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THE PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT (PISA): A SCIENTIFIC (COUNTER)MODEL FOR RESEARCH IN COMPARATIVE EDUCATION?

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ABSTRACT:

Since the launch of PISA in 2000, the success of this OECD-led evaluation has been particularly remarkable. In fact, PISA does not shy away from introducing itself in its reports as a leading reference in comparative education. This chapter analyses precisely the issues raised by the adoption of the PISA methodology as research model in comparative education. Three major issues will be analysed to describe how the PISA publications stray from the common scientific norms: from the perspective of taking into account the critical studies that has been carried out on PISA; from the perspective of the shift from analyzing *relationships* between variables and results to *causal links*; from the perspective of a more or less implicit reference to a globalising or even neoliberal political understanding. Through a critical analysis of these issues raised by PISA, this chapter will highlight the importance of reflexivity in comparative education to support other approaches to education and research in the face of a dominant discourse on a worldwide scale.

KEYWORDS:

1. PISA

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2. large-scale assessments
3. comparative education
4. educational policies
5. critical analysis

Introduction

The development of major international surveys on school systems, which has been ongoing since the post-Second World War period, is an important milestone in comparative education research (Broadfoot, 2000; Malet, 2013). In addition to shaping education discourses and policies, the results of these large-scale assessments are profusely cited in the research and analyses of school systems (Volante & Fazio, 2018). Moreover, several comparative education studies use the data from these surveys for secondary analyses, or to renew certain theoretical or methodological orientations in this field of research (Olsen & Lie, 2006).

Within the scope of the global development of international assessments in education, the Programme for International Student Assessment (PISA), promoted by the Organisation for Economic Co-operation and Development (OECD), has been particularly successful (Meyer & Benavot, 2013). This success is manifested by the relevance of the scientific references to the results and the analyses that the Programme has disseminated since its first edition in 2000.

Thus, in the field of comparative education, a number of studies (e.g. Li et al., 2025; Zheng et al., 2022) have used PISA data to analyse certain specificities of the school systems or to study the impacts, deemed beneficial, of the Programme on public policies. More recently, studies have been conducted that analysed two decades of PISA data to compare the decrease in educational inequalities from a social (Doyle, 2021), gender-related (e.g. Campbell et al., 2021), ethnic and migratory perspective (e.g. Volante et al., 2021), or to examine the promotion of students' wellbeing (Elliott et al., 2018) as well as particular pedagogic practices (Roungos et al., 2020).

Conversely, a smaller number of critical studies (Hopfenbeck et al., 2018) has analysed the role of PISA in the development of a globalised approach to education policies by international organisations, particularly through the governance by numbers of public action (e.g. Lopo et al., 2024; Teodoro, 2020; Wiseman & Waluyo, 2017). Other critical studies have showed that PISA's success has been called into question as a result of significant theoretical and methodological flaws which limit their comparative value (e.g. Bart, 2024; Rochex, 2006).

In this critical tradition of comparative education, we can highlight the importance of the studies on the cultural and sociolinguistic factors that contribute to the construction of PISA (Bonnet, 2002; Nardi, 2008) or to the dissemination and reception of its results (Waldow et al., 2014; Wiseman, 2013). In addition to the political dominance of the major economic powers, which is reinforced by a programme like PISA for development (Addey, 2024), recent studies have demonstrated the Western and Anglo-American ethnocentricity of the premisses and the implementation of PISA, as well as of the approach of education and research conveyed by the Programme (Komatsu & Rappleye, 2017b; Takayama, 2018).

Indeed, not only has PISA been thoroughly examined and explored by researchers in the field of comparative education, but PISA does not hesitate to describe itself as "one of the largest and most comprehensive *comparative education studies* in the world" (OECD, 2024, back cover; emphasis added).

Although PISA also highlights its relevance for public policies, its publications present the Programme as an important scientific actor for the issues related to comparison in education. Since its first edition, in 2000, PISA publications have underscored the scientific nature of its design and the robustness of its assessment. For instance, the foreword of PISA's first assessment framework (OECD, 1999, p. 3) stated that the Programme "is, above all, a collaborative effort, bringing together scientific expertise from the participating countries" and that "experts (...) serve on working groups that are charged with linking the PISA policy objectives with the best available substantive and technical expertise in the field of internationally comparative assessment". These procedures would enable it to claim, namely, that "the PISA assessment instruments are internationally valid (...) have strong measurement properties, and place an emphasis on authenticity and educational validity" (OECD, 1999, p. 3).

Generally speaking, PISA's texts present the Programme as a supplier of assessments, instruments and data that are particularly valid and relevant for researchers (and decision-makers). Moreover, the reports produced by PISA position the Programme as a world reference in education research and in the very comparative scientific debate. Each PISA edition gives rise to the publication and dissemination of several documents: an assessment and analytical framework, comprising the detailed identification of the scientific collaborators, of the theoretical frameworks and methodological foundations; a technical report describing the operations of designing, administering and processing the questionnaires and also several volumes of results, profusely illustrated by tables and graphs, etc. (e.g. OECD, 2023b). All these elements are also presented in conferences and symposia with the participation of international researchers and experts. In the foreword of a recent report, the Programme can thus claim that "over the past two decades, PISA has become the world's premier yardstick for comparing quality, equity and efficiency in learning outcomes across countries" (OECD, 2023b, p. 5).

The discourse promoted by PISA therefore maintains that this international assessment is a major scientific reference. And it is in light of this assertion that this chapter aims to critically question PISA guidelines as a model for research in comparative education. Based on critical analyses by researchers in comparative education and related fields that we begin to discuss in this introduction, this chapter will describe three major problems that PISA guidelines pose to comparative education.

In the first part, we will address how PISA texts differ from ordinary research texts, excluding all critical works which, for more than 20 years, have been highlighting the flaws and limitations of its methodology (Hopmann et al., 2007; Zhao, 2020). We will see especially that, despite the numerous scientific references that characterise PISA reports, it is very difficult to find clear explanations for their methodological choices *with regard* to other possible choices and *with regard* to the criticism that has been levelled at them. In the second part, we will describe how PISA reports and publications tend to depart from the usual forms of research discourse, moving in an *uncontrolled* manner from the analysis of the relationships between variables and results to causal links, with a view to establishing recommendations for public educational action (e.g. Valverde, 2014). In the third part, we will discuss a third major problem posed by PISA texts from a comparative point of view: the fact that PISA analyses are based more or less implicitly on a political orientation that is part of a globalising or even neoliberal vision (Trouvé, 2015). We will show that this orientation in PISA is based on the theory of human capital, in its updated form as the theory of knowledge capital. In the Programme, the educational purposes are thus significantly diminished or reframed as economic purposes and more generally through a positivist logic.

The goal of this chapter is not, therefore, to describe PISA's theoretical and methodological limitations as such, but rather to show how these limitations pose three major problems to a

Programme that presents itself, and is presented by analysts and experts, as a reference model for research in comparative education. Based on these analyses, we will identify possible directions for future critical research on PISA.

1. The limits of the scientific debate *in and with* PISA

As we started discussing in the introduction, PISA has been emphasising the scientific nature of its assessment since its first edition in 2000. To this end, the PISA reports, widely disseminated by the OECD, tend to be presented in accordance with the norms of scientific discourse, not only concerning its form (theoretical references, academic authors, methodological framework, tables and figures, etc.) and purpose (development of a conceptual and methodological approach; analysis of results; synchronic and diachronic comparisons; etc.), but also concerning the stated goal of creating a reference research programme in comparative education.

Still, this scientific basis claimed by PISA has come into question (Zhao, 2020), as regards, namely, its propensity to conform to the usual modalities of scientific *debate* (Bart, 2024). After 25 years in existence, it is indeed relevant to analyse how PISA discusses its theoretical and methodological options against other approaches or against the critical works published on it.

Since its inception in the late 1990s, PISA has insisted on the importance of its decision to use the concept of literacy as the basis for student assessment. This concept is well known in comparative research, since other international assessments already focus on literacy and, above all, because the major literacy programmes run by institutions like UNESCO were the object of numerous studies of comparative education (e.g., Evans, 2009; Matasci, 2016). However, since its first edition, PISA has chosen to use the phrase “reading literacy” (or “mathematical literacy”, “scientific literacy”) to highlight that its assessment also concerns complex high-level skills (OECD, 2019a, p. 28). Still, PISA reports do not mention that this approach to literacy/illiteracy, in the sense of minimum functional skills, from which the Programme aims to detach, has in fact been widely debated, namely in the fields of comparative or intercultural education (e.g., Wagner, 2011).

It is necessary to mention that it is on the contributions from psychology and the cognitive sciences that PISA bases its approach to reading and literacy (OECD, 1999, pp. 19-20; OECD, 2019a, pp. 28-29). But PISA does not explain the reasons for this choice from the diversity of available disciplines (linguistics, ethnology, education sciences, etc.) which have carried out studies on literacy.

Moreover, and more importantly, the PISA reports do not mention that the psycho-cognitive approaches to literacy that it chose to base its assessment on are the object of great controversy in those other disciplines. To cite only the period of the first PISA cycle, at the end of the 1990s several publications contested the decontextualisation and the individualisation of the cognitive notions of literacy, which masked the complexity and diversity of its sociocultural foundations (Street, 2001; Gee, 2001). These debates on literacy involved, in particular, the fields of comparative education (Mc Eneaney, 2003; Bartlett, 2003) and of international assessments (Street, 1997; Hamilton & Barton, 2000). These debates, crucial for the scientific dialogue and still ongoing, are not included in the reports published by PISA. Moreover, these reports do not mention similar criticism levelled by specialist such as Goody (2001) although he was called upon by the OECD itself within the scope of the pre-PISA reflections on literacy².

² Setting a theoretical orientation often contrary to Goody's, another internationally renowned researcher on literacy, Street (2013), also widely criticised PISA's approach. Naturally, his criticism is not cited in any of the PISA reports either.

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This neutralisation of the scientific debate may be explained by PISA's institutional framework, which aims to achieve a broad theoretical consensus among the participating countries (OECD, 2023a, p. 17). The PISA 2022 framework (OECD, 2023a, p. 21) indicates, for example, that several dozen experts were called upon to write and revise the domain of mathematical literacy. But the issue that arises is knowing to what extent this search for consensus is suitable for the discussion, essential from a scientific viewpoint, of what Lafontaine and Monseur (2012), involved in PISA, consider to be "shared evidences [of the] scientific paradigm" (p. 48; our translation).

These "shared evidences", which are rarely discussed in the reports published by PISA, also include the methodological options of the Programme. For instance, PISA decided to disseminate its assessment data broadly, with the purpose of "setting benchmarks for international comparison and monitoring trends over time" and building "a sustainable database that allows researchers worldwide to study basic as well as policy-oriented questions on education" (OECD, 2023a, p. 172). Conversely, PISA opted to keep "under embargo", the core part of the questionnaires administered to the students, to ensure the comparability of these tests throughout time or to prevent teaching to the test. However, several studies (e.g., Nardi, 2008; Sjøberg & Jenkins, 2020) have demonstrated that an exact analysis of international assessments should be based on the critical study of all the materials of the survey.

As with the critical studies mentioned above, the PISA reports make no reference to these methodological debates nor do they resume the critique of the questionnaires used by the Programme. However, this dialogue is an important component of the collective scientific dynamics, facilitating the identification of the advantages and limitations of methodological choices and the reflection on ways to improve them. Still, the absence of such scientific discussions from the PISA reports does not prevent the Programme from stating, as it did recently, that "stringent quality assurance mechanisms are applied in translation, sampling, and data collection. As a consequence, results from PISA have a high degree of validity and reliability" (OECD, 2023a, p. 13).

Not only does the scientific debate on PISA rarely appear *in* the PISA texts, but it also seems difficult to debate PISA *with* PISA. In addition to the reports published by the OECD, some publications by PISA experts responded to criticism from the scientific community. Lafontaine and Demeuse (2002), for example, reacted to a controversial text by Romainville (2002), while Adams (2003) reacted to a critical point of view by Prais (2003). However, it is questionable whether these texts, which are not mentioned in the PISA reports, are part of a regular scientific dialogue. In fact, Prais (2004, p. 569) describes the response given by Adams (2003) to his text as "caustic". The goal of these reactions signed by PISA experts seems to be oriented not so much to contribute to a debate of arguments *among peers* but, above all, to re-explain the methodological guidelines of the Programme to critical researchers, who are seen to be making errors of understanding. Indeed, while the lack of knowledge of certain characteristics of PISA can explain some unfounded criticism, it is, above all, the detailed analysis of these characteristics that fuels most of the controversies.

This very inability to debate PISA with PISA was materialised recently in the journal *Policy Futures in Education*. Its volume 12, issue 7, of 2014, published the reactions to the critical letter sent to Andreas Schleicher (responsible for PISA in the OECD) by Meyer and Zahedi (2014). This open letter specifically asked for PISA to be discussed, which Schleicher (2014) concurred with and replied to. Nevertheless, as shown by the reactions of Meyer (2014), Goldstein (2014) and Thrupp (2014), Schleicher's reply does not correspond to an ordinary scientific debate. It essentially consisted in denying the problems raised by the open letter, despite the fact that it was signed by dozens of international specialists, and in reaffirming PISA's goals and approach, which was precisely what was criticised in the letter...

In addition to these written “debates”, there are also descriptions of the difficulties faced by several researchers who tried to establish a direct dialogue, albeit with a controversial dimension, with the members of PISA (Hopmann & Brinek, 2007, pp. 13-15). And, when they manage to be organised, such discussions seem to lead to an impasse as well... even when they address the difficulty of engaging in debate in this Programme itself. Thus, in a 2019 podcast, PISA proposed what it called a “conversation” between Schleicher and two researchers critical of PISA: Y. Zhao and A. Benavot (OECD, 2019b). Benavot mostly insists on the limits of the debate *in* PISA, while Schleicher, for his part, tends to highlight the extent of the global debate possibilities *of* PISA... The numerous launches organised by PISA since December 2023 to disseminate the results of the 2022 edition are almost a caricature in this respect: in the videos made available on the OECD website it is hard to find a single critical contribution, even when one of the launches (June 2024) specifically concerns the innovation of the 2022 edition, namely the assessment of the students’ creative and *critical* thinking (OECD, 2023a)...

The narrowness of this conception of scientific debate requires, conversely, a collective, reflective and critical discussion about the place of PISA as a model for research in comparative education. It is in this sense that our contribution addresses, in the following section, a second major scientific problem raised by PISA: the fact that its reports tend to establish causal relationships based on the results of its assessment, when the scientific standards, which the PISA reports themselves reiterate, do not allow it.

2. PISA and causal inferences on what works: limits and interpretative recklessness

The literature regarding the limitations of large-scale international assessments is substantial (e.g., Auld & Morris, 2016; Carnoy, 2015; Carnoy et al., 2016; Elliott et al., 2018; Gillis et al., 2016; Rutkowski, 2016; Rutkowski et al., 2024). The limitations highlighted by these authors relate to the conviction that it is possible to use relatively large datasets, such as those generated by PISA, as well as sophisticated statistical techniques, to make generalisations and guide strategies aimed at improving the practices and performance of education systems, based on the identification of the underlying causes of ‘what works’, as PISA does. This conviction faces several obstacles given the nature of the data generated by this kind of survey.

The nature of PISA’s research design, which gathers cross-sectional (or stationary) data, although it allows correlations between variables to be analysed, limits its ability to establish causality. Causality cannot be directly inferred from a correlation, be it strong or less strong. Indeed, not only can there be cases of cause without direct correlation, but also among the well-known disadvantages of this type of surveys is, precisely, its inability to separate a presumed cause from its possible effect (e.g., Braun & Singer, 2019; Gustafsson & Nilsen, 2022; Rutkowski & Delanshere, 2016). Along the same lines, Rocher and Hastedt, respectively, Chair and Executive Director of the International Association for the Evaluation of Educational (IEA), acknowledge, in the identification of the important limitations to consider in understanding and reporting ILSA results, that “although some ILSAs such as (...) PISA report trends over time, they are not studies that follow individual students. This makes it challenging, if not unfeasible, to draw causal conclusions about student achievement and is a clear limit of the data with many policymakers seeking specific recommendation for change to help improve their educational system” (Rocher & Hastedt, 2020, p. 5).

Additionally, causal inference depends on several conditions, among which that the cause precede its effect in time, and not the opposite, and that the identification of a cause exclude other plausible explanations to ensure that the relation between cause and effect is direct and unequivocal. This last factor poses another relevant hurdle to making causal inferences in studies with the characteristics

of PISA, since education systems are inherently complex and heterogeneous. The cultural, economic, geographical and linguistic diversity that characterises them introduces “a multitude of confounding factors that can influence relationships within and across these systems, thereby rendering any claims highly context specific. Compounding this issue is the standardisation of assessments across diverse systems often strips away the unique contextual elements essential for isolating causal effects” (Rutkowski et al., 2024, p. 3).

Alongside Rutkowski et al., (2024), other authors (e.g., Elliott et al. 2018; Goldstein, 2004; Green, 2003) have underlined the limitations of quantitative surveys and standardisation, which end up comparing what is “essentially incomparable except at meaningless levels of abstraction” (Green, 2003, p. 93).

By contrast, these limitations refer to, as several studies have been stressing (e.g., Broadfoot, 2000. 2003; Crossley, 2009; Crossley & Watson, 2003; Cowen, 2023; Sobe, 2015; Steiner-Khamsi, 2009; Vulliamy, 2004) the importance of complexity and contextual factors – the nature, role and impact of context on the analysis of the education systems, and the theoretical and empirical understanding of how culture in all its physical, social, economic, political and temporal specificities is structured and shapes reality.

It must be noted that the need for caution in the use of PISA data, in view of the survey’s limitations with regard to isolating effects or causal conclusions, is explicitly noted in its reports (e.g., OECD, 2010b, 2010c, 2014, 2016) when it asserts that “while PISA cannot identify cause-and-effect relationships between policies/practices and student outcomes, it can show educators, policy makers and the interested public how education systems are similar and different” (OECD, 2016, p. 25)

However, PISA itself does not seem to take its own advice of interpretive prudence seriously; on the contrary: apparently unmindful of methodological rigor, it departs from the usual forms of research discourse, moving in an uncontrolled way from the analysis of relationships between variables and results to causal links, with a view to establishing recommendations for public educational action, as we will illustrate with one example, among others, that we can find in the PISA reports.

In the executive summary of PISA 2009, in the section on *Resources, policies and practices that make a school successful*, it can be read once again that “PISA does not measure cause and effect” (OECD, 2010a, p. 15). In an incursion into volume IV of the results dedicated to the same topic, however, we find, paradoxically, a causal link made between teachers’ salaries and class size: “In short, *many successful school systems* share some common features: low levels of student differentiation; high levels of school autonomy in formulating curricula and using assessments with low levels of school competition; and *spending in education that prioritises teachers’ salaries over smaller classes.*” (OECD, 2010b, p. 29, emphasis added). Nevertheless, in none of the volumes/reports on PISA 2009 is there any statistical evidence to support this causal relation that prioritising teachers’ salaries over smaller classes leads to a more successful education system. Wu (2014), acknowledging the difficulties of statistics alone in providing hard evidence and the question of the reliability and validity of PISA data, including in establishing this causal relationship in particular, also notes that:

It is unclear why the OECD report [2010b] directly links teacher salaries and class size and regards this as a trade-off choice made consciously by the countries. The countries with large class size and high teachers’ salaries³ (...) generally have high population density

³ In this instance, Brazil, Chile, Colombia, Hong Kong, Indonesia, Japan, Jordan, Korea, Macao, Mexico, Shanghai, Singapore, Taipei and Thailand.

(...). Further, the demands on resources (such as land, buildings and infrastructure) of highly populated countries may necessitate large schools and large classes, and it is not a matter of choice to have large class size for the single purpose of increasing teachers' salaries. (Wu, 2014, p. 7)

Other more recent studies (e.g., Ercikan et al., 2015; Fernandez-Cano, 2016) have continued to demonstrate how "PISA findings obtained and exposed (...) are badly interpreted as causal inferences *ad nauseam*" (Fernandez-Cano, 2016, p. 4). Indeed, this can be noted from the following example taken from the PISA 2022 edition reports, the results of which were made public on 5 December 2023. In each volume of the results of PISA 2022, there is a final section entitled *From data to insights*. In this section, included in volume 1 of the PISA 2022 results, one can read that the "results from PISA can indicate which type of policy, universal or targeted, is more likely to have a *strong impact* on a particular education system" (OECD, 2023b, p. 226; emphasis added). In the following pages (OECD, 2023b, pp. 227-235) *Ten actions related to resilience* are presented, among which, for example, "keeping schools open longer for more students" (OECD, 2023b, p. 227), "preparing students for autonomous learning" (OECD, 2023b, p. 228), or "combining school autonomy with quality-assurance mechanisms" (OECD, 2023b, p. 235). Are these statements prudent in view of the limitations of the research design of PISA itself, as we have been uncovering throughout this section?

In sum, despite its reliance on cross-sectional data, its own stated limitations, in particular on the impossibility of identifying clear cause-and-effect relationships, the PISA discourse endows its analyses with predictive and prescriptive value and derives educational policy recommendations from its findings, in what Valverde (2014) describes as a strategy in which data-inspired speculations about *what works* are upheld as evidence-based policy truths. As we demonstrated in the previous section, on the role of scientific debate *in* and *with* PISA, the use of this "speculative" strategy calls into question and jeopardizes the Programme's position as scientific reference for research in comparative education.

What's more, within PISA indicators and their interpretation, some educational purposes are reduced to economic issues (Breakspear, 2014), or, in Teodoro's (2022) words, are reframed by a positivist vision that flies in the face of the historical contributions of scientific research in the field of education and pedagogy, using the theory of human capital, updated as the theory of knowledge capital, in the affirmation of neoliberalism as *the* (hegemonic) response. We will explore this issue in the following pages, which constitute the third part of our chapter.

3. The Problem of an Economic and Positivist Approach to Education in PISA

From a historical perspective, while the importance of human capital theory was decisive in affirming the priority of education in the OECD's activities in the 1960s and 1970s (see Elfert, 2019), it was its updating under the name of *knowledge capital theory*, as proposed by Hanushek and Woessmann (2015a, 2015b), that allowed the OECD to renew its theoretical framework for carrying out its analyses and proposals, promoting a narrative that links the economic growth of countries and economies to the results of students' learning, as measured by large surveys, in which PISA plays a prominent role.

The rationale of the knowledge capital theory is straightforward (and appealing): the levels of cognitive development of a given country make it possible to know approximately the cognitive levels of the labour force of that country; and, in turn, it is the quality of that labour force which will determine the levels of economic growth. Then the question arises: how to operationalize the

knowledge of those cognitive levels of the labour force? Using an equally simple device: knowing the results obtained by the students of that country in PISA.

In fact, the “magic” of this argument does not simply lie in allowing an understanding of the past, finding a constant in the relationship between economic growth and knowledge capital, but, especially, in estimating projections for the future. This is done by Hanushek and Woessmann, for example, in a study about the “Asian miracle” (Hanushek & Woessmann, 2016), but also in a more focused study, on the economic benefits of improving educational achievement in the European Union (Hanushek & Woessmann, 2019). This latter study quantifies the economic benefits of educational improvement for each of the EU countries from an analysis centred on the relationship between educational achievement (as measured by PISA) and the long-run growth of nations.

Stromquist (2016) emphasizes that the knowledge capital theory, formulated as described, rests on two theoretical premises: the first, that the quality of knowledge is the main determinant of wealth creation; and the second, that a country’s economic output is determined primarily by internal/endogenous factors. The second premise combines the neoclassical theory and the endogenous growth theory. The former defends that economic growth is mainly determined by the intensive production of capital, which leads to higher productivity from workers; the latter upholds that national investments in human capital and innovation are the main factors in fostering economic growth. Even if the second premise, highly contested within economic theories, is accepted, more detail in the analysis of the first premise is required: the quality of knowledge is the main determinant of wealth creation, and it can be measured by the results of the PISA tests of a particular country or economy.

However, as Stromquist (2016) asks, what is education quality? For organisations such as the OECD, the answer seems to be limited to the acquisition of knowledge and skills needed for future workers (*better jobs*, in the OECD’s leitmotif). This is a very limited view, as many education comparativists have argued and as we have noted throughout this chapter. To Stromquist (2016, p. 67) education quality should be measured by its contribution “to produce and sustain a society that is both democratic and inclusive, one that promotes positive transformations in gender, race, and ethnic relations”. Thus, to defend that the knowledge quality of a particular generation of workers can be measured as in the PISA by reading, mathematics, and science tests applied to 15-year-olds corresponds to a major distortion of educational issues.

In relation to this narrowing of measures of quality in education, Komatsu and Rappleye (2017a; see also Rappleye & Komatsu, 2019), offer an even more radical critique of the way PISA results are linked to economic growth. The authors insist that their purpose is not to contend that education plays no role in economic growth or that the quality of learning has no bearing on economic success. What they aim to demonstrate is that setting learning goals centred on skills that generate economic gain can ultimately prove harmful to students’ learning. A possible result of this perverse effect, as pointed out by Komatsu and Rappleye (2017a), is to produce strategies for the political claims that aim to assume (and foster) PISA results as the prime indicators of the reality of education systems but which may turn out to be, after all, the cause of the decline and stagnation of the quality of students’ learning in many of those countries and economies.

Underlying this PISA narrative is a political orientation, the rationale of it Andreas Schleicher, the director of Education and Skills at the OECD, indeed the one who initiated and oversees PISA, presented in the book *World class: How to build a school system for the 21st century* (Schleicher, 2018). This work is important, not for advancing conceptual innovation, but for systematising and grounding the recent options taken by the OECD and PISA in the field of education. One central

assumption of this book is that “the gap between what education systems provide and what our societies demand is likely to widen further” (Schleicher, 2018, p. 203) and that “there is a risk that education becomes our next steel industry, and schools a relic of the past” (Schleicher, 2018, p. 223). Hence, the more common challenges “are not about designing reforms, but how reforms can be put into practice successfully” (Schleicher, 2018, p. 204).

Thus, Schleicher proposes that the approach to education matters become “not less of an art, but more of a science”, identifying scientific knowledge as its positivist paradigm, in the transformation of complex realities, such as educational realities, into simple things, that can be easily measured and ranked. As stated by Gorur (2016, p. 647), PISA has to do with “mathematically defensible assertions”, but she also adds “such findings may be ontologically absurd”. Yet, as we showed in Part 2 of this chapter, the interpretation of the assessment results by PISA, with a view to determining educational reforms, appears to fall short of acceptable statistical control standards. In the first part of this chapter, we also showed that PISA has distanced itself somewhat from the ordinary practices of scientific debate.

As we wrote elsewhere (e.g., Teodoro, 2020, 2022), the paradigm that underpins Schleicher’s book, the proposals of which have already been discussed, as well as many of the OECD’s and PISA’s documents, are inscribed in what we coined as *neoliberal cosmopolitanism*, an individualistic view of the world, and of the economic and cultural relations that human beings establish among one another, in search of better jobs and a better life. It is a world of free consumers who fight for better jobs, accumulating better skills at school and throughout life, in an isolated journey, in constant competition for survival in a hostile world threatened by unemployment. Such a paradigm, in which the school is evaluated from the perspective of a competition for the best skills, the best social positions or the best prizes, is therefore the opposite of the comparative approaches which have shown how education in the multiplicity of its forms is grounded in diverse social and cultural practices and can develop collective solidarities. Faced with this generic system of values and school assessment that PISA constructs, can we support the complexity of research focused on the study of educational practices in their *context* and aimed at developing cultural and social values shared by students, with a view to building societies guided by collective justice and a citizenship committed to the dignity of all?

Conclusion

It was the goal of this chapter to highlight the issues that arise when PISA is considered as the reference model for research in comparative education, at a time when PISA 2025 has already announced more than 90 participating countries. A quarter of a century after PISA’s first edition, what can we say about the scientific approach conveyed by this undeniably successful international assessment? To answer this question, we critically described the three main types of limitations of the scientific approach used in the PISA surveys. First, we highlighted the limits of the role given to scientific discussion among peers in this Programme. In particular, we emphasised the scarcity of debates in PISA with the numerous studies which evidenced its theoretical and methodological flaws. Next, we described how, contrarily to the recommendations of methodological prudence put forward in the PISA reports, these same reports overstep the defined framework of analysis, shifting from correlational analyses to cause-and-effect analyses. This uncontrolled discourse is then used to claim, with a certainty devoid of methodological basis, possibilities of public action aimed at school systems all over the world. In the third and last part, we analysed how the OECD and PISA, rooted in a knowledge capital theory marked by a globalising, neoliberal ideology, guide the Programme’s approaches and discourse. In addition, we showed that the positivist design of research in PISA tends to restrain the possibility, for those who defend a comprehensive comparativist view of

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education as a social and cultural driver, of questioning these ideological assumptions and their effects not only on PISA's theoretical and methodological choices, but also on the interpretations of the data and the recommendations of public action defined by the Programme.

However, in light of these three major limitations posed by PISA's scientific approach, it also seems possible to question research in comparative education, in order to underline and highlight the specific relevance and interest of its advances. Following Cowen's (2023) provocative question, "comparative education: and now?", the interrogation that arises is therefore how educational research can use the emancipatory potential of comparative education (Broadfoot, 2000; Teodoro, 2020) to challenge the dominance of a prevailing discourse, like the PISA discourse, about what is desirable and how it may be best achieved.

From this perspective, research that can be linked to the *Epistemologies of the Global South* or to post/decolonial studies offers promising avenues for the development of critical work in comparative education on the PISA (and international large-scale assessments). Indeed, these views (e.g. d'Agnese, 2015; Cobb & Couch, 2021; Hughson, 2022; Kaess, 2018) cast light, sometimes a radical light, on the narrowness of PISA's epistemic framework, and emphasise the need for plural and non-hierarchical approaches to societies, their cultures and languages, as well as their school systems and educational objectives. Still, the need for this broadening also extends to the critical scientific debate on PISA, which should be open to other points of view besides the Anglo-American and the European ones (Takayama, 2018).

This issue also concerns the design of research in comparative education itself. Indeed, PISA is not only a scientific instrument for educational governance; it builds education research as an instrument, in what Rochex (2008) calls the temptation to reduce research in international assessments to a function of expertise, at the expense of a critical stance and thinking, which is precisely what tends to be lacking in the PISA research discourse (see also Addey, 2024). For a long time, researchers in comparative education (Schriewer, 1989) have been stressing the tension that characterises their scientific field between the comparative *expertise* supported, in particular, by the large national and international organisations, and comparative *research*, with a critical dimension, carried out by the scientific communities (Malet, 2013).

But this view of research as expertise is even more problematic today, if we consider that the large international organisations can be conditioned in their activity by changes in national internal policies, in light of the rise of populist nationalism and far-right authoritarian movements currently faced by several regions and countries, some of which influential members of the OECD itself. In the face of these developments, can research cultivate a more coherent, reasonable, and potent democratic framework for peace and sustainability worldwide? What options do we have for educational policy research that can address these tensions, these seemingly intractable differences, and the resulting disengagement from democracy and life it entails? Does comparative research have a role to play?

As we see it, research in comparative education can continue and intensify its *critical* work. Moreover, it seems to us that, by devoting part of this critical work to exposing the flaws and limitations produced by this approach to specialisation in comparative education, of which PISA is a part, comparative research approaches can help to support the development of research counter-models. From a reflective perspective, this critical work contributes to improve the robustness of comparative approaches. Furthermore, this reflective perspective can also help to better state the relevance of the results of comparative research, not just for specialists, while assisting in the

construction of open discussion settings that allow for the problematisation and public reappropriation of education matters (Nóvoa, 2017).

The alternative, then, to the three major limitations of PISA's scientific approach that we have described is to provide a broad debate forum between the various comparative orientations in education, to promote epistemological vigilance in research work, and to foster the "denaturalisation" of the implicit through cross-discussion. Are these not in fact the very aims that a publication like the *Annual Review of Comparative and International Education* strives to achieve?

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