

PISA and its impact on educational policy in the last sixteen years

El PISA y su impacto en la política educativa en los últimos dieciséis años

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Abstract

The interest of countries and economies in being compared and evaluated using international rankings has grown over the past 16 years. Thus, the *Program for International Student Assessment* (PISA) has achieved enormous popularity, being considered the most important standardized test for assessing the skills of 15-year-old students. The aim of this paper is to determine the influence of PISA on education policy in different countries in the last 16 years. A systematic literature review was conducted between September and November 2015, using the EBSCO, ProQuest, and SSRN databases. Some 25 articles that met the inclusion criteria were collected and analyzed. *The Organization for Economic Cooperation and Development* (OECD) exerts a powerful influence through PISA, mediated by the periodic publication of working papers, policy analysis, and recommendations. The organization links educational success with the economic growth of a country, demonstrating its interest in using education as a tool to generate competitiveness and contribute to the economy. Nevertheless, many changes in global educational policy have been triggered by the release of PISA results. It has been used, for example, to support changes in education systems and for the identification of reference countries, among other things. There is no doubt that the influence of PISA will continue to grow, providing a basis for the creation of a new education policy with international influence.

Keywords: educational policy, PISA, education

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Resumen

En los últimos años, el interés de países y economías de ser comparados y evaluados a través de *rankings* internacionales ha sido creciente. Es por eso que el Programa para la Evaluación Internacional de Estudiantes (PISA, en su sigla en inglés) ha alcanzado una enorme popularidad y se considera actualmente la prueba estandarizada más importante para evaluar competencias de estudiantes de quince años. El objetivo de este documento es examinar la influencia del PISA en la política educativa de distintos países en los últimos dieciséis años. Para ello se realizó una revisión sistemática de literatura en las bases de datos EBSCO, ProQuest y SSRN entre septiembre y noviembre de 2015. Para el análisis se seleccionaron veinticinco artículos que cumplieran con los criterios de inclusión. La Organización para la Cooperación y el Desarrollo Económico (OCDE) ejerce, a través del PISA, una poderosa influencia, mediada por la publicación periódica de documentos de trabajo, recomendaciones y análisis políticos. La organización vincula el éxito educativo con el crecimiento económico de un país, lo que evidencia su interés por utilizar la educación como herramienta que genere competitividad y contribuya a la economía. Por esta razón los resultados del PISA gatillan cambios en la política educativa global al ser utilizados como respaldo de cambios en los sistemas educativos y sirven en la identificación de países de referencia, entre otros. Sin duda, la influencia del PISA seguirá en aumento, sentando las bases para la creación de políticas educacionales con influencia internacional.

Palabras clave: política educativa, PISA, educación

During the last 16 years the world has witnessed an increasing growth in the popularity of international standardized tests aimed at comparing the performance of students in various areas of knowledge. Of the comparative international achievement tests currently available, PISA (Programme for International Student Assessment) is certainly one of the most influential and, to a greater or lesser degree; its results have had an impact on the education sphere and public policy in the region.

The aim of this paper is to examine the influence of PISA on education policy in various countries over the last 16 years. The first section outlines general information on the test, its objectives, and a methodological approach. Then we will look at the role of the OECD in global education through PISA, as well as the growing interest of many countries in its implementation. And then we describe the main applications of the results obtained in the test and study its influence in restructuring education policy, and conclude with a discussion based on a critical analysis of the topic.

Methodology

A systematic literature review was conducted for this paper using the EBSCO, ProQuest, and SSRN databases between September and November 2015. To carry out the searches we used terms such as *education policy*, *PISA*, and *OECD*. Original research and bibliographic reviews in Spanish and English were the inclusion criteria for the selection of articles. Priority was given to literature published after 2000, when PISA was launched. Twenty-five texts that met the criteria were chosen for the analysis and common themes were identified in relation to the objective of the review, contrasting points where tension was evident.

The PISA Test

Since 2000, the OECD has conducted the PISA test in order to assess world education systems through measurement of the skills and knowledge of 15-year-old students in the areas of science, mathematics, and reading. Each time the test is applied a cyclical emphasis is placed on one of these areas in particular (reading in 2000, mathematics in 2003, and science in 2006), with a new cycle beginning in 2009, 2012, and 2015. It should be noted that since 2003 PISA has also looked at problem-solving skills as an optional area, to which financial literacy was added in 2012.

Initially, the PISA test only included countries belonging to the OECD, but the great popularity it has achieved due to its recognition as a global standard has meant that more and more countries and economies have agreed to be assessed in this way. In 2012, around 510,000 students from 65 countries and economies participated in PISA, which represented approximately 28 million 15-year-old students worldwide, according to OECD data. The test is applied to random samples of 15-year-old students who are assessed on skills, knowledge, and comprehension of contexts, concepts, and situations in the areas of science, reading, and mathematics. The tasks evaluated in PISA are based on the curricula or educational programs in each country, which the OECD says is a comparative advantage that makes it a unique among tests of its kind. The OECD also states that the PISA test is designed to assess applied knowledge in situations of everyday life, determining students' preparation to actively participate in the society to which they belong and in an integrated manner. Schleicher (2006) emphasizes that the skills assessed in PISA are those considered to be essential to the performance of an adult in a globalized and knowledge-based society. In addition, the test includes relevant information about the teaching-learning environment (allocation of human resources, materials, and curriculum) and the personal background of the student, such as the occupation of parents, immigration status, language spoken at home, and socioeconomic status. The inclusion of this data is a great advantage as it allows analysis of the context in which the student develops and not merely the results obtained in isolation. Baird, Isaacs, Johnson, Stobart, Yu, Sprague, and Daugherty (2011) argue that having access to this information allows more comprehensive conclusions and investigation of the potential effect that personal variables may have in students' academic achievement.

Many consider that PISA has a leading role in the area of education policy as it is an instrument that allows the identification of factors that may be responsible for differences in performance between and within countries, thus becoming a point of reference for academics, public policymakers, and professionals in the working world (Kerstin, Balsen, Sackmann, & Weymann, 2004). Breakspear (2012) considers that publication of the results of this test promote a profound national and international debate regarding the reforms that should be implemented in schools to improve the level of students, since it subjects the work of politicians and authorities in the area of education to direct or implied public scrutiny. In the opinion of Figazzolo (2008), the PISA test is the best assessment available for measuring the educational goals of 15-year-old students and the only one that provides an international perspective in its continued results. These are the features that may be responsible for PISA's growing influence among education experts.

The OECD and Education

No study can underestimate the value of education in a society. A more educated population not only has greater employment opportunities, better employability, and higher income, but also better health, lower crime rates, and more active citizens (Miyamoto, 2013). Recent decades have seen the emergence of new trends that promote citizen education as a tool to achieve economic development and prosperity. Economic growth, globalization, and the emergence of international organizations like the OECD have helped to change the classical concept and appreciation of education. Grek (2009) believes that today's society promotes a more utilitarian view of education, implicitly accepting that there is an inseparable connection between educational achievement, skills, employability opportunities, and economic growth.

There are currently various positions that attempt to explain the real interest of the OECD in measuring and comparing the achievements of high school students internationally through PISA. This question is even more interesting if we consider that, since its creation, it did not have a specific directorate for education issues, being not until 2002 that the Directorate for Education was created, coinciding with the growing influence that PISA was displaying two years after its implementation (Sellar & Lingard, 2014). At present, the OECD states that its actions are based on the promotion of policies that can improve the economic and social well-being of the global population. The organization claims that it uses the information available to foster economic prosperity and fight against poverty through economic growth and financial stability (OECD, 2013). It can be gleaned from this that education is understood by the OECD to be a tool to seek a better quality of life for the population through the generation of human capital trained to function in a globalized world; this is reflected in what Sellar and Lingard (2014) call «economization of education policy» or «educationing of economic policy».

This therefore raises the following concern: what kind of incentives are used to promote the participation of countries and economies in PISA? In response to this, it is important to underline that the OECD does not operate through the use of direct economic incentives to enforce the agreements signed, and the costs of all of its programs are covered by the annual contributions of its members in proportion to their gross domestic product (GDP), so direct economic incentives can be ruled out.

Kerstin et al. (2004) identify three dimensions through which international organizations like the OECD exert their influence on countries: governance by coordination, governance by shaping opinion, and governance by instruments, with governance understood to be the formal or informal capacity of an organization to regulate social processes that are expressed in the development and construction of policies in a given area. The OECD uses *governance by coordination* to organize and conduct processes that promote certain initiatives in specific areas of education. This is mediated by its capacity to direct the work of stakeholders through the organization of conferences and meetings that provide opportunities for discussion among experts which, in the opinion of Eccleston (2011), allows the creation of coordinated responses to common policy challenges. The possibility of creating a common language with similar goals and strategic policies allows the existence of mechanisms of pressure between the members of the organization, thereby enhancing the influence of the OECD. By managing, directing, and accelerating programs and projects of its own interest, the OECD directly influences the construction and generation of public policies (Kerstin et al., 2004).

Governance by shaping opinion is exerted through the OECD's capacity to influence the discourse on education-related issues, which is determined by all the bibliographic and informative material, policy proposals, and regulatory frameworks issued by the organization. It also includes the creation of standards for mutual assessment and comparison such as PISA. This influence means that member countries have a common language that leads to similar goals, which ultimately shapes the construction of their education policy. To Henry, Lingard, Rizvi, and Taylor (2001), OECD publications are essentially authoritarian, but they are presented in a neutral written style, taking a passive line with the objectives of the organization. Authors such as Seller and Lingard (2014) even question the narrative used by the texts issued by the OECD where the development of skills in the population is directly associated with social and economic improvements.

Finally, *governance by instruments* refers to the legal corpus of regulations that the member states agree to respect in order to belong to the OECD. This refers to the ability to transform common objectives into concrete policy proposals by means of international agreements. Kerstin et al. (2004) consider that this is a very powerful influence, as it dictates regulations that can be directly applied to members on a mandatory basis.

In the context of globalization, education is a fundamental strategy to guarantee the development of competitive advantages between countries. In order to achieve this objective, the creation of internationally valid points of comparison is essential. This is now the central role that the OECD exerts through PISA, by creating a platform to standardize and measure educational indicators that allow mutual comparison and analysis between countries with educational systems, socioeconomic levels (GDP), and cultural standards that may be diametrically different. To Grek (2009), what gives PISA international weight as an indicator to measure educational systems is the fact that it is not based on the curriculum of each country. The increasing importance of PISA as a valid and reliable test has provided the OECD with a platform to build and advise countries on education at national, international, and global level. Furthermore, there is evidently growing interest on the part of countries and economies to be assessed and categorized; in fact, the number of countries and economies that conduct the PISA test climbed from 43 in PISA 2000 to 65 in PISA 2012 and 70 in PISA 2015, which is almost double the 34 countries that are currently OECD members. There are different approaches to explain the rising interest of countries and economies to carry out PISA. One is the international importance given to the test at different levels: politics, the media, and society, and/or the influence that globalization may have on the decision-making process.

One inference could be the international importance given to the test and the interest generated in the media and among society regarding the results obtained. Figazzolo (2008) claims that the publication of PISA results generates an enormous amount of attention, not only among governments, but also in the mass media and among the general public. Governments use the result to demonstrate progress in education, for example, while the general public is interested in finding out where their education system

stands in international rankings. In addition, the mass media have the role of stimulating debate between governments and the general public and exerting pressure for reforms to be carried out in the educational sphere.

To Henry et al. (2001), globalization has contributed to the emergence of a new regionalism while weakening the political power of nations at the same time. It is this loss of political power which could explain why most countries, besides the OECD members, have agreed to be assessed by PISA. The current situation clearly reveals a collective interest in conducting international comparisons, not only regarding student achievement, but also the structure of the education system and the changes made in public policy. In this sense, the PISA test has been positioned as a crucial tool that does not merely allow international comparisons to be made, but also gives each country the tools to analyze their own educational systems and assess their performance and progress over time. The increased interest in international comparisons has led to the emergence of a new trend that Lingard, Rawolle, and Taylor (2005) call «global education policy». Globalization has profoundly changed our lives and the way we work, communicate, entertain ourselves, or establish relationships. In a globalized era, in which many political agreements are mediated by intergovernmental negotiations, public policymakers work at the local, national, international, and transnational levels, weakening the power of central governments, which can do very little could if they operate in isolation.

Globalization has helped facilitate international comparisons in all areas, and there appears to be a need to create a new international standard derived from successful models that can be applied globally. Eriksen (2007) underlines that globalization facilitates the *standardization* of processes, policies, and systems. This standardization requires common rules to guide work and make comparisons possible. By applying a standardized test such as PISA, countries speak a common language governed by unique rules, criteria, and methodologies that eventually only allow the homogenization of their educational objectives. Meanwhile, *interconnection*, facilitated by technology and advances in communications, is present everyday in many areas of our lives: through language exchange, international treaties, tourism, social media, and cultural mixing, among other things. Eriksen (2007) proposes that interconnection contributes to the creation of a mutual dependence between nations by increasing the need for transnational agreements and the adaptation of foreign policies. The influence of globalization in the area of education policy has encouraged the standardization of skills, the interconnection of knowledge and the movement of students and academics, which is a highly desirable objective in a globalized society (Rizvi & Lingard, 2006).

Application of PISA results

Since its implementation, PISA has generated changes in world education systems. Most of the countries and economies invited to participate in the test have carried out reforms to varying extents in direct response to the results obtained (Breakspear, 2012). In an effort to determine the impact of the OECD and PISA in the process of creation or modification of education policies, Breakspear (2012) designed and applied a questionnaire completed by 37 of the countries and economies taking part in the test. Based on his analysis, it is possible to identify five main areas in which the PISA results are used:

- a) To support changes in education policy: especially in those countries that perform above, and below the OECD average. (Breakspear, 2012). The support that PISA provides for changes to be generated in education policy is considered to be its most powerful influence. Grek (2009) states that, by supplying a basis for political dialogue and mutual collaboration, it has become an extremely influential political tool. Froese-Germain (2010) adds that PISA provides policy recommendations that enhance the efficiency of schools, resulting in improvements in their education systems and competitiveness. One example that illustrates the influence of PISA on policy change is what took place in Germany after the publication of the results of PISA 2000, which revealed inequalities in the education system and particularly the close relationship between socioeconomic status and student achievement. The furor caused by the results gave rise to a national debate that led the country to reform its complex educational system including longer school days and the creation of a standardized national curriculum, among other measures, which led to an improvement in PISA 2009 results.
- b) To initiate dialogue between education experts a critical reading of the literature shows that the PISA results are used to establish dialogue between politicians, experts, and society as a whole on issues

relating to education. An example of this is what happened in the US with the publication of the results of PISA 2006. The poor performance of the students triggered the start of dialogue between policymakers, politicians, and experts in the area, who sought to increase the competitiveness of their country by creating a more efficient education system. With the support of publications from the economic world such as *Energizing and Employing America for a Brighter Economic Future*, in which PISA results were cited to illustrate the poor performance of the country in the global context, the *America Competes Act* was enacted. Its aim was to boost national competitiveness, focusing its efforts on strengthening education in the areas of mathematics, science, and technology. According to Figazzolo (2008), enactment of this law was largely the consequence of the PISA 2006 results.

- c) To establish or change national assessment policies: the publication of the PISA results have led to the creation and implementation of national assessment systems in countries that did not previously use them or improvements in those that already exist, both in terms of quality and scope. These systems of constant assessment allow the effectiveness of reforms to be monitored continuously. For example, in Australia PISA has been used to initiate reforms aimed at placing the emphasis on national assessment. In that country the results of PISA 2006 were used to justify the introduction of a national testing system where students are assessed in years three, five, seven and nine with a standardized test
- d) To standardize curriculums: in some cases the national curriculums have been amended in line with the skills assessed by PISA. For example, in Canada, the content evaluated in the Canadian Assessment Program (PCAP) has been aligned with that evaluated by PISA. This national test is applied every three years to 13-year-old students in the areas of reading, mathematics, and science.
- e) To establish performance targets and indicators: This refers to the direct statements of local, regional, or national governments to obtain certain average PISA scores with respect to their position in the international ranking. The literature also suggests that many countries use PISA results to identify countries with high performances in order to imitate their policies and practical strategies. Breakspear (2012) identifies the strategic role played by Finland as a benchmark country for its peers when setting the political agenda and providing practical models. The Finnish system was chosen as the most influential model among the countries that took part in PISA 2009, particularly in areas such as training, hiring and social recognition of teachers, school autonomy, and early support for weaker students (Breakspear, 2012). It is important to note that other countries with good results, such as Australia, Canada, Korea, Shanghai (China), Singapore, and New Zealand, also are frequently cited for their influence on the development of education policies. In some cases, there is particular interest in countries that achieve good results in specific areas of the test; for example, the Singaporean government acknowledges its interest in the strategies used by the educational models in Finland and Shanghai, especially those designed to support weak performers (Breakspear, 2012). However, it should be remembered that, while PISA allows identification of reference countries, adoption of foreign measures and policy strategies without the proper contextualization can be dangerous or simply pointless.

PISA results have also been used to discuss issues related to equity in and quality of education. Publication of these results can demonstrate differences within the same country, for example, in the performance of students receiving public or private education, as well as overall differences in performance between countries. PISA has focused particularly on issues of quality and equity and how these factors interact to provide fair learning opportunities for all. In this regard, in Chile PISA results from 2006 to 2012 have consistently shown that the higher the socioeconomic status of the student, the better the results obtained in the test. In 2012 some 75% of students from a disadvantaged socioeconomic background had a poor performance. Analysis of the results of this test also showed that the probability of having a poor performance in mathematics was greater not only for students of lower socioeconomic strata, but also for women, students at rural schools, those who did not receive preschool education, and students who were repeating the course (Focus, 2014). More equitable distribution of learning opportunities can result in better academic results and quality can be created through greater equity. In most countries, the issues of quality and equity remain unresolved and are a fundamental challenge for politicians involved with education.

Discussion

Critical review of the scope of PISA

Each time the PISA results are published they generate debate and, in some cases, have triggered changes in public education policies. The use of PISA results to support political change in education is the tool most frequently used by countries and economies that identify this test as an influential (45.9%) or extremely influential (8.1%) instrument (Breakspear, 2012). In addition, the location of countries in the overall ranking is recognized as an aspect that has a direct influence on the generation of political change for 51.4% of the countries assessed in PISA 2009 (Breakspear, 2012). Each time the test is applied, the number of countries taking it has increased and reached 65 in 2015. This allows us to predict that, as time passes and the subsequent PISA results are published, there will be even more changes in global education policy that will contribute to the creation of a new national and global mode of governance of education exercised by the OECD (Sellar & Lingard, 2014).

In spite of the popularity of PISA, there is debate among experts regarding the suitability of the methodological approach (Grek, 2009; Mortimore, 2009). Some of the main points of discussion are translation, neglect of cultural differences, PISA's emphasis on three areas of performance and not the whole school curriculum, and the lack of teacher participation.

Criticism of the translation and cultural differences are based not only on the diversity of the students taking PISA in different countries, but also the differences that can be seen between students at the same school or in the same country. It is essential to remember that, in OECD countries, the proportion of immigrant students aged 15 increased by an average of two percentage points between 2000 and 2009 and in countries like Switzerland, Australia, Canada and Luxembourg, up to 20% of the school population states that they were born outside the country or have immigrant parents (Nusche, 2009; OECD, 2011). In other countries like Ireland, New Zealand, Spain, the United States, Liechtenstein, and the Russian Federation, this percentage of the school population saw a drastic increase in the same period, climbing from 8% to 30% (OECD, 2011). Since the beginning, PISA results have demonstrated the gap between the performance of native students and those with immigrant heritage in OECD countries (Nusche, 2009). For example, in the PISA 2000 and 2009 results, native students outscored their immigrant peers by 40 points on average in general performance (OECD, 2011). Authors such as Grek (2009) and Mortimore (2009) argue that the origin of this gap may be due to cultural differences in the students, their way of reacting to common questions, or their attitude towards formal testing situations (Grek, 2009; Mortimore, 2009). It is also argued that there is a possible difference in the translation of ideas, specifically in languages that may have higher complexity in grammatical construction. Similarly, based on migration statistics for OECD countries, we know that a large proportion of the school population is not assessed in their native language or the language that they speak at home, which is a factor that could have a negative impact on students' performance (Mortimore, 2009; Grek, 2009; Froese-Germain, 2010). Nevertheless, there are successful experiences in countries that have managed to reduce the performance gap between natives and immigrants. For example, in Australia, where the percentage of the school immigrant population immigrants is 23%, immigrant children had a higher performance in PISA 2009 than native students (OECD, 2011). Likewise, in Canada, where more than 20 of the school population has immigrant heritage, these students achieved better results than their native peers, which reduced the performance gap in PISA 2009.

Another criticism of PISA is related to the emphasis the test places on only three areas of knowledge, neglecting other areas of the school curriculum. Mortimore (2009) underlines that the methodological approach of PISA focuses the attention of the media, the general public, and politicians almost exclusively on the areas of mathematics, science, and reading, neglecting all other areas of knowledge taught in schools. Likewise, PISA gathers information that accounts for the role of administrators, students, and parents, but provides no information on teachers. Questions have been asked why its design lacks information or feedback for teachers about their teaching performance and their level of involvement (Mortimore, 2009; Froese-Germain, 2010). Research has made it very clear that teachers play a fundamental role, as they are seen as models at all levels of the education system, either in terms of the motivation and commitment of students, in their learning process, or in building the link with the school, which influences the academic achievement of students. Teachers also have a central role in promoting parental involvement with their

children's education (Mortimore, 2009; Adair, Tobin, & Arzubiaga, 2012; Sosa & Gomez, 2012; Chiu, Pong, Mori, & Chow, 2012).

Despite this criticism, PISA certainly provides a unique opportunity to find out about the local educational reality from a global perspective and it is a useful tool to improve aspects such as quality, equity, and efficiency of education systems. As can be observed, the use of the results provided by PISA has led to significant and frequently successful reforms in the countries that have carried them out, and its focus on development of skills has led to structural changes in education systems that must now look at the content provided as a tool to attain skills. Mere review of the content to be assessed in this test does not guarantee a better position in the overall ranking. The scope and impact of PISA continues to increase, possibly because of the influence of globalization on the standardization of international policies or because it is an evidence-based instrument, which also provides advice regarding educational policies that should be implemented with the goal of improving. However, only rarely does it generate opportunities for counterargument on the part of developing countries or other countries regarding the focus or the importance of the political reforms recommended for each local reality.

It is therefore not unusual to infer that we are witnessing the emergence of a global trend that seeks to measure and compare aspects of daily life that were not previously taken into account, such as people's skills. The OECD is leading this task by becoming the reference point and voice of authority to express its opinions and provide advice on this topic by influencing and shaping global education policy. This influence is determined by the values of the organization, which openly declares that «skills have become the global currency of 21st century economies» (OECD, 2012). In this context, all stakeholders involved in education and in the construction of public policy, such as politicians, the media, teachers, and the community as a whole, are called upon to generate opinion and use the information provided by PISA to make improvements in their education systems without losing sight of the value of education within a society.

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APPENDIX

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