Introduction: the Indicators and their Framework

The organising framework

Education at a Glance – OECD Indicators 2009 provides a rich, comparable and up-to-date array of indicators that reflect a consensus among professionals on how to measure the current state of education internationally. The indicators provide information on the human and financial resources invested in education, on how education and learning systems operate and evolve, and on the returns to educational investments. The indicators are organised thematically, and each is accompanied by information on the policy context and the interpretation of the data. The education indicators are presented within an organising framework that:

- distinguishes between the actors in education systems: individual learners and teachers, instructional settings and learning environments, educational service providers, and the education system as a whole;
- groups the indicators according to whether they speak to learning outcomes for individuals or countries, policy levers or circumstances that shape these outcomes, or to antecedents or constraints that set policy choices into context; and
- identifies the policy issues to which the indicators relate, with three major categories distinguishing between the quality of educational outcomes and educational provision, issues of equity in educational outcomes and educational opportunities, and the adequacy and effectiveness of resource management.

The following matrix describes the first two dimensions:

	1. Education and learning outputs and outcomes	**2. Policy levers and contexts shaping educational outcomes**	**3. Antecedents or constraints that contextualise policy**
I. Individual participants in education and learning	**1.I** The quality and distribution of individual educational outcomes	**2.I** Individual attitudes, engagement, and behaviour to teaching and learning	**3.I** Background characteristics of the individual learners and teachers
II. Instructional settings	**1.II** The quality of instructional delivery	**2.II** Pedagogy, learning practices and classroom climate	**3.II** Student learning conditions and teacher working conditions
III. Providers of educational services	**1.III** The output of educational institutions and institutional performance	**2.III** School environment and organisation	**3.III** Characteristics of the service providers and their communities
IV. The education system as a whole	**1.IV** The overall performance of the education system	**2.IV** System-wide institutional settings, resource allocations, and policies	**3.IV** The national educational, social, economic, and demographic contexts

The following sections discuss the matrix dimensions in more detail:

Actors in education systems

The OECD indicators of education systems (INES) programme seeks to gauge the performance of national education systems as a whole, rather than to compare individual institutional or other sub-national entities. However, there is increasing recognition that many important features of the development, functioning and impact of education systems can only be assessed through an understanding of learning outcomes and their relationships to inputs and processes at the level of individuals and institutions. To account for this, the indicator framework distinguishes between a macro level, two meso-levels and a micro-level of education systems. These relate to:

- the education system as a whole;
- the educational institutions and providers of educational services;
- the instructional setting and the learning environment within the institutions; and
- the individual participants in education and learning.

To some extent, these levels correspond to the entities from which data are being collected but their importance mainly centres on the fact that many features of the education system play out quite differently at different levels of the system, which needs to be taken into account when interpreting the indicators. For example, at the level of students within a classroom, the relationship between student achievement and class size may be negative, if students in small classes benefit from improved contact with teachers. At the class or school level, however, students are often intentionally grouped such that weaker or disadvantaged students are placed in smaller classes so that they receive more individual attention. At the school level, therefore, the observed relationship between class size and student achievement is often positive (suggesting that students in larger classes perform better than students in smaller classes). At higher aggregated levels of education systems, the relationship between student achievement and class size is further confounded, *e.g.* by the socio-economic intake of schools or by factors relating to the learning culture in different countries. Past analyses which have relied on macro-level data alone have therefore sometimes led to misleading conclusions.

Outcomes, policy levers and antecedents

The second dimension in the organising framework further groups the indicators at each of the above levels:

- indicators on observed outputs of education systems, as well as indicators related to the impact of knowledge and skills for individuals, societies and economies, are grouped under the sub-heading *output and outcomes of education and learning;*
- the sub-heading *policy levers and contexts* groups activities seeking information on the policy levers or circumstances which shape the outputs and outcomes at each level; and
- these policy levers and contexts typically have *antecedents* – factors that define or constrain policy. These are represented by the sub-heading antecedents and constraints. It should be noted that the antecedents or constraints are usually specific for a given level of the education system and that antecedents at a lower level of the system may well be policy levers at a higher level. For teachers and students in a school, for example, teacher qualifications are a given constraint while, at the level of the education system, professional development of teachers is a key policy lever.

Policy issues

Each of the resulting cells in the framework can then be used to address a variety of issues from different policy perspectives. For the purpose of this framework, policy perspectives are grouped into three classes that constitute the third dimension in the organising framework for INES:

- quality of educational outcomes and educational provision;
- equality of educational outcomes and equity in educational opportunities; and
- adequacy, effectiveness and efficiency of resource management.

In addition to the dimensions mentioned above, the time perspective as an additional dimension in the framework, allows dynamic aspects in the development of education systems to be modelled also.

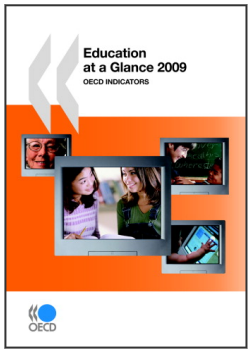
The indicators that are published in *Education at a Glance 2009* fit within this framework, though often they speak to more than one cell.

Most of the indicators in **Chapter A** *The output of educational institutions and the impact of learning* relate to the first column of the matrix describing outputs and outcomes of education. Even so, indicators in **Chapter A** measuring educational attainment for different generations, for instance, not only provide a measure of the output of the educational system, but also provide context for current educational policies, helping to shape polices on, for example, lifelong learning.

Chapter B *Financial and human resources invested in education* provides indicators that are either policy levers or antecedents to policy, or sometimes both. For example, expenditure per student is a key policy measure which most directly impacts on the individual learner as it acts as a constraint on the learning environment in schools and student learning conditions in the classroom.

Chapter C *Access to education, participation and progression* provides indicators that are a mixture of outcome indicators, policy levers and context indicators. Internationalisation of education and progression rates are, for instance, outcomes measures to the extent that they indicate the results of policies and practices in the classroom, school and system levels. But they can also provide contexts for establishing policy by identifying areas where policy intervention is necessary to, for instance, address issues of inequity.

Chapter D *The learning environment and organisation of schools* provides indicators on instruction time, teachers working time and teachers' salaries that not only represent policy levers which can be manipulated but also provide contexts for the quality of instruction in instructional settings and for the outcomes of learners at the individual level. It also, for the first time, presents data from the Teaching and Learning International Survey (TALIS) on teacher beliefs, practices, and job satisfaction as well as the role of teacher appraisal and feedback and the school evaluation system.



From:
Education at a Glance 2009
OECD Indicators

Access the complete publication at:
https://doi.org/10.1787/eag-2009-en

Please cite this chapter as:

OECD (2009), "Introduction: the Indicators and their Framework", in *Education at a Glance 2009: OECD Indicators*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/eag-2009-3-en

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