

3.C. Defining a framework of indicators to measure the social outcomes of learning

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Defining a framework of indicators in an international perspective

After taking a close look at what the definition of an indicator is in research literature, we can conclude that everything emerges but a clear and consistent definition. Authors are not unanimous with respect to the very nature of the variables termed educational indicators, nor to their inherently normative or goal-oriented nature. However, the existing framework of an international and policy-driven project like the OECD International Indicators of Education Systems (INES), combined with the OECD CERI research objectives for the SOL project, may help to overcome barriers when defining and selecting the characteristics of indicators that measure social outcomes of learning, even if it remains a challenging issue.

A few key points can be deduced from the research literature. Indicators can enable us to assess benchmarks and to monitor education systems (de Landsheere, 1994; de Broucker, Gensbittel and Mainguet, 2000; Demeuse and Baye, 2001). In this respect, indicators must be designed to be relevant for education policies, and also to possibly help in modifying them. Indicators may also provide warning lights which invite social and political actors to action in order to improve the system (de Landsheere, 1994), as the etymology of the term *indicator* suggests. In this respect, indicators may then be defined as tools meant to describe the quality, the effectiveness, the equity or the trends of a particular aspect of the education system. Furthermore, designed in an international context, an indicator needs to reach a certain degree of consensus on the goals, on the usefulness, pertinence and validity for different participating countries, and must also allow for comparisons among countries.

When trying to provide an answer, or at least some enlightenment on certain political issues, researchers almost always conclude that it is difficult to give one single explanation. Reality is more complex than one single dataset or relationship, since issues are interconnected and often embedded in not so easy to handle factors, such as the historical, cultural and economic contexts of particular countries. Those arguments require us to go beyond the monitoring and political facets of indicators. A theoretical framework coupled with a framework of indicators can help us to anticipate and to show the possible relationships between variables, and how the variables work together to

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produce a global effect (Shavelson *et al.*, 2003). A framework of indicators can help us to map the relationships between variables in a broader way, exploring not only one single input compared to one single output, but also the combined effect of several variables, including exogenous factors. From this perspective, indicators can work as signals of how education is related to social outcomes in different countries. Those signals can stimulate discussion across and within countries on the social objectives of education systems.

Building a framework of indicators in a systematic way can help us to show some gaps in the existing information, calling for new data collection. The systematic approach used in the construction of a framework of indicators does not prevent the risk of oversimplification, because among other reasons there is a lack of data. This is another reason for coupling a framework of indicators with theoretical research: the gap between the information provided by indicators and the research hypotheses and/or results need to be documented.

Research and the implementation of a framework of indicators are and should be interrelated. Research can support the interpretation of the framework of indicators. It can also provide useful information to measure or interpret the causes and effects, using for example longitudinal data. Research helps to select, among the possible indicators, the most appropriate and the most informative ones. The development of cross-country and cross-situational surveys provides irreplaceable information to identify relationships and to understand how institutional and cultural norms may mediate them.

If there is a need for a theoretical framework before collecting data, data analysis may also contribute to redesign the theoretical framework, according to the new relations or evidence showed by the data. In this respect, indicators may be viewed as tools emerging from the framework (resulting from evidences from the past) and the data collected (the present), contributing to the development of further research (the future). In this sense, indicators are a compromise between theory and data, reflecting the balance of the issues emerging at the beginning of the data collection and the issues to be addressed in the future.

Main characteristics of a “good” indicator

From both de Landsheere (1994) and our further consideration on the usefulness of indicators for policy and research, we point out some characteristics of a good indicator. In our view, an indicator must be:

- politically relevant: it should address an important policy question or issue, but not necessarily politically driven, since answering only to a particular political agenda may give a very partial picture of a situation under examination;
- robust: in this respect, an indicator has to be related to global and lasting characteristics of the system, to avoid too much sensitivity to accidental fluctuations;
- connected with priorities and significant issues;
- coherent: an indicator should be connected/connectable with other indicators;
- feasible: the data to construct an indicator should be readily available and affordable to collect;
- accessible to a large audience;
- valid, reliable, accurate, which implies a high quality the data sources.

According to Jaeger (1978), a good indicator is not necessarily a quantitative measure, since a narrative form “is often a better aid to comprehension and understanding of phenomena than is a numeric report” (p. 287). In major international systems of indicators such as *Education at a Glance* (OECD, reference year), *Key Data on Education in Europe* (Eurydice, reference year), and the Equity Indicators produced by the European Group for Research on Equity in Educational Systems (EGREES, 2005), as well as in various national publications, indicators combine quantitative information (figures, tables) with interpretative comments – which undoubtedly helps to give interpretation to the sometimes rather complex “signals”. Moreover, some of the key issues in education are difficult to measure quantitatively. Thus qualitative information can contribute to significant developments for future work related to indicators (European Commission, 2001).

From research on civic and social engagement to indicator development

Defining civic and social engagement

Researchers have not come to an agreement on the definition of civic and social engagement (CSE). The existence of several approaches does not mean they invalidate each other, but rather leads us to consider the issue of CSE outcomes of education within a framework designed to allow several possibilities, each depending on the exact definition or the political perspective chosen. This perspective was adopted by EGREES (2005) in order to accommodate different principles of justice when building equity indicators. In an international perspective, this kind of framework can help to anticipate conflicting approaches to the issue of social outcomes of education. For instance, the distinct categorisation by David Campbell of political and civic engagement may be perceived as counterproductive: the conflicting or competing nature of politics may be less pregnant outside North America (or at least in Western Europe) where personal support and engagement are often actualised in the voting act itself, and not so much via public meetings, financial support, etc.

However, to build indicators, a consensus is needed on what should be measured and showed. The criteria of political relevance can help to focus the definition that participating countries are interested in (de Weerd *et al.*, 2005). At the moment, no agreement on a common definition for OECD countries has been reached, even if two major social domains of interest have been selected (*i.e.*, CSE outcomes of learning and health outcomes of learning). In the area of CSE, the conceptual papers presented in Copenhagen suggested that one of the most important social issues faced by public authorities is the falling level of political engagement, voting, and trust in institutions, particularly in some countries. A question then is can education systems moderate or reverse this trend? Analysing the objectives of the educational systems with regard to CSE would help to find a common denominator among OECD countries (see Table 3.C.1).

Definitions included in the papers presented at the Copenhagen symposium help us to go further, even if some refinement is still needed. In this respect, what the papers by Campbell and Lauglo and Øia (2006) consider CSE to be, is particularly interesting to focus on, because it is relevant, both for education policies and also from a more general political perspective, since education systems may be viewed as tools which, among other vehicles, foster social cohesion and social tolerance.

However, the definition of CSE needs to be refined. Firstly, the specificity of the social engagement does not appear clearly in the Campbell paper. Does the word “social” include something else than what is included in civic engagement? Secondly, the concept of engagement used by Campbell includes cognitive dimensions which are not necessarily included in other international surveys (Torney-Purta *et al.*, 2001; Kirsch *et al.*, 2002). An approach grounded in a broader concept of literacy, used for example as in OECD/PISA, is perhaps more appropriate than the concept of engagement, since this broader perspective includes attitudes, values, practices and knowledge. In this respect, the concept of civic literacy could be defined as the set of knowledge, values, attitudes and practices that individuals acquire over the course of their life to become citizens participating in democratic societies.

In 2001, the OECD DESECO project produced definitions of key competencies. As Laura Salganik recalls in her response paper (in this volume), a major category of key competencies is “interacting in socially heterogeneous groups”. Key competencies listed within this category would seem to cover some of the key dimensions that are being covered by the approach to CSE in the SOL project, namely the ability to relate well to others, ability to cooperate, ability to manage and resolve conflicts.

Taking into consideration a range of outcomes and their relationships

In most surveys (*e.g.* CivEd, EVS, ESS, ISSP), social outcomes cover a large range of features, including not only behaviour, like participation in given activities or in social networks (structural dimensions), but also knowledge and attitudes including trust (normative dimensions). As described above, it is important to take into account all these dimensions to assess CSE outcomes. We would like to emphasise here the need to document better the relations between knowledge, values, attitudes and practices. For instance, is participation in civic activities (voting is not the only concern) associated with, dissociated from, or mediated by civic knowledge and values? The assumption is that specific civic behaviours can occur if the person has sufficient knowledge and/or trust in the democratic process or in the role of institutions. An alternative hypothesis can be that trust and knowledge are also created by CSE. The causality, if any, will be in most cases bi-directional. If surveys show that a more educated person is more likely to participate in civic and social activities, then, we should also acknowledge that participation in these kinds of activities can also provide new opportunities to learn, which would itself increase the level of civic literacy.

CSE is a key dimension that is taken into account in social capital research (Houard and Jacquemain, 2006), where engagement is seen to also include community engagement and is related to social identities. In this line of thinking, new forms of social movements, maybe more informal, could also be studied (see Lauglo and Øia, 2006).

Many measurement questions remain: is the strength of the relation equivalent for all the components of civic literacy mentioned above, *i.e.* knowledge, values, attitudes and practices? Is it possible to use a single scale including all the components of civic literacy or do we need several sub-scales, corresponding to a subdivision of the main concept?

Taking into account explanatory variables and their relationships

If there is a relation between level of education and CSE, how could we explain it? Which are the determinants? Are they manageable? Is it possible to enhance the level of

civic literacy by developing (initial and continuing) education? What will the relation be if we use literacy skills instead of level of education (see Descy in this volume)?

A positive correlation between education and engagement cannot simply be interpreted as a causal link. The relation could also be indirect. Is education the main determinant to explain civic outcomes or could the relationship be explained by many other factors, including the level of income, the social status, the socioeconomic and political background, the participation in continuing education (informal and non formal)? The Campbell paper reports findings that are based on methods of analysis aimed at controlling multiple factors effects, which is recommended to understand the complex links between variables.

Taking into account different levels of analysis

Outcomes distributed or produced by education systems may be relevant at different levels: for the society, for different communities or for individuals. Even if it is interesting to merge data at the international level to understand global effects of education on CSE outcomes, the data also have to be analysed and presented at a country level, or even at the education system level (region, territory), which are the levels on which policies may be defined and applied.

Adapted from Baye and Mainguet (2006), Table 3.C.1 shows how the objectives assigned to education systems may be broken up into different units of analysis,¹ because some of these are more relevant to either individuals, schools or the society as a whole. This mapping of the objectives allows us to consider the relevance of different levels of analysis, *i.e.* at micro (individuals), meso (schools) or macro (society) levels.

Table 3.C.1. Education systems' objectives related to civic literacy, by level of analysis

Micro Individuals	Meso Schools	Macro Societies
<ul style="list-style-type: none"> - knowledge, skills - responsible citizenship - self-confidence - trust in institutions - respect - critical thinking - sense of responsibilities - humanitarian values - social engagement - civic engagement 	<ul style="list-style-type: none"> - integration and participation in the local community - enhanced democracy - pluralism - cultural open-mindedness - trust in the school institutions 	<ul style="list-style-type: none"> - enhanced democracy - pluralism - cultural open-mindedness - social and civic engagement - trust in institutions - social cohesion

Source: adapted from Baye and Mainguet (2006).

¹ To complete this table, legal objectives concerning civic and social engagement defined for compulsory and tertiary education in the French Community of Belgium education system have been reviewed according to the level they were referring to.

Taking into account different ways to look at the data

What does the data mean in different contexts?

The question of the equivalence of the level of the relationship between education and CSE in different contexts is not yet solved. By context, we mean macro-level context, *i.e.* countries, education systems and other general contexts such as the cultural or the historical one (*i.e.* post 2nd World War, post May 68). For example, international comparisons of voting rates, cannot be interpreted the same way in countries where voting is compulsory. The history of a particular country regarding democracy, voting, and specific cultural pattern regarding the importance and the frequency of elections, should be taken into account in order to optimise the interpretation of the data in specific national contexts. Further, Lauglo and Øia (2006) show the importance of studying both generational (cohort) and ageing effects for understanding the evolution of attitudes and practices.

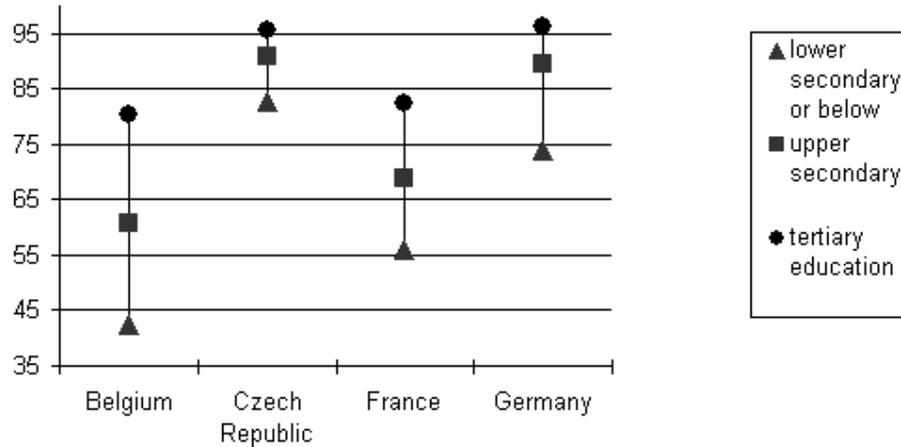
Several surveys on youth (*e.g.* CivEd) have pointed out an important variable to take into account: not all the countries are equivalent in the importance they place on citizenship in the school curriculum (Eurydice European Unit, 2005; Campbell in this volume). This question could also be raised when we use adult surveys: what was the emphasis on citizenship in the curriculum years ago? Could this element explain some of the CSE differences between countries? Is there a time limit after which the initial education does not make the difference? The explicit curriculum has to be compared with the implemented curriculum (including the school climate and practices when the respondent was young).

Context may also refer to the group or community in which the person lives. Is it “easier” or more profitable to show CSE in certain circumstances? Within particular groups? In countries where the level of CSE is already high? Is this behaviour sometimes viewed as negative?

How is the education asset distributed?

Anticipating political objectives that are relevant as social outcomes of education, we do not expect that more will always mean better. For example, countries may expect the education system to foster social cohesion. In this perspective, what would be considered as the most important issue for a country: a distribution where only some part of the population shows high level of engagement or a lower level of engagement but equally distributed? Such an example argues for the analysis of the distribution of outcomes within a country or within groups or regions, since the high mean of an outcome for a particular country is not a guarantee of equality in the distributions of outcomes within the country.

International comparisons can show how the distribution of CSE varies according to the level of education among different countries. Figures 3.C.1 and 3.C.2 which are based on results of the European Value Survey, show important differences between countries regarding the relationship between potentially desired outcomes and different levels of education.

Figure 3.C.1. Political discussion and level of education, by country

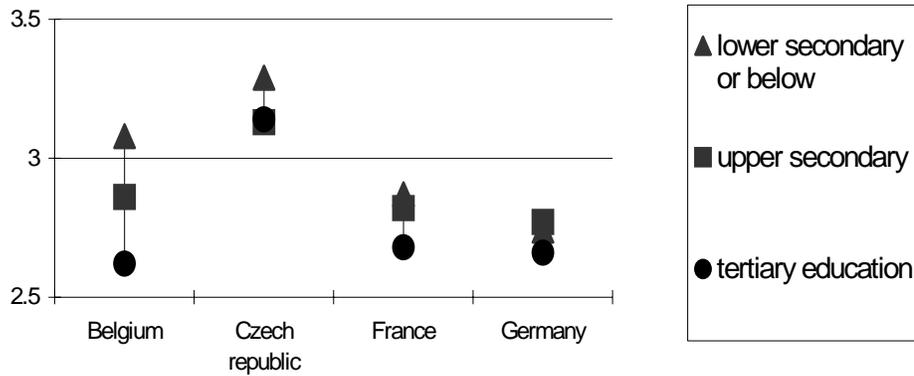
Source: Baye and Mainguet (2006), based on Hudson, 2004 (EVS data).

Figure 3.C.1 displays that the intensity of political discussions between friends is strongly associated with education, and this is the case, for the four countries presented. A rise in average levels of education could thus be accompanied by an intensification of “political culture” or a greater practice of exchanges of views or debates of ideas in this field.

In France and Germany for example, the level of education does not necessarily imply a more or less critical position toward the institutions in place (Figure 3.C.2). No-confidence toward the Parliament is not greater according to the level of education in either France or Germany. In the Czech Republic, the least educated tend to be less trustful; in Belgium, each level of education marks a step toward a higher degree of confidence in Parliament.

Beyond the description of the variations in the scores obtained in the four countries, the interpretation of these data account for the relative differences between levels of education within each country. The interpretation is not likely to be univocal considering the probable social desirability which affects these various dimensions and specificities of the political and cultural contexts. These variations could be interpreted differently, like an index of social homogeneity or social heterogeneity.

Figure 3.C.2. No-confidence toward the Parliament and level of diploma, by country



Source: Baye and Mainguet, 2006, based on Hudson, 2004 (EVS data).

Are some groups or individuals situated below a threshold?

Regarding the distribution of CSE, we also have to question the linearity of the education variable. Is the level of education and civic literacy for example, strictly related to the level or could we point to some threshold effects? For instance, is there a threshold between secondary level and tertiary level? Can continuing education contribute to the level of engagement? Do differences between education levels lead to define thresholds below which the education system seems to fail to fulfil its objectives? In this respect, the assumption that “more education is better” has to be questioned because it may instead indicate a failure of compulsory education. Table 3.C.2 presents a summary of the different levels of analysis and types of data analysis which could be considered when building a systematic framework of indicators that aim to measure social outcomes of learning.

Table 3.C.2. Combining levels of analysis and types of data analysis

	Micro Individuals	Meso Communities, groups, work places, ...	Macro Countries, education systems, ...
Mean			
Distribution			
Threshold			

Consequences for indicator development

Recognising that it is not possible, or not feasible, to get data to cover and measure every issue, we propose some “guidelines” for data collection and indicator development.

Indicators must say something relevant about/for countries or education systems

First, indicators must produce valuable information at the country level, in an international perspective. The analysis of the way education and civic literacy for example are interrelated is relevant if it helps to interpret country and education system differences.

Indicators should help to address questions at different levels of analysis

Most often, the results are measured and analysed at the individual level. Meanwhile extrapolation to macro or country level is frequent, although analyses at this level seem more difficult. Previous papers have pointed out that a positive relationship between levels of education and voting at the individual level cannot necessarily be confirmed at macro (country) level (see Hudson, 2004). Green, Preston and Malmberg (2004) showed that macro-social benefits are not simple aggregates of micro social individual benefits. Even if they come from a single data set, different indicators have to be designed for each particular level of analysis. Using different data sets to document different levels of analysis and the different parts of the framework of indicators is a common way to get a more complete picture of the phenomena.

Indicators must try to say something about the way education and outcomes could be interrelated

This condition is linked with the theoretical relevance of the framework of indicators. Measuring the differences between countries in the strength of the relationship (mean level of education and mean level of CSE) is not sufficient. The differences in the distribution of the results between countries should be analysed to understand how the benefits of education are shared in a population.

Campbell’s paper gives a thoughtful perspective to capture the very nature of the possible causal mechanisms. The models proposed – absolute, relative and cumulative – are interesting because education may be viewed as an individual characteristic (absolute level) and as a macro variable (cumulative). His idea to consider the relative level of education helps to link both levels (how an individual is situated within a distribution). Another way to envisage the relative nature of the education level would consist in asking the individuals where they think they are in the distribution of the education compared to their peers (relative level, individual perception compared to peers), and compared to their parents (relative level, individual perception compared to parents).

Indicators must point out factors on which government could have an impact

This condition is linked with the political relevance of the framework of indicators. From this point of view, the distinction between direct or mediated effect of education is crucial.

International indicators must be comparable

To produce good indicators, we need internationally comparable data. This requires the need to be aware of the cultural and linguistic equivalence issues, and of the comparability of constructs issue. It concerns both the translation and adaptation process in an international context, but it also raises the issue of the “universality” of the construct we measure, since there is a strong assumption that civics values, behaviours and attitudes may vary substantially from one country to another. Existing international databases should be reviewed to confirm the international comparability of the constructs (consistency), and to document translation and adaptation issues detected in the available international experiences.

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