How to select indicators that support the implementation of education policies?

Across OECD countries, the increasing demand for evidence-based policy making has led governments to design policies jointly with relevant indicators to monitor their implementation. Indicators can be effective tools as they provide key information to pilot implementation towards the achievement of policy objectives. The development of adequate indicators and practices is however a complex exercise, as it requires striking the right balance between guiding development and strengthening accountability.

This Education Spotlight draws on evidence from the OECD Implementing Education Policies programme and expertise developed during partnerships with several countries and the European Commission. It aims to provide insights to policy makers and various education stakeholders, to initiate a discussion on the use and misuse of indicators in education, and to guide future actions towards a better contribution of indicators to education policy implementation.

Indicators have become pervasive in education

Over the last decades, the role of indicators in informing decision making in education has become more prevalent. This has been partly due to increasing demand for evidence-based policy making, and the development of new technologies, automatising the collection and processing of large amounts of data. Indicators serve mainly three purposes: accountability of schools and administrations, transparency of the resource allocation to demonstrate the efficiency and effectiveness of spending, and identification of strengths and weaknesses of the education system to initiate specific measures for improvement.

Despite their potential, there has been little discussion of the role of indicators to support education policy implementation. According to the OECD Implementing Education Policies framework, indicators play a transversal role, as they contribute to each of the dimensions underpinning a coherent implementation strategy: smart policy design, inclusive stakeholder engagement, and conducive environment (Gouëdard, 2021[1]). In particular, indicators represent a tool that clarifies the policy vision and its objectives, as they refine the abundance of available information to present key elements. They play an important role in communication with the public and decision makers to describe the situation, or the progress made towards the achievement of the policy objectives. In addition, indicators help monitor the use of resources, support stakeholders' accountability, and identify weak implementation areas that require further development. This Education Spotlight reviews some of the principles that should guide an indicator strategy to support education policy implementation.

## Select actionable indicators according to an integrated policy approach

OECD's Education at a Glance organising framework (Figure 1) sorts indicators into three categories: input, process, and output indicators. Input indicators relate to the resources invested in the system, including financial, human, and physical resources, and also account for policy choices, such as the instructional setting of classrooms, and the modalities for curriculum delivery. Output indicators describe the production of the education system or the results of policies, initiatives, practices etc. In between lie the process indicators that measure the participation of actors in the process, and inform on how inputs are used to produce outputs.

> An indicator strategy should cover all components of the input-process-output framework for an integrated approach to a specific theme or policy.

These three categories of indicators correspond to a versatile framework that can be used to understand the operation and functioning of any educational entity, from an education system as a whole to a specific level of education or programme. The framework recognises the various factors that influence a policy's outcome, identifies the actors responsible for each, and examines the contextual demographic, socio-economic and political factors that may influence the implementation of an education policy. For a given issue, it helps identify all related indicators at different institutional levels and the involved stakeholders.

The Education at a Glance organising framework advocates that an indicator strategy should cover all components (input, process, and output) for an integrated approach to a specific theme or policy. While input and output indicators shed light on the efficiency and the effectiveness of a policy, process indicators describe the performance of the processes that contribute to the achievement of outcomes, and how stakeholders adopt change according to a new policy. They help understand the effects, or the absence of effects, of a reform, and provide insights on areas for making adjustments and improving the policy outcomes.

Figure 1. Organising framework of indicators in Education at a Glance
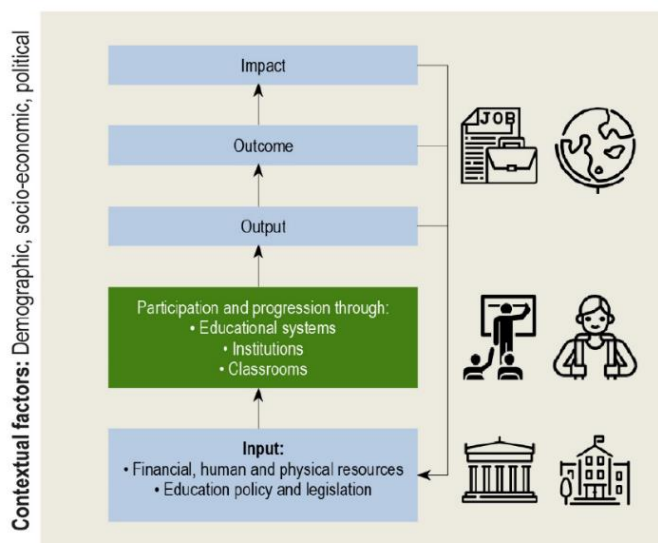
Source: OECD (2021[4]), *Education at a Glance 2021: OECD Indicators*, https://dx.doi.org/10.1787/b35a14e5-en.

In fragmented contexts, the development of indicators, particularly performance indicators according to the new public management paradigm, has contributed to steering the public system (Burns and Köster, 2016[28]). Education stakeholders also face growing expectations to overcome a passive relationship with indicators based on compliance and accountability, and to become actors by actively using indicators to inform decision making locally and guide school improvement (e.g.: Denmark, Estonia, and the Netherlands).

> Relevant indicators are actionable and produced in a timely manner.

However, stakeholders' engagement depends on the relevance of indicators. Relevant indicators means they are actionable for stakeholders: those using the indicator have the power to act on the results to produce the desired change, and the results are produced in such a way that calls to action. It also requires that indicators are produced in a timely manner: they inform in real time of the types of practices, people, strategies, materials, or technologies currently in use. As such, they are helpful to assess progress made towards goals, and make mid-course correction for practice and policy. For instance, if indicators are only defined to be monitored at national and regional level at the end of the year, little engagement from local actors is to be expected. On the other hand, if a central monitoring strategy also includes indicators commonly used to monitor performance regularly at school level, teachers, school leaders, and local authorities are more likely to engage, create meaning around national indicators from a school perspective, and ultimately take action according to the objectives of the strategy.

The definition of indicators relevant to stakeholders when developing a new policy therefore represents a further opportunity in terms of implementation. Such indicators may contribute to achieving the policy's objectives as they are more likely to be embedded in school practices and improvement processes. Several ways exist to ensure the relevance of indicators, such as organising stakeholders' consultation on the selection and prioritisation of indicators, channelling feedback to understand if existing data represent adequately the reality ("ground-truthing"), and co-shaping an indicator strategy with a diverse selection of stakeholders (UN ESCAP, 2018[3]).

Harnessing new technologies to provide real-time information

Education has always been a data-intensive sector, with information such as grades or administrative micro-data. Its digitalisation, combined with the emerging and growing domains of data analytics, data science, learning analytics, and machine learning represent an attractive opportunity for better using this richness of information. For instance, the development of early warning systems and indicators, building on pattern analytics, aims to curb drop-outs by focusing early-on the efforts of a school system on specific at risk students. As policy makers design implementation strategies and associated indicators, 21st century tools can help provide real-time indicators tailored to specific needs, while encouraging stakeholders to overcome a passive relationship with data. Such indicators may contribute to inform decision making and instructional improvement, and result in mid-course adjustments to ensure policy objectives are on track.

Source: OECD (2021[5]) *OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots*, https://dx.doi.org/10.1787/589b283f-en.

Identify what matters, then choose relevant indicators

Education policy has been increasingly guided by what can be measured, namely indicators, and the emphasis on output indicators has attracted some criticism as it may promote a narrower vision of education (OECD, 2013[7]). More precisely, opponents to performance indicators fear that using indicators to assess schools and teachers may distort practices within the school system, such as encouraging teaching to the test and focusing on a limited number of competencies that are measured by these tests (Burns and Köster, 2016[28]).

> Do not value what you measure, measure what you value.

The complexity of measuring performance adequately may lead to goal displacement, where the incentives are skewed towards the "visible", or measured, activities. Stakeholders' focus therefore shifts from the original education objectives, to the goals for which there already exist data. To avoid goal displacement, "goal setting" should precede any "data collection", to ensure indicators measure what really matters (Schildkamp, 2019[6]). This follows what has been coined in the public debate as the popular idiom "Do not value what you measure, measure what you value". Existing indicators may be convenient, but they potentially capture what is easier to measure, or proxy a different outcome, which in turn may provide the wrong incentives to education stakeholders. The definition of new tailor-made indicators, following the OECD review framework for indicators for instance, is sometimes required to ensure the selected indicators adequately serve the policy purpose.

OECD review framework for indicators

The OECD uses the following framework to assess the quality of indicators in education:

- **Description**: the indicator is described in a precise way, and does not need to be refined to be understandable;
- **Purpose/relation to strategic goals**: the indicator is well aligned to objectives and goal specific. It helps monitor progress towards the achievement of objectives;
- **Definitions and scope**: the terms used to define the indicators are clear and the scope of the indicator well-established to ensure the robustness of results;
- **Calculation methodology**: the calculation methodology is transparent and results are comparable and reliable;
- **Monitoring level (school/region/national)**: the indicator is computed at a level coherent with its associated objectives;
- **Data availability and breakdown**: the data sources for computing the indicator are identified, and the opportunities for breakdowns (e.g.: gender, socio-economic background, immigration status) are explored;
- **Frequency and coverage**: the indicator can be updated at a frequency relevant for the achievement of its associated objectives (depends on the data publication cycle) and an adequate coverage of the targeted population is ensured;
- **Interpretations/limitations**: The interpretation of the indicator is straightforward, or there exist clear guidelines that highlight its limitations to minimise misinterpretation.

The purpose of this framework is to ensure indicators are designed properly, and depict a dynamic rather than static view of the education landscape and progress made towards objectives. Well-designed indicators constitute a solid basis for establishing claims about the effectiveness of policies and practices, and should result in more timely and actionable feedback for multiple stakeholders in education.

Source: OECD (2021[7]) "Enhancing data informed strategic governance in education in Estonia", *OECD Education Policy Perspectives*, No. 47, https://dx.doi.org/10.1787/11495e02-en.

The culture around data conditions how much indicators can support implementation

The use of indicators for monitoring and piloting policy implementation depends on the data culture of a specific context, in other words, how indicators are perceived and trusted. In fact, the dual role of indicators, as an accountability mechanism and an input for decision making, creates a tension between using data for school improvement, and using data for holding school accountable.

Research literature has largely documented the potential detrimental effects of accountability on school development. Such side effects include: i) intended strategic behaviours referred to as "gaming the system" and leading to a misrepresentation of the school, ii) unintended strategic behaviours such as a fixation on indicators and leading to "teaching to the test/inspection" and an over-reliance on short-term solutions at the expense of long-term development, and iii) heightened stress of school staff or relaxed attitude following a positive evaluation (OECD, 2013[5]).

This is why the use of indicators for supporting implementation should be decoupled from external accountability, to build trust among stakeholders and ultimately emphasise the role of indicators for school improvement (Datnow and Hubbard, 2015[80]). Framing data use as a continuous school improvement process, and not solely as compliance to accountability demands, contributes to aligning stakeholders' beliefs, attitudes, and perceptions about data use. For instance, the design of an integrated model of data use across levels of governance is a springboard for developing a data culture.

> The use of indicators for supporting implementation should be decoupled from external accountability.

In addition, in complex education systems, multiple actors are engaged in education, While there is little evidence on how data and indicators are used by education policy makers, Means et al. (2011[81]) have identified five skills areas necessary for teachers to master data use to improve instruction:

- Data location: Ability to find relevant information in the data system;
- Data comprehension: Ability to understand the data, their representation, and the underlying statistical concepts;
- Data interpretation: Ability to infer relevant insights from the data, and to understand the limitation of statistical measurements;
- Instructional decision making: Ability to select an instructional approach to address any potential issue identified through the data analysis;
- Question posing: Ability to formulate instruction-related questions that can be explored through the data in the system.

In terms of policy reform, the use of indicators for monitoring and piloting policy implementation therefore hinges on "stakeholders' data literacy". At every governance levels, stakeholders' capacity to understand data and indicators will condition how much they engage with various sources of data. It requires for instance that teachers and school leaders are able to select and shape data in a coherent and meaningful way to improve instruction and school planning, and that district leaders and policy makers integrate research evidence into their practice and turn data analysis into action.

The bottom line: Indicators must be carefully designed to effectively support implementation

Indicators can be effective tools to support the implementation of education policies, as they provide key information to monitor and pilot implementation towards the achievement of policy objectives. This is conditioned on one hand by the data culture, stakeholders' beliefs, attitudes, and perceptions about data use, and on the other hand, by the data literacy, stakeholders' capacity to understand data and turn analysis into action. However, as a summary of information, indicators only represent a truncated version of reality and, as such, risk providing stakeholders and organisations with the wrong incentives, inducing undesired consequences. A balance must therefore be found to ensure indicators bring clarity about a complex array of information without producing perverse effects. To do so, the indicators associated with a policy should cover a mix of input, process, and output, while reflecting the breadth and depth of the policy objectives. Involving stakeholders when defining an indicator strategy further helps ensure the relevance of indicators, meaning that stakeholders are more likely to embed them in their practices and improvement processes.

Implementing Policies: supporting change in education

This document was prepared by the Implementing Education Policies (IEP) team at the OECD. The OECD project "Implementing Policies: Supporting Change in Education" offers peer learning and tailored support to help countries and jurisdictions achieve success in the implementation of their policies and reforms in school education. The tailored support consists of three complementary strands of work that target countries' and jurisdictions' needs: policy and implementation assessment, strategic advice, and implementation seminars.

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See: Gouëdard, P. (2021), "Developing indicators to support the implementation of education policies", OECD Education Working Papers, No. 255, https://dx.doi.org/10.1787/b9f04dd0-en

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