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## Investigating the quality and equity dimensions of educational effectiveness

### 1. Introduction

Education is a powerful tool for improving all aspects of a person's life and a factor able to reduce poverty. School failure can have a negative long-lasting impact on a child's life, since leaving school without enough qualifications could result in finding a low-income profession 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 to over USD 200 trillion in additional economic output over their working lives (OECD, 2010a). Thus, educational failure inputs high costs on society since uneducated people cannot be actively involved in civic and political activities and are more prone to crime, other illegal activities (OECD, 2010b, 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 education 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 children coming from better-off families. For example, international evaluation studies like PISA revealed that in Europe approximately 20% 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 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 (Marks, Cresswell, & Ainley, 2006).

Consequently, one of the major objectives of the education systems around the world is to understand which schooling processes provide opportunities for all learners to succeed in school (Frempong, Reddy, & Kanjee, 2011). This objective is in line with the main research question of educational effectiveness research (EER) which is concerned with “*what works*” in education leading to a combination of research in different areas such as teacher behaviour, curriculum, grouping procedures, school organisation, and educational policy (Creemers & Kyriakides, 2008; Scheerens, 2014). Though, Scheerens (2013, 2016) points out that after addressing this question one should then investigate “*why does it work*” to interpret the research findings and establish an effectiveness theory. Additionally, for addressing aspects of not only 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 reveal that schools may matter more for the disadvantaged groups of students and school effects tend to be larger for disadvantaged students (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. By questioning for whom a factor is effective and under which conditions, it is implied that a factor might promote learning but we need to find whether it also promotes the learning of specific groups of students and in this way reduce the initial achievement gaps between different groups of students. The importance of addressing equity in education was a topic high on the agenda of EER during its first phase but has gradually received less attention due to the assumption that by promoting quality, equity may also be achieved (Kyriakides, Creemers, & Charalambous, 2018). As noted by Gustafsson et al. (2017), 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.

In this context, this special issue aims to raise awareness on issues of equity for expanding the field of EER and school improvement, both methodologically and theoretically. An important aspect of all papers is that even though the authors have used different methodologies for addressing equity they all examined equity as *fairness*. At this point it is important to note that equity in education could be examined in two ways that are closely linked and can 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. The inclusion perspective has implications for designing effective national reform policies that minimise dropout rates and provide learning opportunities for all children. 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 (Kyriakides et al., 2018). In this special issue, we focus on *equity as fairness*, which implies that personal and social circumstances should not be an obstacle to educational

success (Charalambous, Kyriakides, & Creemers, 2017; Field, Kuczera, & Pont, 2007). Thus, this special issue aims to identify the importance of using different approaches for examining and measuring equity in education and draws implications for research, policy and practice.

## 2. Investigating the quality and equity dimensions of effectiveness through different methodological and theoretical approaches

EER has been developed through four sequential phases as a reaction to seminal work on equality of opportunity in education that was conducted in the USA and undertaken by Coleman et al. (1966), and Jencks et al. (1972). These two innovative studies from two different disciplinary backgrounds – sociology and psychology, respectively – drew very similar conclusions in relation to the amount of variance in student learning outcomes that can be explained by educational factors. Although these studies did not suggest schooling was unimportant, the differences in student outcomes that were attributable to attending one school rather than another were modest. However, these studies were criticised for failing to measure the educational variables that were of the most relevance (Madaus, Kellaghan, Rakow, & King, 1979). Nevertheless, these two studies claimed that after taking into consideration the influence of student background characteristics, such as ability and family background (e.g., SES, gender, ethnicity), only a small proportion of the variation in student achievement could be attributed to the school or educational factors. This pessimistic feeling of not knowing what, if anything, education could contribute to reducing inequality in educational outcomes and in society as a whole was also fed by the apparent failure of large-scale educational compensatory programmes, such as ‘Headstart’ and ‘Follow Through’, conducted in the USA, which were based on the idea that education in pre-school/schools would help to compensate for the initial differences between students. Similarly, disappointing results have also been reported based on the effects of compensatory programmes that have been conducted in other countries (Driessen & Mulder, 1999; MacDonald, 1991; Sammons et al., 2003; Schon, 1971; Taggart & Sammons, 1999). As a consequence, the first two school effectiveness studies that were independently undertaken by Brookover, Beady, Flood, Schweitzer, and Wisenbaker (1979) in the USA and Rutter, Maughan, Mortimore, Ouston, and Smith (1979) in England during the 1970s, were concerned with examining evidence and arguing in support of the potential power of schooling to make a difference to the life chances of students. This was an optimistic point of view since many studies published in that period had shown that teachers, schools, and maybe even education in general, had failed to make much of a difference and supported the idea that socioeconomic background factors were very strongly associated with student learning outcomes (White, 1982). One may therefore consider these two projects as the first attempts to show the contribution that teachers and schools may make to reducing unjustifiable differences in student learning outcomes. The early existence of these two independent research projects in different countries that asked similar questions and drew to a certain extent on similar quantitative methodologies, demonstrated the potential for establishing a scientific domain dealing with effectiveness in education (Kyriakides, 2008; Scheerens, 2013). Thus the publications by Brookover et al. (1979) and Rutter et al. (1979) were followed by numerous effectiveness studies conducted in different countries around the world which were able to demonstrate the impact of teachers and schools in promoting student learning outcomes. Looking at the history of EER, we see four sequential phases in the field which address different types of research question and promote the theoretical development of EER: a) establishing the field by showing that school matters; b) searching for factors associated with student outcomes; c) development of theoretical models; and d) analysing in more detail the complex nature of educational effectiveness. Methodological advances that have been developed from the early phases of EER, such as the use of multilevel modelling techniques, have helped researchers to generate valid estimates of teacher and school effects in terms of promoting quality and to identify factors associated with the quality dimension of educational effectiveness (see Creemers, Kyriakides, & Sammons, 2010).

Consequently, EER has gradually moved on to placing more emphasis on the quality dimension, arguing that by promoting quality, equity may also be achieved. During the last two decades, investigating differential teacher and school effectiveness has been emphasised, but this has mainly been done to examine the generic nature of effectiveness factors rather than to identify factors associated with equity. This change in the focus of the field of EER had methodological implications, since many effectiveness studies in a very large number of countries have been conducted to identify the factors that can promote quality but not equity. Regarding equity, such development has not occurred even though the effectiveness studies conducted in many countries around the world have revealed the importance of measuring student learning outcomes after controlling for the impact of student background factors (such as SES, gender, and ethnicity). In this issue, we argue that EER should expand its theoretical framework and develop appropriate methodological tools to address equity and its relationship with quality. By taking these arguments into account, the authors of this special issue present different methodological approaches for promoting equity using data from different countries and different educational levels.

It is first of all stressed that research on group composition effects might play an important role in the achievement gaps faced by students coming from socially disadvantaged homes (Verhaeghe, Vanlaar, Knipprath, De Fraine, & Van Damme, 2017), since meta-analyses have shown that even small effects of the group composition on student achievement could appear from any perspective examined (for example ability, gender, social and/or ethnic background) (Driessen, 2007). Specifically, Verhaeghe et al. conducted a study by using data from a longitudinal research project that took place in primary schools in Belgium (Flanders) for examining the impact of social and ethnic class group composition on the achievement gaps in mathematics faced by students at risk. Considering that group composition might affect student achievement through various ways (i.e. social interactions between students within the class group, opportunities to learn provided to different groups of students, school facilities and staff, parental networks) the authors have searched the growth of the achievement gaps faced by students at risk from the beginning until the end of primary school (Grade 1 until 6) and the existence of group composition effects in each stage of schooling, as well as the impact of social and ethnic group composition on the learning gaps of students compared to the impact of students’ individual characteristics. Findings of this study are important elements for the discussion about school desegregation, since this policy by itself may not lead to the excision of educational gaps faced by students at risk.

What is even more significant to search, apart from group composition effects, is the effectiveness of a school in relation to equity, especially through investigating which school factors/characteristics could reduce the impact that student background factors have on student learning outcomes (Creemers & Kyriakides, 2015; Kelly, 2012). The next two papers from Gustafsson et al. (2017) and Sammons et al. (2017) present the results of two studies searching for answers to the question of whether the school matters for students coming from less favourable backgrounds. Gustafsson et al. (2017), focus on school differences in within-school relations between student SES and achievement in mathematics and compare these across 50 educational systems. They also investigate whether school characteristics like quality and quantity of instruction, school climate, and school SES can account for the variation in the within-school relations between SES and student achievement. To do this, they conducted a secondary analysis of the TIMSS 2011 study (Mullis, Martin, Foy, & Arora, 2012) concentrating on Grade 8 students. By taking advantage of this international comparative large-scale database, they were in a position to increase the possibility of identifying school factors influencing the strength of the relationship between SES and achievement, since in observational studies the amount of variation in the investigated factors is often restricted within any

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