outcomes (Sammons, 2010). However, most effectiveness studies, while examining the magnitude of teacher and school effects, have paid very little attention to the extent to which teachers and schools perform consistently across different school groupings (Kyriakides, 2007; Scheerens, 2014). As a consequence, the concepts of teacher and school effectiveness have been developed in a generic way by drawing up a one-size-fits-all model (Campbell et al., 2004). Although greater effectiveness may somewhat improve the absolute performance of disadvantaged groups, critics of EER argue it will not improve their relative performance when measured against that of more advantaged groups (Thrupp, 2001). This implies that researchers within the field of EER need to examine further issues dealing with equity in education.

In this context, Kyriakides, Creemers, and Charalambous (2019) have claimed that research into differential teacher and school effectiveness may provide a new perspective in the discussion about educational equity. Fielding (1997, p. 141) acknowledged that the early work of EER provided ‘a necessary

corrective to an overly pessimistic, even deterministic, view of the influence of social and political factors on the efficacy of schools.’ Research into differential effectiveness may make progress if it raises issues regarding the development and effective implementation of policy on educational equality (Antoniou & Griaznova, 2018; Charalambous, Kyriakides, & Creemers, 2018; Gustafsson, Nilsen, & Yang Hansen, 2018; Kyriakides & Creemers, 2018; Sammons et al., 2018; Verhaeghe, Vanlaar, Knipprath, De Fraine, & Van Damme, 2018). If schools differ significantly in terms of their effectiveness with respect to particular groups of students, issues concerning the extent to which specific factors are associated with school effectiveness in promoting the progress of specific groups of pupils should be examined (Kyriakides, Creemers, & Charalambous, 2018). In this respect, research on differential teacher treatment of students on the basis of their background characteristics (including SES and prior achievement) has been conducted. These studies seem to reveal that teachers in schools serving relatively high proportions of low-SES students emphasised basic skills more and engaged in more didactic teaching and less constructivist teaching approaches (e.g., Campbell, Kyriakides, Muijs, & Robinson, 2003; Stipek, 2004). In addition, studies on instructional quality and student background characteristics reveal that classroom inequality within and between schools contributed substantially to achievement gaps that developed during the early school years (e.g., Palardy, 2015; Palardy & Rumberger, 2008; Xue & Meisels, 2004). In this context, we argue in this book that the theoretical framework of EER should be expanded to include the identification of factors associated with both the quality and equity dimension of effectiveness. Pinpointing these factors may be useful not only for modelling effectiveness but also for supporting policy-makers and school stakeholders in their attempts to design and implement evidence-based and theory-driven policies on equal opportunities.

This argument about research on modelling effectiveness in terms of both dimensions (quality and equity) is in line with the concerns of the main research question of EER, which relates to ‘*what works*’ in education and has led to a combination of research in different areas, such as teacher behaviour, curriculum, grouping procedures, school organisation, and educational policy (Creemers & Kyriakides, 2008a; Scheerens, 2014). However, as Scheerens (2013, 2016) points out, after addressing this question one should then investigate ‘*why does it work*’, in order to interpret the research findings correctly and establish an effectiveness theory. In addition, to address aspects not only of quality, but also of equity in education, one should also examine questions like ‘*for whom does it work*’ and ‘*under which conditions*’, especially since there are some effectiveness studies which have revealed that schools may matter more for the disadvantaged groups of students and that school effects tend to be more significant for disadvantaged students (Kyriakides, Creemers, & Charalambous, 2019; Scheerens & Bosker, 1997). These broad research questions reveal the complexity of generating theoretical models of effectiveness, as well as the importance of examining equity by investigating whether specific factors are more or less effective for specific groups of students.

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The importance of addressing equity in education was a topic high on the agenda of EER during its first phase, but one that has received less attention over time due to the assumption that by promoting quality, equity may also be achieved (Kyriakides, Creemers, & Charalambous, 2018). As noted by Gustafsson and his colleagues (2018), very few studies in the area of EER have taken into account both dimensions of effectiveness, even though there are indications that equity is associated with better student outcomes. It is therefore important to develop models that not only consider both dimensions of effectiveness, as is the case with the dynamic model of educational effectiveness (see Chapter 3), but also to search for factors which can explain variations in the effectiveness status of teachers/schools/systems in terms of both quality and equity. To support the argument that we need more studies investigating the relationship between quality and equity in education, we briefly refer in the next section of this chapter to recent studies addressing both dimensions of effectiveness. The findings of these studies help us clarify the definitions given to the two dimensions of effectiveness presented in Figure 1.1.

Investigating the relationship between quality and equity in education: main findings and implications for research

In the previous sections of this chapter, the two dimensions of effectiveness were defined and their importance was discussed. We were also concerned with the importance not only of using both dimensions of effectiveness in evaluating teachers/schools/systems, but also of searching for the relationships between these two dimensions. Finally, it has been argued that due to the lack of systematic research on the relationship between quality and equity, a debate on whether both dimensions can be promoted has emerged. In this section, we refer to the main results of different types of study (i.e., cross-sectional, longitudinal, experimental) which have recently been conducted in order to investigate the relationship between quality and equity in education. Based on the findings of these studies, we also draw implications for research on school effectiveness and improvement which are connected with the main aim of this book.

Exploring the relationship between quality and equity: secondary analyses of PISA

In our recently published book on promoting equity in education (see Kyriakides, Creemers, & Charalambous, 2018), we present the results of secondary analyses of the various PISA cycles which examined the relationship between quality and equity at the system/country and school levels. Specifically, the assumption that the dimensions of quality and equity at system and/or school level are related to each other was tested by conducting cross-country, multilevel analyses of each PISA cycle to investigate the extent to which the SES gap in student achievement is smaller in schools and countries which have better learning outcomes (after controlling for the effect of SES). In this secondary analysis,

Kyriakides and his colleagues (Kyriakides, Creemers, & Charalambous, 2018) only used data on student achievement in the subject that was the focus of each PISA cycle (i.e., reading in 2000 and 2009, mathematics in 2003 and 2012, science in 2006 and 2015). Thus, separate cross-country, multilevel analyses for each PISA cycle were conducted and the data were conceptualised as a three-level model, consisting of students at the first level, schools at the second level and countries at the third level.

In each PISA cycle, about one quarter of the variance in student achievement was situated at each of the country and school levels, and the indicator of SES concerned with the highest occupational status of parents (i.e., HISEI) was found to explain approximately 10 per cent of the total variance in student achievement. In each PISA cycle, aggregated scores of this indicator of SES (i.e., ‘composition effects’ of HISEI) were able to explain even more variance than the relevant student-level indicator of SES (additional variance that was explained ranged from approximately 11 per cent to 17 per cent of the total variance). These results seem to be in line with the findings of meta-analyses of studies investigating the SES effects on student achievement which revealed that when researchers used aggregated measures of SES, they reported higher correlations between SES and academic achievement (see Kyriakides, Charalambous, Creemers, & Dimosthenous, 2019; Sirin, 2005; White, 1982). Finally, a random-slope model was run to find out whether HISEI had any differential ‘effect’ at the school and/or country level. For each PISA cycle, all parameter estimates of the random part were statistically significant at level .05. By taking into account the random part at the country level, the correlation between the residual of the intercept and the residual of the slope was estimated and found to be statistically significant (and negative). This implies that the achievement gap (in the three different subjects) based on HISEI tends to be smaller in countries which achieve better learning outcomes (after controlling for HISEI). Similar results emerged from estimating the correlation coefficients of the two residuals at the school level. In all cycles these correlation coefficients were also statistically significant at level .05 (and negative). These findings showed that the achievement gaps based on HISEI were smaller in more effective schools in terms of their overall student achievement (after controlling for the effect of HISEI).

Thus, these cross-country analyses seemed to support the argument that schools and countries in which HISEI had a smaller effect on achievement tended to be more effective than others in terms of achieving better final student learning outcomes. At this point, it is important to note that previous studies have considered only the statistical significance of the variation among schools in terms of SES gaps to evaluate whether schools can play a bridging role (Chudgar & Luschei, 2009). In this study, in addition to exploring variation in the achievement gap based on the SES indicators across schools/countries, Kyriakides and his colleagues (Kyriakides, Creemers, & Charalambous, 2018) also considered their practical significance. This analysis showed relatively small effects, which, however, differed noticeably across schools and countries and need to be considered by researchers in the field of EER in order to contribute not only to the understanding of the nature of effectiveness but

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also to the promotion of both quality and equity in education. The modest correlation coefficients reported in this study also revealed that achieving better overall student learning outcomes (quality) does not necessarily guarantee the achievement of equity (and vice versa). There were many schools and countries which were found to be more effective in terms of achieving better student learning outcomes after controlling for the effect of HISEI, but less effective in terms of the size of the HISEI gap in student achievement. Therefore, using *both* ways to measure quality and equity respectively for each educational system and each school seems imperative (Doyle, 2008). Increasing stakeholders' awareness of the importance of reducing the SES gap in student achievement could also be raised, especially in those countries and schools where final student learning results (after controlling for HISEI) could be considered satisfactory but where SES still plays a very important role in achieving these results. Using international studies to provide this type of feedback to policy-makers may also help them evaluate their own national reform policies on promoting quality and equity since they could examine not only the extent to which students' mean performance has improved, but also whether the SES gap in student achievement has reduced.

Quality and equity at teacher and school level: a reanalysis of national effectiveness studies

One can claim that the secondary analyses of PISA cycles looked at the quality and equity dimensions of effectiveness by not following a value-added approach. Specifically, quality was examined by looking at the final student learning outcomes and controlling only for the effect of background factors, whereas EER reveals the importance of investigating the impact of teachers/schools/systems on student achievement gains (Creemers et al., 2010). Similarly, it is proposed here that the reduction of the impact of SES on student achievement should be considered when measuring the equity dimension. However, the choice of a different method to investigate the relationship between quality and equity in education can be attributed to the fact that PISA is a cross-sectional study. In this context, we briefly present here the main results of secondary analyses of two effectiveness studies which sought to identify the relationship between quality and equity at the teacher and/or school level. Specifically, Kyriakides, Creemers, and Charalambous (2019) reanalysed the data from two effectiveness studies which were initially conducted in order to test the validity of the dynamic model of educational effectiveness (Creemers & Kyriakides, 2008a). Readers can find information about the methods of these two studies in two relevant papers (i.e., Kyriakides & Creemers, 2008a, 2009) in which the impact of factors included in the dynamic model on student achievement gains is examined. However, this secondary analysis moves a step further and investigates differential teacher and school effectiveness in terms of two student background factors that are not likely to change (i.e., SES and gender). It is important to note that the two effectiveness studies collected data from two different phases of

schooling in the two core subjects (mathematics and language). There is therefore an examination of whether four separate analyses (concerned with achievement in two different subjects and at two different phases of schooling) might generate similar results regarding the relationship between quality and equity. Specifically, Kyriakides, Creemers, and Charalambous (2019) investigate whether primary and/or pre-primary teachers and schools, which are more effective in terms of promoting student learning outcomes, tend to have a smaller SES gap and/or a smaller gender gap with respect to student achievement. In this way, we can explore the relationship between quality and equity in different phases of schooling (i.e., pre-primary and primary education) and when achievement in the two core subjects of the curriculum (i.e., mathematics and language) is taken into account. To achieve this aim, separate multilevel analyses (students within classrooms/teachers within schools) of student achievement in each subject were initially conducted. These analyses revealed that student background factors (i.e., prior achievement, SES and gender) had significant effects on student achievement in each subject. Then, random-slope multilevel models were used to search for differential effects of SES and gender at teacher and school level (see Kyriakides, Creemers, & Charalambous, 2019). It is, however, important to note here that equity was seen not only in relation to the impact of SES on achievement, but also in relation to the impact of gender.

Similar results emerged from the four separate analyses exploring the relationship between the two dimensions of effectiveness. Specifically, none of these two effectiveness studies reveal any negative relationship between the two dimensions of effectiveness (i.e., quality and equity). Gaps in achievement based on background factors were not found to be bigger in pre-primary and primary classrooms and in schools which were more effective in terms of promoting student learning outcomes. These findings seem to provide empirical support to those who argue that promotion of equity may have a positive impact on quality (Kelly, 2012; Kyriakides, Creemers, & Charalambous, 2018). In addition, both studies reveal that the SES gap in student achievement in the two core subjects (i.e., mathematics and language) tends to be smaller in classrooms and schools which are more effective than others in promoting student learning outcomes. Thus, these two studies seem to reveal that there is a positive relationship between the two dimensions of teacher and school effectiveness in pre-primary and primary schools in Cyprus (i.e., the country where these two studies were conducted) when SES is considered in measuring equity at classroom and school level. It should, however, be acknowledged that although the SES gap is smaller in effective classrooms and schools, this does not imply that the effect of SES on achievement disappears or even became smaller during the school year that the study was conducted.

On the other hand, these two longitudinal studies seem to reveal a different picture when equity is examined with regard to the gender gap rather than the SES gap. Neither a positive nor a negative relationship between quality and equity was identified when we searched for differential teacher and school effectiveness in terms of gender in the pre-primary and primary education of

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Cyprus. Although both studies revealed differential teacher and school effects in terms of the impact of gender on student achievement, the gender gap was not found to be smaller in schools and/or classrooms which were more effective in terms of promoting overall student achievement gains in each subject. This implies that in investigating the relationship between quality and equity, one should make explicit which of the background factors is taken into account when measuring equity. This argument is also supported by the fact that the covariance of the residuals of the two random slopes at each level was not statistically significant at level .05. This implies that in those classrooms and schools where the SES gap with respect to achievement is smaller, the gender gap is not necessarily smaller. Therefore, these two studies seem to reveal that teachers and schools which could be considered effective when the equity dimension in terms of the SES gap is taken into account do not tend to be effective in terms of equity when the gender gap is taken into account. This finding can, however, be attributed to the national and/or local policies on promoting equity in Cyprus, which treat equity only in relation to the impact of SES rather than to the impact of any student background factor that is unlikely to change (e.g., gender, ethnicity). One could therefore argue for the importance of generating mechanisms to measure equity in a systematic way and to provide comprehensive feedback for schools and teachers to help them develop strategies and action plans that can address specific elements of equity. For example, teachers and schools which were found to be less effective when equity in terms of gender is considered but not when the SES gap is taken into account may have to develop different strategies and action plans to improve their own effectiveness status in terms of equity, rather than those which were found to be less effective in terms of equity when both SES and gender gaps were taken into account. It should finally be stressed that the findings of these two studies reveal similar patterns in terms of the relationship between quality and equity in Cypriot pre-primary and primary schools when achievement in two different subjects is considered. This implies that investigating the relationship between quality and equity might be less dependent on the learning outcome that is being considered (mathematics or language) than the background factor that is taken into account when measuring equity. The fact that similar results emerged from measuring effectiveness in terms of two different subjects (i.e., mathematics and language) and in two different phases of schooling seems to be in line with previous effectiveness studies conducted in Cyprus, which revealed that primary teachers who are effective in promoting student achievement gains in a specific subject tend also to be effective in promoting achievement in another subject (e.g., Kyriakides, 2005a; Kyriakides & Creemers, 2008a). However, the reanalyses of these two effectiveness studies seem to reveal that there is no simple answer to the question about the relationship between the two dimensions of effectiveness. In the pre-primary and primary schools of Cyprus, the relationship between quality and equity seemed to be more dependent on the student background factor that was being considered when measuring equity and less on the learning outcome that was being taken into account. When SES

was considered, a positive relationship between quality and equity was observed for both subjects, but this was not the case when gender was the focus.

Lessons learnt from the secondary analyses of national and international studies in education

Before we move on to presenting the results of an experimental study on promoting quality and equity, we will try to compare the findings that emerged from the two national effectiveness studies with those that arose from the secondary analyses of the PISA cycles. Both national and international studies seemed to reveal that there is no negative statistically significant relationship between the two dimensions of effectiveness at any level (i.e., teacher/school/country level) that was examined. On the contrary, a positive relationship between quality and equity seemed to exist when equity in relation to SES was examined. In the case of the PISA studies, a consistently positive relationship was observed when the parents' occupational status was taken into account. One could therefore claim that teachers, schools and educational systems which are effective in terms of equity tend to be effective in terms of quality. One should also bear in mind that despite the differences in the two types of analyses presented in this section, a similar conclusion concerning the relationship between quality and equity could be drawn. Specifically, the national studies were able to measure quality by looking at the impact that teachers and the school have on student learning outcomes (after controlling for student background factors and especially prior achievement), whereas the PISA study is cross-sectional and is therefore not possible to identify the impact of schools and countries on student achievement gains. Moreover, the national studies collected data from two different phases of education (pre-primary and primary), whereas PISA is concerned with achievement of students in a different phase of education (i.e., secondary school). Furthermore, the learning outcomes taken into account by the national studies and PISA were not the same. Therefore, the argument that there is a positive relationship between quality and equity seems to be stronger since it is supported by the results obtained from the analysis of data from two different types of study and from studies that used different types of student learning outcome (mathematics, reading and science). It is finally important to stress that these studies were concerned with education in three different phases (i.e., pre-primary, primary and secondary). Having said that, we also acknowledge that there is a need for further research to investigate the generalisability of these findings by using multiple methods of data collection and looking at different types of learning outcome (especially since only cognitive learning outcomes were examined in the studies reported here).

It is also important to note that this relationship should not be misinterpreted. The fact that a positive relationship is reported does not mean that there is no teacher, school or country which is effective in terms of one dimension but less effective in terms of the other dimension. On the contrary, correlation coefficients reported in these studies were relatively small and might partly have

depended on the policies and practices that might have promoted effectiveness in terms of only one dimension. Nevertheless, these results reveal that promoting equity does not have a negative impact on quality. In addition, the results of the secondary analysis of national and international studies seem to reveal that it is possible for teachers, schools and countries to be effective in terms of both quality and equity.

At the same time, the studies reported here reveal the complexity of reporting results on equity and investigating the relationship between quality and equity (Kyriakides, Creemers, & Charalambous, 2018). Although these studies show that a positive relationship between quality and equity seemed to exist when different learning outcomes and/or methods to measure quality were used, they also reveal different types of relationship when different indicators for measuring equity were used. The two national studies reveal no relationship between quality and equity when gender rather than SES was taken into account. This implies that we cannot take for granted that there is criterion consistency when measuring equity. Researchers and policy-makers should not only explain how equity is conceptualised and measured (see Kelly, 2012; Kyriakides, Creemers, & Charalambous, 2018), but should also indicate the background factor considered when measuring equity. Although further research to test the generalisability of the findings of these studies is needed, the results of these national and international studies at least raise awareness of the importance of measuring equity and investigating the relationship between quality and equity in a more systematic way by taking into consideration various student background factors that are unlikely to change, rather than just a single indicator.

Exploring the relationship between quality and equity in education by drawing on the results of a European experimental study

We would like now to move on to the presentation of the results of an experimental study which was conducted in four different European countries (i.e., Cyprus, England, Greece and Ireland) in order to support primary schools in socially disadvantaged areas in their attempt to promote quality and equity in education (Kyriakides, Charalambous, Creemers, Antoniou et al., 2019). Although this study was not naturalistic in character and cannot be used for modelling effectiveness, it is in line with the main aim of this book, which is not only to raise awareness of the importance of establishing theories to explain effectiveness in terms of both dimensions (Part 1 of the book), but also to develop a theory-driven and evidence-based improvement approach to promoting quality and equity in education (Part 2 of the book). Given that children in socially disadvantaged areas are more likely to have lower achievement levels, the study reported here investigated the extent to which a whole-school intervention based on the DA to school improvement (Creemers & Kyriakides, 2012) could promote both quality and equity in socially disadvantaged primary schools in four European countries (i.e., Cyprus, England, Greece and Ireland). This

was done by investigating the extent to which schools and teachers were able to reduce the gaps in mathematical achievement among students from different socioeconomic backgrounds. At this point it should be noted that the four European countries participating in this study were chosen because the promotion of equity is considered a priority in each of these countries (see OECD, 2010a; OECD, 2012). However, there is a variation between these four countries regarding the way that educational policy is applied to schools in order to support students who come from low socioeconomic backgrounds. Therefore, this study aimed to investigate the impact of this project on quality and equity in each of these four countries in order to find out whether similar arguments about changes in the equity and quality dimension of school effectiveness in four different countries would emerge. Readers can find information about the methods of this study and the intervention on the web page of the project (www.ucy.ac.cy/promqe): in this chapter, we only refer briefly to the main findings. Specifically, it should be noted that this study revealed that by using the DA not only the quality dimension of school effectiveness, but also equity in each participating country was promoted.

Explicitly, by conducting separate multilevel analyses in each participating country, it was shown that schools which made use of the DA were more effective than the control schools when it came to promoting student achievement in mathematics. By using multilevel structural equation modelling techniques, it was found that this intervention had not only a direct, but also an indirect effect on student achievement. With regard to the impact of the project on equity, it is stressed here that at the beginning of the intervention, the effect of SES on student achievement was equally strong in both the experimental and the control groups. At the end of the intervention, the direct effect of SES on student achievement became smaller only in the schools in the experimental group. With regard to the total effect of SES on student achievement in mathematics, a difference between the two groups was also identified. It is, however, important to note that by comparing the effect of SES on initial achievement of students in the experimental group with the total impact of SES on their final achievement, one can see that it remained equally high. Nevertheless, one should not underestimate the impact of the DA on promoting equity since the total effect of SES in the control schools increased substantially in each country, and this finding is in line with the results of longitudinal studies conducted in different countries, which reveal that the total effect of SES gradually increases over time (Hansen, Rosén, & Gustafsson, 2011; Sammons, 2008). One might then claim that the intervention had a positive effect on equity since, by comparing the impact of SES on achievement at two points in time, one can see that there was no difference before the intervention, whereas at the end of the intervention SES was found to matter less in the experimental schools than in the schools in the control group.

The results of longitudinal studies, such as the ones mentioned previously, and also of the present study that took place in schools for only one school year, demonstrating an increase in the impact of SES over time, reveal that

policy-makers and school stakeholders should consider as a priority the promotion of equity at school level. At the same time, these results reveal the complexity of evaluating interventions that aim to promote equity. We argue here for the importance of collecting longitudinal data in order to establish formative school evaluation mechanisms and to measure changes in the impact of background factors on student achievement over time. This suggestion seems to be in line with the claim that value-added approaches are needed when measuring the quality dimension and comparing the contribution that each teacher/school/system may make to student achievement gains rather than comparing schools on the basis of their final student learning outcomes (Creemers et al., 2010). In the case of equity, we should also seek to identify changes over time on the impact that SES (or other background factors such as gender and ethnicity) has on achievement and compare the changes on the impact of SES (positive or negative) in individual schools with those that apply to the whole population (see Figure 1.1). In a case in which an increase in the impact of SES is observed at the country level, any school with a much smaller increase (or no increase at all) could still be considered effective in terms of equity. Thus we argue for the need to establish continuous formative evaluation mechanisms to assess student achievement gains and the impact of SES on achievement over time in order to help teachers, schools and educational systems identify changes in their effectiveness status in terms of both dimensions of educational effectiveness (quality and equity).

In Figure 1.1, we argue that both dimensions of effectiveness are based on the assumption that there is a need to measure the effectiveness status of schools over time and in relation to an overall trend that is observed in a specific setting. In regard to the quality dimension, a relation between the prior and final achievement for the whole population (e.g., a specific region/country) can be identified. One can, therefore, claim that those teachers/schools that help their students achieve more than expected can be considered as the most effective whereas those who can achieve less than expected can be considered as least effective. Using a similar approach, we can claim that in a specific setting (e.g., a specific country), one can observe changes in the impact of SES (or any other background factor) on student achievement over time (i.e., an increase in the effect of SES on student achievement over time is usually identified). Effective teachers/schools are, therefore, considered those where the impact of the background factor on student achievement becomes less important than what is observed in the specific country. It is for this reason that one can consider the schools of the experimental group of this project more effective than those of the control group since an increase in the effect of SES was observed in the schools of the control group but in the schools of the experimental group the impact of SES on achievement remained the same. Figure 1.1 does not only reveal the importance of considering different types of student learning outcomes (not only cognitive) when student achievement is measured but also that equity can be measured in terms of the impact on achievement of different background characteristics which are unlikely to change. It is finally stressed that Figure 1.1

reveals the importance of conducting studies searching for the relation between the two dimensions of effectiveness. One could move a step forward and argue that further research is needed to develop theoretical models addressing both dimensions of effectiveness and using these models to establish strategies for promoting not only quality, but also equity in education over a longer period of time rather than a single school year, as is the case of the project reported here. In this context, both the short- and long- term effects of teachers/schools/systems in promoting quality and equity in education should be examined.

Aim and structure of the book

In this chapter, we argue for the importance of promoting quality and equity in education. The use of two different dimensions for measuring effectiveness is proposed. In the last part of this chapter, we also argue for the importance of conducting studies to investigate the relationship between the two dimensions of effectiveness, and we present the results from different types of study, which reveal that promoting equity has no negative effect on promoting quality. Thus the principal objective of this book is to make a contribution to knowledge and theory-building in research on promoting quality and equity in education. The book draws attention to the importance not only of developing and testing theories of educational effectiveness, but also of using these theories for improvement purposes. For this reason, we refer to recent theoretical developments in the field of educational effectiveness and propose an improved version of the dynamic theory that takes into account findings of studies that have tested its validity. We also discuss the extent to which links between EER and research on school improvement can be established. Thus the rationale and the main features of the DA to teacher and school improvement are presented. We then refer to studies testing the impact of this approach to promoting quality and equity and discuss the importance of seeking to identify the circumstances in which the DA can be used for improvement purposes. In the last part of the book, we propose a broadening of the agenda of research on educational effectiveness and improvement and claim that research on developing and testing theories of educational effectiveness can contribute significantly to establishing an effective approach to teacher and school improvement that can make a major contribution to promoting quality and equity in education.

More specifically, the book is split into three parts. The first part refers to theories of educational effectiveness, which have been developed over the last four decades. During that time, researchers moved from searching for the impact of isolated factors operating at a single level to the development of integrated models which refer to factors operating at different levels, which are associated with different theoretical perspectives of effectiveness. In Chapter 2, we also refer to studies that test the validity of the integrated models and which reveal their strengths and limitations. It is also argued that the dynamic nature of educational effectiveness should be considered in developing the theoretical framework of EER. In this respect, the rationale and major assumptions of this

theory are presented in Chapter 3. Effectiveness factors operating at different levels and their measurement dimensions are also outlined and the concept of grouping of factors is introduced. In the final chapter of this part, empirical studies conducted to test the validity of this theory are presented. These empirical studies as well as relevant meta-analyses provide support for the importance of specific factors included in the dynamic theory of educational effectiveness and their measurement dimensions. Empirical studies also reveal relationships among factors operating at the classroom level, which help us define specific stages of effective teaching. On the other hand, empirical studies reveal possibilities for establishing a more parsimonious model. Thus an improved version of the dynamic model of educational effectiveness is presented in the last part of the book.

The second part of this book provides an overview of research on school improvement and argues for the importance of using an evidence-based and theory-driven approach. More specifically, Chapter 5 presents a review of research on school improvement and also the main characteristics of different approaches to school improvement. To avoid a representation of improvement in effectiveness that is restricted in scope, a brief review of the literature on improvement which is concerned with other theoretical orientations within education that examine the process of change is also provided. It is then argued that the link between EER and school improvement is problematic. The reasons for this disappointing situation are analysed in the hope of creating more productive cooperation between EER and research on teacher and school improvement. After a careful analysis of the failure to link EER and research on teacher and school improvement effectively, we argue for the establishment of strategies for school improvement which place emphasis on the evidence stemming from theory and research. In this way, a theory-driven and evidence-based approach to teacher and school improvement is promoted. Thus, in Chapter 6 we refer to the DA to teacher and school improvement, which makes use of theory and research findings from effectiveness studies, and the rationale and main features of this approach are therefore presented. In this chapter, we also give examples of a teacher and a school-based intervention which took place in different countries to help readers understand how this DA was put into practice in order to improve the quality of teaching and the school learning environment. In the final chapter of this part, we refer to studies that have investigated the added value of using this DA to promoting quality and equity. By presenting these studies, the readers are provided with concrete examples of school improvement strategies and action plans, which were developed by making use of this approach. Chapter 7 also demonstrates how this approach was put into practice in different contexts, and, more importantly, discusses possibilities for establishing stronger links between theories of educational effectiveness and research on teacher and school improvement in order to promote not only quality, but also equity in education.

The last part of this book is an attempt to propose an agenda for establishing stronger links between research on modelling educational effectiveness and that on improving quality and equity in education. Specifically, Chapter 8 presents

an improved version of the dynamic model that also takes into account the need for schools not only to find ways to improve student learning outcomes, but also to reduce differences in initial achievement of students from different socioeconomic backgrounds. In this chapter, we also explore ways of expanding the DA by considering the findings of a synthesis of improvement studies presented in Part 2, which reveal the importance of looking at the conditions under which the DA can be used to promote quality and equity in education. In the final chapter of this book, we draw implications for research, policy and practice. More specifically, we refer to areas that need further investigation in order to test the improved version of the dynamic theory of effectiveness and to search for ways to use this theory for improvement purposes. We also argue for the importance of investigating the impact of different improvement approaches on student learning outcomes and exploring the conditions under which each approach can be used to promote quality and equity. With regard to implications for policy and practice, we stress the importance of using theories of educational effectiveness when establishing conditions, structures and support mechanisms for the effective use of the DA to teacher and school improvement. We finally argue for the establishment of a monitoring system that is able not only to evaluate the impact of the improvement strategies and action plans, but also to identify actions that could be taken in order to maximise the effect of the DA to teacher and school improvement in specific school settings in terms of promoting both quality and equity in education.

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