

PISA and equity change: a scoping review

Gil Nata, Ekaterina Enchikova, Cibelle Toledo &
Tiago Neves

Abstract

Promoting equity has been and still is a fundamental challenge for educational systems around the world. While PISA has a stated goal of sharing information and guidance to shape national policies for achieving greater socio-economic equity, its actual role and the outcomes of the program are subject to much debate. This paper presents a scoping review of the available literature that focuses on the relationship between PISA implementation and (socio-economic educational) equity change. This review is twofold, including both (i) quantitative research aimed at gauging changes in equity indicators using PISA datasets, as well as (ii) qualitative research that discusses PISA's impact on educational equity. Major databases were systematically searched, yielding 1180 hits. After independent assessment by different judges, a total of 51 articles met the criteria for inclusion, 27 of which qualitative and 34 quantitative. Analysis of the qualitative and quantitative literature is presented separately, both in tabular and narrative form, allowing the assessment of the amount, nature and scope of the available literature and related gaps.

Keywords:

PISA; Equity; Scoping review; SES; Literature review.

PISA e mudança na equidade: uma “scoping review” da literatura

Resumo: A promoção da equidade tem sido e continua a ser um desafio fundamental para os sistemas educativos em todo o mundo. Embora o PISA tenha o objetivo declarado de partilha de informação e aconselhamento das políticas nacionais para alcançar uma maior equidade socioeconómica, o seu real papel e os resultados do programa continuam sujeitos a muito debate. Este trabalho apresenta uma *scoping review* da literatura disponível centrada na relação entre a implementação do PISA e a mudança da equidade (socioeconómica educativa). Esta revisão tem duas vertentes, incluindo (i) investigação quantitativa que tem visado medir as mudanças nos indicadores de equidade utilizando conjuntos de dados PISA, bem como (ii) investigação qualitativa que tem vindo a discutir o impacto do PISA na equidade educativa. As principais bases de dados foram sistematicamente pesquisadas, produzindo um total de 1180 resultados. Após avaliação independente por diferentes juizes, um total de 51 artigos cumpriram os critérios de inclusão, dos quais 27 qualitativos e 34 quantitativos. A análise da literatura qualitativa e quantitativa é apresentada separadamente, tanto em forma tabular como narrativa, permitindo a avaliação da quantidade, natureza e âmbito da literatura disponível, bem como a identificação de lacunas nessa literatura.

Palavras-chave: PISA, Equidade; Scoping review; SES; Revisão da literatura

PISA et changement d'équité : une “scoping review” de la littérature

Résumé: La promotion de l'équité a été et reste un défi fondamental pour les systèmes éducatifs du monde entier. Tandis que le PISA ait pour objectif déclaré de partager des informations et des conseils afin d'élaborer des politiques nationales visant à atteindre une plus grande équité socio-économique, son rôle réel et les résultats du programme font l'objet de nombreux débats. Ce travail présente une *scoping review* de la littérature disponible qui se concentre sur la relation entre la mise en œuvre du PISA et le changement de l'équité (socio-économique et éducative). Cette revue est double, incluant à la fois (i) les recherches quantitatives qui ont visé à évaluer les changements dans les indicateurs d'équité en utilisant les ensembles de données du PISA, ainsi que (ii) les recherches qualitatives qui ont discuté l'impact du PISA sur l'équité en éducation. Les principales bases de données ont fait l'objet d'une recherche systématique qui a donné lieu à 1180 résultats. Après une évaluation indépendante par différents juges, un total de 51 articles répondaient aux critères d'inclusion, dont 27 qualitatifs et 34 quantitatifs. L'analyse de la littérature qualitative et quantitative est présentée séparément, à la fois sous forme de tableaux et sous forme narrative, ce qui permet d'évaluer la quantité, la nature et la portée de la littérature disponible, ainsi que d'identifier les lacunes.

Mots-clés : PISA ; Équité ; “Scoping review” ; SES ; Revue de la littérature

PISA y el cambio en la equidad: una “scoping review” de la literatura

Resumen: Promover la equidad ha sido y sigue siendo un reto fundamental para los sistemas educativos de todo el mundo. Si bien el objetivo declarado de PISA es compartir información y orientación para dar forma a las políticas nacionales con el fin de lograr una mayor equidad socioeconómica, su papel real y los resultados del programa son objeto de mucho debate. Este trabajo presenta una revisión de la literatura disponible que se centra en la relación entre la implementación de PISA y el cambio en la equidad (educativa socioeconómica). Esta revisión tiene dos vertientes, incluyendo tanto (i) la investigación cuantitativa que ha pretendido medir los cambios en los indicadores de equidad utilizando los conjuntos de datos de PISA, como (ii) la investigación cualitativa que ha estado discutiendo cómo PISA ha impactado en la equidad educativa. Se realizaron búsquedas sistemáticas en las principales bases de datos, que arrojaron 1.180 resultados. Tras una evaluación independiente por parte de diferentes jueces, un total de 51 artículos cumplieron los criterios de inclusión, 27 de ellos cualitativos y 34 cuantitativos. El análisis de la literatura cualitativa y cuantitativa se presenta por separado, tanto en forma tabular como narrativa, lo que permite evaluar la cantidad, la naturaleza y el alcance de la literatura disponible, así como identificar las lagunas.

Palabras-clave: PISA; Equidad; Scoping review; SES; Revisión de la literatura

Introduction

Equity promotion has been and still is a fundamental challenge for educational systems around the world. Since its inception, OECD's Programme for International Student Assessment (PISA) has vowed to provide countries and policy makers comparable information and analyses about educational systems to inform their decision-making process (OCDE, 2018, 2019b), for instance on educational (socio-economic related) inequity (OCDE, 2010, 2013, 2016, 2019b). Indeed, PISA's reports systematically feature analyses and information on countries' equity levels, and offer advice on how to tackle this fundamental challenge (e.g., OCDE, 2010, 2013, 2016, 2018, 2019). In fact, educational socio-economic equity has been progressively gaining visibility throughout the PISA waves, ultimately becoming one of the main foci of OECD's analysis, including the publication of reports on the topic (OCDE, 2018, 2019a).

Nevertheless, PISA's impact (as that of other ILSAs) on the educational systems of the participating countries (and beyond) has been the subject of considerable controversy, with some cautioning against their possible (even likely) detrimental effects (Beltrán Llavador, 2017; Sjøberg, 2015). In fact, although the OECD and others often promote PISA as a benchmarking tool designed to help countries learn from the best performing countries (Schleicher, 2018), several authors have disputed this, to the point of accusing PISA of being key in advancing particular (neoliberal) political agendas, with negative consequences for countries' equity levels (Teodoro, 2020).

Therefore, to grasp the relationship between PISA and equity, we need to go beyond PISA reports and datasets and address the fact that the worldwide circulation of its results is mediated by processes of selection, reinterpretation, and re-contextualization by educational (and other) stakeholders that ultimately reconfigure the discourses circulating in the public and academic spheres (Carvalho et al., 2017; Carvalho & Costa, 2015; Pons, 2011; Steiner-Khamisi et al., 2018). There are now seven PISA rounds (the first in 2000 and the last in 2018). Despite the vast amount of research done with PISA datasets and on PISA's impact on educational systems, it is still unclear if PISA's implementation has resulted in the improvement of socio-economic related equity in participating countries. To shed light on this matter, we begin by identifying the size and scope of the available literature on the relationship between PISA and changes in countries' educational equity, specifically socio-economic equity. This review is twofold, including both (i) quantitative research aimed at gauging changes in equity indicators using PISA datasets, as well as (ii) qualitative research discussing how PISA has impacted educational equity¹.

Methodology

This paper presents a scoping review of the available literature focusing on the relation between PISA implementation and socio-economic educational equity change. Scoping reviews are particularly suitable to cover a body of literature that has not yet been comprehensively reviewed and/or if its nature is particularly heterogeneous, as well to identify gaps in the existing literature (Peters et al., 2015, 2020). Scoping reviews seek to identify the nature and extent of research evidence, providing a preliminary assessment of the size and scope of available research literature (Grant & Booth, 2009). Furthermore, scoping reviews share several characteristics of a full systematic review, namely the attempt to be systematic, transparent and replicable (Grant & Booth, 2009). In this review, the search and inclusion processes met the full criteria of a systematic review.

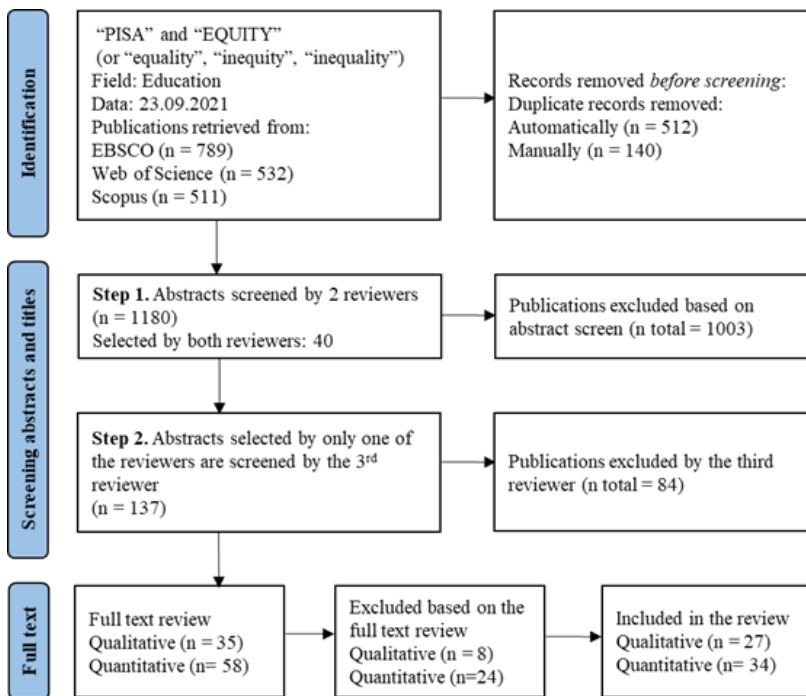
To assess the available literature, we followed a broad search strategy and applied a wide range of search terms to ensure no publications were undetected. Figure 1 summarizes the search and selection process. To search for the relevant literature we used the EBSCO, Web of Science and SCOPUS databases. We searched for articles that include the words “PISA” and “equity” (or its proxies: “equality”, “inequity”, and “inequality”) in their title, subjects, keywords, or abstracts; the field was limited to “education”. Data were retrieved on 23rd of September of 2021. As a result, 1832 articles were imported (789 from EBSCO, 532 from the Web of Science core collection, and 511 from SCOPUS), of which 641 were duplicates and removed (512 identified by automatic search and 140 deleted manually). Thus, 1180 articles were included in the following stage of the review, in which two experts reviewed the abstracts independently, according to the defined inclusion criteria.

Since we were simultaneously searching for gauging changes in equity levels through PISA data (i.e., quantitative literature), and for discourses on the relationship between the implementation of PISA and its impact on equity (i.e., qualitative literature), inclusion criteria were as follows. Quantitative studies needed to resort to PISA databases and analyse how educational economic-related equity has evolved over time. Specifically, they needed to provide at least one equity indicator and present its evolution using at least two PISA waves. Studies were excluded if they: resorted to data from only one PISA wave; presented data from two (or more) PISA waves but did not analyse the differences in equity regarding the different waves; focused on equity not from a socio-economic perspective but from other perspectives (e.g., achievement, gender, ethnic or immigrant minorities); equity measures were not derived from PISA data(sets) (e.g., a country’s income inequality indicator). In turn, qualitative studies needed to somehow relate PISA (implementation and/or data) and equity change through time. Only studies in English, Portuguese, Russian, Spanish, Italian or French were eligible

for revision. Our focus was on secondary research, that is, on studies that use PISA data. Thus, primary analysis of PISA, as published in official PISA reports and OECD documents, was out of our scope.

Thus, the 40 articles that received two approvals in the above mentioned first step were included in the full-text review stage. Next, the 137 articles that were deemed a match by only one of the two reviewers were handed to a third reviewer for a final decision. After a third round of revision, a total of 35 qualitative and 58 quantitative articles were assigned to the full-text review. Then, 8 qualitative and 24 quantitative were deleted because they were not focused on change in equity, or the full text wasn't available in English, Spanish, Portuguese, Russian, Italian or French. As a result, 27 qualitative and 34 quantitative articles were included in the literature scoping review. Qualitative and quantitative articles were analysed separately, both with the use of NVivo software.

Figure 1 The protocol of literature review search²



Scoping analysis of quantitative articles

The 34 studies included here focus on different aspects of economic inequity: equality of opportunity, equality of educational outcomes, segregation indexes and resiliency of students. For this scoping review, we focus on the country or set of countries where

the research was conducted, the indicators of equity and the methodology applied, the PISA waves used, and the main findings in relation to the improvement or non-improvement of equity. Table 1 presents an overview of the studies included, highlighting the country or set of countries analysed, the main equity indicators used, the PISA waves covered, and the language of the article.

Table 1 Overview of the included studies

Studies	PISA Waves							Countries Number	Indicator	Language
	2000	2003	2006	2009	2012	2015	2018			
Worldwide										
Schulz 2005	Y	Y	Y					17	Opp	En
Aydim 2010		Y	Y					10	Other	En
Luongo 2015		Y	Y	Y	Y			74	Opp	En
Agasisti 2016	Y	Y	Y	Y	Y			36	Res	En
Gutierrez 2017	Y	Y	Y	Y	Y	Y		35	Seg	En
Liberati 2017				Y	Y			60	Opp	En
Gromada 2019				Y		Y		37	Com	En
Coco 2020			Y	Y	Y	Y		34	Out	En
Agasisti 2021			Y	Y	Y	Y		18	Res	En
Europe										
Le Donne 2014	Y	Y	Y	Y				22	Opp	En
Le Donne 2014 ^a	Y	Y	Y	Y				Poland	Out	En
Anderson 2015		Y		Y				Germany	Opp	En
Oppedisano 2015	Y		Y					9	Out	En
Bodowski 2016	Y			Y				8	Com	En
Le Mener 2017		Y			Y			OECD	Opp	Fr
Lenkeit 2017	Y	Y	Y	Y	Y			4	Opp	En
Sawinski 2017	Y	Y	Y	Y	Y			Poland	Com	En
Murillo 2018	Y	Y	Y	Y	Y	Y		Spain	Seg	En
Anderson 2020		Y		Y				Germany	Out	En
Matinez 2020	Y	Y	Y	Y	Y	Y		The UK	Seg	En
Sulis 2020			Y	Y	Y	Y		15	Opp	En
Agasisti 2021 ^a			Y			Y		EU-26 area	Other	En
Latin America										
Formichella 2014	Y			Y				6	Out	Sp
Kruger 2014	Y			Y				Argentina	Seg	Sp
Serio 2017		Y	Y	Y	Y			Argentina	Opp	Sp
Murillo 2018 ^a								10	Seg	Sp
Kruger 2019	Y	Y	Y	Y	Y	Y		9	Seg	Sp
Formichella 2020	Y	Y	Y	Y	Y	Y		10	Out	Sp
North America										
Hanushek 2020	Y	Y	Y	Y	Y	Y		The USA	Opp	En
Haec 2021	Y	Y	Y	Y	Y	Y	Y	Canada	Com	En
Asia										
Ho 2010	Y	Y	Y					Hong Kong	Opp	En
Knipprath 2010	Y	Y	Y					Japan	Opp	En
Hu 2019				Y	Y			Shanghai	Seg	En
Zhou 2020				Y	Y	Y	Y	Hong Kong	Opp	En

Indicator: Opp – Equality of Opportunity, Out – Equality of Outcome, Res – Resilience,

Seg – Segregation, Com – Combination of the above

Language: En – English, Sp – Spanish, Fr – French

First, it is important to highlight that most publications refer to European countries or use a worldwide panel of different countries. Out of the 34 articles, 13 articles focus on European countries, 9 analyse countries from more than one continent, 6 focus on South America (all are in Spanish), 4 focus on Asian countries and 2 on North America (Canada and the U.S.A.). This surprisingly small number of publications in North America is noteworthy. Countries from Africa and Asia are under-represented in this sample and appear mostly in worldwide comparisons.

PISA's equity measures

The reviewed literature uses an array of different indicators to assess educational (socio-economic related) equity and inequality. There is a contradistinction between inequality of outcomes and inequality of opportunities (Gamboa & Waltenberg, 2012; Gromada et al., 2019; Liberati et al., 2017). The first refers to an overall level of inequality, such as the difference between the top and the bottom performers, or a difference in resources. Several indicators are used to measure these differences, namely performance gaps between the top and bottom percentiles in the score distribution (Gromada et al., 2019; Haeck & Lefebvre, 2021; Le Donne, 2014b), variations in the Gini education index (Anderson et al., 2015, 2020; Coco et al., 2020; Gromada et al., 2019; Sawiński, 2017), or simply a standard deviation of countries' PISA scores (Gromada et al., 2019). On the other hand, inequality of opportunity distinguishes between individual circumstances and personal effort. In a perfect situation, educational outcomes should depend completely on personal effort and bear no connection with circumstances or background features. Such rationale is used by several studies to explore the role of economic, social, and cultural status (ESCS) in students' outcomes. The most common approach suggests a simple linear regression of students' scores onto a variable measuring ESCS. The slope coefficient in this regression is called socio-economic gradient (Agasisti, Avvisati, et al., 2021; Haeck & Lefebvre, 2021; Ho, 2010) and is used to show the intensity of the relationship between the students' ESCS background and their educational result: a smaller coefficient means a weaker connection (Knipprath, 2010; Schulz, 2005; Sulis et al., 2020). Also, the R-squared coefficient of this regression is used to calculate the share of variance in achievement explained by the ESCS (Gromada et al., 2019). Sometimes, other measures of background features are used as independent variables in the regression, such as cultural capital (Bodovski et al., 2017), parental education (Sawiński, 2017) or different combinations of available characteristics (Contini & Cugnata, 2020; Hu & Wang, 2019; Liberati et al., 2017; Schulz, 2005).

The literature presents yet other indicators of equity, such as the resilience of students and segregation. Resilience means the ability of disadvantaged students to overcome their ESCS limitations and perform significantly better than expected (Agasisti et al., 2017; Agasisti, Avvisati, et al., 2021). Segregation indexes capture the degree

of inequality that exists in society and the degree to which students from the same background are clustered together (Gutiérrez et al., 2020; Hu & Wang, 2019; Martínez-Garrido et al., 2020; Murillo et al., 2018; Murillo & Martínez-Garrido, 2018). Differences in family resources are measured by various indicators, namely the Dissimilarity index (Gutiérrez et al., 2020; Martínez-Garrido et al., 2020; Murillo et al., 2018; Murillo & Martínez-Garrido, 2018), the Square Root Index (Gutiérrez et al., 2020), intraclass correlation coefficient (ISS), the F-statistic (Hu & Wang, 2019), Gorard Segregation Index (Martínez-Garrido et al., 2020; Murillo & Martínez-Garrido, 2018), and several synthesis indexes (Krüger, 2014, 2019). After establishing a degree of segregation, these studies often focus on comparing the educational outcomes of different groups.

Change in equity over the last 20 years as captured by PISA

One of the main goals of this review was to scope the quantitative studies that analyse PISA data for changes in countries' equity levels. The appraisal of the covered time frames, methodologies, and indicators of the studies revealed a great deal of heterogeneity, rendering any direct comparison of results across studies highly complex and beyond the scope of this review. We now describe the main findings and try to summarize the results in terms of the methodological approaches, countries, and PISA waves.

Regarding Latin America, Serio (2017) reports that Argentina's high inequality of opportunity of educational performance has remained stable through the 2003-2012 PISA waves. Murillo and colleagues (2018), studying 10 Latin American Countries, conclude that segregation seems to have a downward trend, though subtle in comparison with the high overall rates of existing segregation. Kruger's study (2014) also addresses socioeconomic segregation in Argentina, using data from PISA 2000 and 2009. The author concludes that, despite the positive trend at the global level, inter-sectorial segregation has increased, as well as within the independent-private sector. In a subsequent paper, Kruger (2019) explores the evolution of segregation in 9 Latin-American countries, from 2000 to 2015. Results indicate an overall reduction of the segregation levels during the last years, despite some heterogeneity between the studied countries. Formicella's (2014) paper presents an indicator to quantify internal educational equity, called the "Basic Educational Inequity Index", focusing on outcome equality. By applying this indicator to PISA 2000-2009 data for 6 Latin-American countries, the analysis yields a positive trend for all countries except Argentina. In a recent study using the same index, but expanding the countries covered to 10 as well as the time span (PISA 2000-2015), Formicella (2020) reports a reduction in educational inequality in most countries, though also noting that the level of educational inequality has remained high and country rankings unchanged.

For North America, we found two studies tracking the changes in equity over the whole course of PISA. The study of inequality of opportunity in the USA concludes that

the gap in achievement between children from high- and low-SES backgrounds has not changed from 2000 to 2015 (Hanushek et al., 2020). The study from Canada confirms that the gap remains relatively stable over time (2000-2018), but there are positive improvements in some provinces of the country (Haeck & Lefebvre, 2021).

Europe provides the biggest number of studies, but they are difficult to classify due to their diversity. Two studies explore equality of opportunity based on PISA scores in several European countries: one, which analyses a set of 22 countries, suggests that the data do not show any substantial improvement in equity in 2000-2009 (Le Donne, 2014a); the other, which analyses 4 European countries, reports some positive improvements (Lenkeit et al., 2018). Two other studies found some positive changes from 2003 to 2009 in Germany (Anderson et al., 2015) and from 2006 to 2015 in 15 EU countries (Sulis et al., 2020). Another two studies on the effect of an educational reform in Poland present contradictory results: one (2000-2009) finds a positive impact on equity (Le Donne, 2014b), while the other concludes that there is no improvement between 2000-2012 (Sawiński, 2017). Equality of opportunity is also addressed in two other studies which find positive results, from 2003 to 2009, in Germany (Anderson et al., 2020) and from 2000 to 2006 in Germany, Spain and Sweden (Oppedisano & Turati, 2015). Le Mener (2017) studied France's evolution between 2003 and 2012 to conclude that inequality levels have increased. In the case of segregation, a UK study shows a positive trend from 2000 to 2015 (Martínez-Garrido et al., 2020), while a study in Spain demonstrates that segregation decreased slightly from 2000 to 2012, but then increased strongly until 2015, probably due to the economic crisis in the region (Murillo & Martínez-Garrido, 2018). The study of post-socialist Eastern European countries reports no improvement in equity from 2000 to 2009 (Bodovski et al., 2017).

Finally, comparisons between countries located in different continents often report similar results, as they reveal improvements in some parts of the world and negative trends in others. The format of this paper does not allow going deeper into the details of each country, so we will briefly summarize the cases. The studies of equality of opportunities report positive results in countries such as Austria, the Czech Republic and Luxembourg in 2000-2003 (Schulz, 2005), Mexico, Great Britain, and Ireland in 2003-2012 (Luongo, 2015), but inconclusive results in the analysis of 60 different countries between the 2009-2012 waves, which shows that the effect of the ESCS on student performances remains strong and with high heterogeneity among countries (Liberati et al., 2017). Some studies report a mix of positive and negative trends in the countries. From 2006 to 2015, a strong decrease in segregation is found for Finland, Korea, and Ireland, while Turkey, the Slovak Republic, and Mexico increased their segregation levels (Coco et al., 2020). However, another study on segregation shows no major improvement over the 6 waves of PISA from 2000 to 2015 in OECD countries (Gutiérrez et al., 2020). Moreover, the study of Gromada and colleagues compared

different indicators of equality and revealed contradictory results: in Norway and Australia, equality of outcomes and equality of opportunities moved in different directions, and different patterns appeared in Korea, France, and Ireland from 2009 to 2015 (Gromada et al., 2019). Lastly, studies focusing on resilience reveal that there are positive improvements from 2000 to 2012 in low income countries (which have increased the share of public expenditure) (Agasisti et al., 2017) and from 2006 to 2015 in 23 of the 56 countries analysed (Agasisti, Avvisati, et al., 2021).

Qualitative literature scope analysis

The analysis of the 27 qualitative publications resulted in their organisation into four broad categories and subcategories, as presented in Table 2.

Table 2 *Scope of publications*

Category	Subcategory	Total
1. Use of PISA data when discussing countries' equity levels and education systems		7
2. PISA as a policy instrument	2.1 That impacts equity positively	a) in general/theoretically 2
		b) showcasing a specific country 3
	2.2 That impacts equity negatively	a) in general/theoretically 5
		b) showcasing a specific country 3
3. PISA as a battlefield for "local" policy making		3
4. Analysis of PISA (and OECD) narratives/reports		4

Use of PISA data when discussing countries' equity levels and education systems

The publications categorized as "Use of PISA data when discussing countries' equity levels and education systems" use PISA data when discussing a country's educational system and/or its equity policies. It is important to notice that, in this category, PISA data is frequently used *ad hoc* rather than systematically. In fact, equity is hardly the main topic of these publications. Rather, PISA data is used as a justification to select a specific country for in depth study, such as a country that has been shown to be equitable or amongst the most equitable in the world, or during the analysis of a given country's educational system.

Three of the seven studies included in this category explore the specificities of Finland's education system, given its consistently high levels of achievement and equity in PISA rankings (Burg, 2018; Laukkanen, 2021; Rinne & Jarvinen, 2010). Rinne & Jarvinen (2010) specifically address Finland's academic and career paths of young people and discuss the possibilities of inequality for this population.

Inversely, Blossing & Söderström (2014) discuss the detrimental impact of neoliberal models on Sweden's education policies in general and on equity in particular. They use Sweden's PISA data from 2005 and 2009 to support the argument that the country lost positions among the most equitable in the world. Similarly, two other studies use PISA data on Germany (Jentsch & Reiter, 2018) and Uruguay's (Peri et. al., 2016) strong relationship between social background and achievement (i.e., low equity) to analyse each country's education system, the first focusing on tracking and the latter on comparisons with other Latin American countries.

Finally, Duru-Bellat's study (2012) used PISA data while reflecting on the characteristics of equity in some of the world's most affluent countries, where access to compulsory education is universal, to demonstrate that a high degree of equality in student performance within countries can be achieved without lowering the overall level of achievement.

PISA as a policy instrument

The category "PISA as a policy instrument" includes publications that argue that PISA's implementation has had, *per se*, consequences for equity levels. Nevertheless, this literature seems to be polarised, with some making the case for a positive impact and others for a detrimental effect. In both cases (subcategories 2.1 and 2.2), there is literature making broad theoretical arguments, as well as literature discussing the matter by focusing on a specific country.

Two studies make a broad defence of PISA as an instrument that can favour equity (subcategory 2.1.a). Andreas Schleicher (2017) — OECD's Director for Education and Skills, and Special Advisor on Education Policy — argues that PISA can have a positive impact on equity, while pointing out some countries that have increased their equity levels and can serve as examples of good practices. Likewise, McGaw (2008) suggests that PISA data presents a good picture of the current situation in the countries, an essential one to acknowledge weaknesses and act against inequalities.

Within the same category (2.1), but with a particular focus on specific countries (b), three studies suggest that PISA's implementation has resulted in more equity. Camphuijsen et al. (2021) argue that Norway developed a test-based accountability system to ensure equity and high-quality standards in a decentralized education environment. Also pointing to improved equity, Kapuza et al. (2017) state that changes emerging from external assessments have had a positive impact in Russia, resulting in better achievement

for students with lower cultural capital. In another study focused on Russia, Orkodashvili (2010) argues that standardized tests avoid corruption, and PISA can be an effective tool to expand equal access in education and contribute to social cohesion.

In the opposite direction, several papers make a direct critique of PISA, stating that its implementation can generate inequity and inequalities (category 2.2).

Five articles speak against PISA's influence on equity, putting forward different arguments: (i) that, as an accountability instrument, it takes the focus of schools away from social justice (Llavador, 2016); (ii) that comparisons based on a universal and standardized benchmark have negative consequences for curricula and deviate schools from the purposes of reducing inequalities (Cefai et al., 2014; Popkewitz et al., 2018) and; (iii) that it leads to a mercantilization of education, which is harmful to equity (Sanz Ponce et al., 2020; Torres-Santomé, 2019).

Furthermore, three papers argue that PISA's implementation has had a detrimental impact on a specific country's equity levels (category 2.2.b). This is the case of Urabe et al. (2013) analysis of Japan and Aydarova (2021) of Russia, with the latter making the case that international tests such as PISA, which focus on competency-oriented education, often lead to educational inequalities.

PISA as a battlefield for "local" policy making

The publications in the category "PISA as a battlefield for 'local' policy making" discuss how different and sometimes divergent narratives build on PISA data and reports. For instance, Feniger (2020) discusses how Israeli policy makers make use of — or, in this particular case, do not make use of — data from PISA. He uses PISA data to show that inequalities in achievement between Jewish and Arab students have always been present in PISA reports, but that this has been pushed off the country's policy agenda. In the same vein, the study by Clycq et al. (2015) in Flanders shows how PISA is used differently by opposing sides of the debate about restructuring secondary education: as the region scores well on PISA, a group believes no changes in the education system are necessary or desirable as they might compromise the region's position; alternatively, those who advocate for restructuring the education system use equity data from PISA to justify their stance.

Anagnostopoulos et al. (2016) examined the different discourses used by policy makers and educators to justify or criticize the prominent policies of TBA (test-based accountability), PISA and teachers' evaluation in the United States, and show that these different actors have contrasting views on PISA, equity, and quality in education.

Analysis of PISA (and OECD) narratives/reports

Other studies analyse OECD's publications as narratives given that their own conceptions and educational purposes, equity included, are explicit in the documents.

These types of publications were allocated to the category “Analysis of narratives influenced by OECD and PISA publications”.

Seitzer et al. (2021) conducted an original study that analysed (through machine learning algorithms) the evolution of words and expressions used in education-related OECD publications (including PISA) since the 1960s, observing changes on how the term equity has been progressively gaining prominence in them. In the same line, Lingard et al. (2014) have also pointed to changes in OECD’s (including PISA’s) narratives regarding social justice and equity, a trend that Australian education policies have been following.

Also focusing on OECD publications, Ozga & A. Arnott (2019) explored the narratives emerging from OECD’s Governance of Complex Education Systems (GSEC) reports, which seek to combine the identification of best practices in educational systems organization with specific examples of equity and quality. The authors conclude that OECD’s messages and recommendations on equity improvement are based on general descriptions about showcased examples of good performers, which often result in complex, muddy and hard to follow policy guidelines. Lastly, Sünker (2004) addresses the lack of a clear opposition in PISA’s 2000 reports on Germany regarding the level-oriented education system, given the strong evidence of segregation and inequalities among students.

Conclusions

This scoping review aimed at characterising the size and scope of the available scientific literature, potentially identifying gaps and areas in need of additional research regarding the relationship between OECD’s PISA implementation and change in participating countries’ educational socio-economic equity. PISA has been around for 2 decades, and equity improvement is one of its stated goals.

A total of 51 articles met the criteria for inclusion, 27 of which qualitative and 34 quantitative. The analysis of the 27 qualitative studies has shown a significantly heterogeneous field. Specifically, some articles make use of PISA’s equity data mostly very loosely and unsystematically. It’s perhaps noteworthy that, by doing so, this literature is, at least implicitly, acknowledging the value of PISA (equity) data as an indicator of a country’s educational equity. Another set of studies addresses the question underlying the current review — i.e., has PISA implementation fostered equity? — from opposing perspectives. In both fields, some studies are more theoretical while others ground their arguments in discussing specific countries. Yet another set of articles showcases instances where PISA is used by “local” actors (policy makers, academics, politicians) according to their own agendas and interests, which may speak to PISA’s inherent ambiguity as a policy making tool. Lastly, others analyse shifts in OECD’s narratives and buzzwords, showing that equity has gained visibility and importance over the last

decades. The main conclusion from the analysis of the qualitative literature available is the lack of studies that specifically and thoroughly address the question at hand. To be sure, the selected literature's main focus is hardly on PISA and educational equity change, which speaks to the need of more systematic work regarding this important issue.

The analysis of the 34 quantitative studies has also yielded a significantly heterogeneous field. Heterogeneity was found regarding coverage of countries, measures used, scope of time (i.e., PISA waves), and lastly, results. Specifically, geographical asymmetries were evident, with some countries and/or regions clearly more studied than others. Few studies were found to cover a wide range of countries and/or presented data on the totality of OECD countries. No study was found that directly tried to answer this review main question. Regarding measures, it is important to notice that studies differ strikingly on methodological issues, namely on the main equity measures used. The issue of measurement is necessarily intertwined with observed results. Results and conclusions differed greatly across studies and clear trends were not detected. To be sure, the available literature, while already providing a considerable amount of information, does not allow any conclusion about whether countries that participate in PISA have been able to curb socioeconomic inequity. Therefore, two major caveats were detected in the literature that need to be addressed by future work. First, meta-analyses or systematic revisions of the existing literature by measure used would be of great value and might provide good insights. Second, direct analysis of PISA data that covers a broad range of countries and provides aggregate measures of equity change for PISA participating countries, using all available PISA waves, is, albeit extremely challenging, a much-needed endeavour.

One conclusion seems granted from this scoping review. More than two decades after the first PISA round, its impact on countries' socioeconomic equity seems controversial and open to question, both theoretically and empirically, as well as understudied. Hence, literature that directly tackles this issue is greatly needed.

Notes

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² The figure adapted from PRISMA (Page et al., 2021).

References

- Beltrán Llavador, J. (2017). Schools without measurements: towards a pedagogy of recognition. *Revista Lusófona de Educação*, 38, 23–41. <https://doi.org/10.24140/issn.1645-7250.rle38.02>
- Carvalho, L. M., & Costa, E. (2015). Seeing education with one's own eyes and through PISA lenses: considerations of the reception of PISA in European countries. *Discourse: Studies in the Cultural Politics of Education*, 36(5), 638–646. <https://doi.org/10.1080/01596306.2013.871449>

- Carvalho, L. M., Costa, E., & Gonçalves, C. (2017). Fifteen years looking at the mirror: On the presence of PISA in education policy processes (Portugal, 2000-2016). *European Journal of Education, 52*(2), 154–166. <https://doi.org/10.1111/ejed.12210>
- Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal, 26*(2), 91–108. <https://doi.org/10.1111/j.1471-1842.2009.00848.x>
- OCDE. (2010). *PISA 2009 Results: Overcoming Social Background*. OECD. <https://doi.org/10.1787/9789264091504-en>
- OCDE. (2013). *PISA 2012 Results: Excellence through Equity (Volume II)*. OECD. <https://doi.org/10.1787/9789264201132-en>
- OCDE. (2016). *PISA 2015 Results (Volume I): Excellence and Equity in Education*. OECD. <https://doi.org/10.1787/9789264266490-en>
- OCDE. (2018). *Equity in Education: Breaking Down Barriers to Social Mobility*. OECD. <https://doi.org/10.1787/9789264073234-en>
- OCDE. (2019a). *Balancing School Choice and Equity: An International Perspective Based on Pisa*. OECD. <https://doi.org/10.1787/2592c974-en>
- OCDE. (2019b). How PISA examines equity in education: Inclusion and fairness. In *PISA 2018 Results (Volume II)*. OECD. <https://doi.org/10.1787/b5fd1b8f-en>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ, n71*. <https://doi.org/10.1136/bmj.n71>
- Peters, M. D. J., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *International Journal of Evidence-Based Healthcare, 13*(3), 141–146. <https://doi.org/10.1097/XEB.0000000000000050>
- Peters, M. D. J., Marnie, C., Tricco, A. C., Pollock, D., Munn, Z., Alexander, L., McInerney, P., Godfrey, C. M., & Khalil, H. (2020). Updated methodological guidance for the conduct of scoping reviews. *JBI Evidence Synthesis, 18*(10), 2119–2126. <https://doi.org/10.11124/JBIES-20-00167>
- Pons, X. (2011). What Do We Really Learn from PISA? The Sociology of its Reception in Three European Countries (2001-2008)1. *European Journal of Education, 46*(4), 540–548. <https://doi.org/10.1111/j.1465-3435.2011.01499.x>
- Schleicher, A. (2018). *World Class: How to Build a 21st-Century School System*. OECD. <https://doi.org/10.1787/9789264300002-en>
- Sjøberg, S. (2015). PISA and Global Educational Governance – A Critique of the Project, its Uses and Implications. *EURASIA Journal of Mathematics, Science and Technology Education, 11*(1). <https://doi.org/10.12973/eurasia.2015.1310a>
- Steiner-Khamsi, G., Appleton, M., & Vellani, S. (2018). Understanding business interests in international large-scale student assessments: a media analysis of The Economist, Financial Times , and Wall

Street Journal. *Oxford Review of Education*, 44(2), 190–203. <https://doi.org/10.1080/03054985.2017.1379383>

Teodoro, A. (2020). Contesting the Global Development of Sustainable and Inclusive Education. Education Reform and the Challenges of Neoliberal Globalization. *Revista Lusófona de Educação*, 49, 231–240. <https://doi.org/10.24140/issn.1645-7250.rle49.15>

Gil Nata

FPCEUP

Centre for Research and Intervention in Education, University of Porto

E-mail: gilnata@fpce.up.pt

ORCID: 0000-0002-4489-2384

Ekaterina Enchikova

FPCEUP

Centre for Research and Intervention in Education, University of Porto

E-mail: ekaterina@fpce.up.pt

ORCID:0000-0002-3919-2447

Cibelle Toledo

FPCEUP

Centre for Research and Intervention in Education, University of Porto

E-mail: cibelletoledo@gmail.com

ORCID: 0000-0002-8399-5802

Tiago Neves

FPCEUP

Centre for Research and Intervention in Education, University of Porto

E-mail: tiago@fpce.up.pt

ORCID:0000-0002-4309-5906

Correspondência

Gil Nata

Faculdade de Psicologia e Ciências da Educação da Universidade do Porto

Rua Alfredo Allen, 4200-135 Porto, Portugal

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