

GOVERNING COMPLEX EDUCATION SYSTEMS

CONFERENCE SUMMARY

EDUCATION GOVERNANCE: THE ROLE OF DATA

[Nordic Hotel Forum](#), Viru väljak 3

Tallinn, Estonia

12-13 February 2015

This International Conference for the OECD/CERI Governing Complex Education Systems project (GCES) focused on the use of data for education governance. The main themes included the challenges of the use of data in education, some strategies that have been applied to tackle these challenges, and the kinds of support needed at different governance levels. All presentations and background papers from the meeting can be found at <http://www.oecd.org/edu/ceri/gces>.

Opening session

The meeting was opened by Mr Jevgeni Ossinovski, Minister of Education and Research in Estonia. He welcomed all the participants, and explained that data was very important for the Estonian context because it facilitated evidence-based decision-making. Both national and international (such as OECD) data systems helped to diagnose and understand data changes and plan educational policies.

During a pre-recorded video message to the audience, Mr Andreas Schleicher, Director of the OECD Directorate for Education and Skills, followed with a presentation highlighting the importance of good governance in education. Drawing on PISA results, he highlighted three important factors of good education governance: school autonomy, good coordination and alignment of all governance levels, and equitable spending of resources. He concluded by emphasising that high performing systems have moved to professional accountability, and that they support teachers to be innovative in order to improve their performance and to pursue professional development. The use of data thus underlies all elements of good governance.

First keynote address

The conference was chaired by Mr Jaak Aaviksoo, Estonian Member of Parliament. He described evidence in education policy as a most important tool – and adequate data is the key. However, the greatest challenge is finding meaning in the data: “We know so much, but we understand so little”. He argued that it was vital to conceptualise and contextualise the data gathered for good system governance. This is equally true on a larger scale as education systems cannot be understood and compared if the analysis does not take into account the historical context that led to a particular system.

The first keynote address was given by Mr. Marc Tucker, President of the National Centre on Education and the Economy, USA, entitled “Thinking about governance: A Story and Some Dimension Lines”.

Mr Tucker started his keynote with a historical narrative about the US education system from the 1970s onwards. Until the 1970s, the US led the world in education quality without much governance at the federal level, with inexpensive teachers, strong school districts, and a generally decentralised system of governance. This facilitated an education system that was not only decentralised, but also highly fractionalised. On the central level, the many education agencies distributed power but did not necessarily communicate with each other. While this was a fitting governance system for a long period, he argued that it reached its limit against the background of today’s changed world economy and international competition over education and skills.

In order to move ahead, he suggested that the first crucial element that could be usefully changed is to develop highly qualified teachers who can teach the advanced skills needed in the globalised and deindustrialised economy. For the education system to be able to recruit from the top performers of high school graduates, a high status of the teaching profession is necessary – which is not possible at the levels of pay and professional autonomy currently offered in the USA. By increasing the status and professional autonomy, a virtuous cycle can be established attracting high performing teachers and increasing the performance of students and the education system, which in turn contributes to attracting high performing graduates to the teaching profession. Examples of countries succeeding at this are Singapore and Finland.

The second dimension of governance that could use more thought is the distinction between centralisation and decentralisation, which he argued was too simplistic. Good governance is not a decision between centralisation and decentralisation of an education system *per se* but choice about which elements are centrally steered and which are directed locally. For example, setting student achievement standards, a broad curriculum framework and a small set of high quality national examinations might be good candidates for central steering, whereas decentralisation might be suitable for development of lessons, accountability regimes or teacher professional development. While his observations were inspired initially by the US experience, he argued in the end that these choices apply also to all education systems and good governance more broadly.

Discussion

The audience then raised a number of questions. When asked to provide an example of a system that successfully turned a vicious cycle of a low status and low performing teaching profession into a high performing one trusted by the public, Mr Tucker pointed to the Canadian province of Ontario. The example described how the teaching profession had been involved in policymaking processes after a new government took office. This led to a revived involvement and motivation of teachers, which in turn appears to have increased the trust of the public in their teaching profession.

Asked about how to decide which elements to centralise and which to decentralise, Mr Tucker elaborated that centralisation is not itself the goal but it needs to be asked which decisions are to be taken on which level: The professional model advocated is about setting the right objectives centrally and supporting the teachers in their approach to achieve them. Here, it is crucial to design the incentives effectively. Mr Tucker emphasised that in education the incentives are vastly more complex as teachers cannot be paid by pieces produced.

Second keynote address

The second keynote was given by Ms Kim Schildkamp, Associate Professor at the University of Twente, The Netherlands. The keynote covered a variety of issues such as what type of data in education exists, and what the challenges in developing and using data systems at the level of teachers, schools and policy-makers are, drawing on research conducted in several European and non-European countries. Ms Schildkamp then described a solution to the challenges through her project *Datateams*, which promotes and assists developing the use of data and research in schools led by teachers and school administration. To date the project shows mixed results in terms of independent use of evidence-based research by teachers but it does seem to have had an impact on teachers' understanding of the process and the need to use research and evidence in their decision-making.

Discussion

One delegate raised the question whether the overabundance of data, known as big data, could make the need for small scale studies and sampling obsolete. In response, Kim Schildkamp described that the research question must drive the method of choice and not vice versa. Qualitative studies will always have their place where in-depth individual knowledge and information is required in solving the research question at hand.

The question was then posed whether the project described by Ms Schildkamp was not merely a band-aid on a broken system, as it does not address the inherent flaws of the system described by Mr Mark Tucker in the previous keynote. Ms Schildkamp acknowledged that her project is an effort to transfer knowledge to use data, currently much needed by teachers and practitioners. If the paradigm of a professional teacher model was firmly implemented and engrained in the functioning of schools and the education system at large, then all teachers would generally be expected to know about using data and research and have the capacity to do so. However, this is not yet the case in the countries where she works, and indeed in many countries across the OECD.

The Governing Complex Education Systems (GCES) project

Ms Tracey Burns (OECD/CERI) presented the GCES project and outputs. The three main themes of the GCES project (accountability, capacity-building, strategic thinking) were highlighted in relation to the case studies and previous thematic conferences. All project materials, including publications and conferences, can be found on the project website: www.oecd.org/edu/ceri/gces.

Ms Burns reminded the delegates that the three questions of the day were:

1. Which strategies have stakeholders applied to collect, analyse, visualise, and use educational data in complex education systems, and how effective have they been?
2. What are the main challenges arising from use of data in educational governance (trust, accountability, capacity)?
3. What kinds of supports for the use of data are needed at different governance levels?

These topics underlie the entire conference, including the workshops (1) "Developing Data Systems", (2) "Data and Trust", (3) "Learning Analytics" and (4) "Estonian Data System".

Workshops

Two parallel rounds of workshops took place during the afternoon sessions of the conference, so that participants could take part in two out of the four workshops. In the following, the main points that arose from the discussions in the workshop sessions are presented.

Workshop I: Developing Data Systems

Ms Lucie Cerna (OECD/CERI) and Mr Henno Theisens (The Hague School of Applied Sciences, The Netherlands) each led one of the two sessions of this workshop. Mr Iain Bradley (Department for Education, UK) and Ms Cláudia Sarrico (Lisboa School of Economics and Management, Portugal) provided lead inputs in the first session, and Ms Claudia Schreiner (BIFIE, Austria) and Mr Darko Zupanc (National Examination Centre, Slovenia) in the second one. These inputs outlined the main characteristics of the data systems with selected examples from England, Portugal, Austria and Slovenia. The workshop looked at what data is collected in education systems, how capacity is built for the interpretation of this data and how the collection system is maintained. In particular, the session looked at country experiences and challenges, including privacy, ownership and presenting data in useable and comparative formats. Participants discussed questions around what type of data was used in their countries, what kind of challenges they have experienced around the development and use of data systems, and how they have resolved them.

A rich discussion followed on the use of data and the development of data systems. Even though data systems in education vary considerably across countries, many systems collect data on student background, staff and school characteristics, achievement and satisfaction. Some collect (anonymous) individual data, whereas some only aggregate data. Many systems use data for learning improvement, but some use it for accountability purposes, which can lead to closing down of schools and firing of teachers.

Nonetheless, the majority of education systems have experienced challenges regarding the development and use of data systems, ranging from equity issues, missing or incorrect data, dispersion of data between authorities at different levels of governance, lack of capacity and a lack of political will to address data protection issues. To respond to some of the challenges, systems can, for example, provide information to the public, train assessors, develop evaluation models of schools and offer protocols to follow research ethics.

There was also an interesting debate on whether more available data could lead to more inequality as highly educated and high-income parents could use the system in their favour (for instance by enrolling their children in good schools, or moving to neighbourhoods with good schools). Some countries were helping more disadvantaged parents to find information on schools, display data in user-friendly formats or work with head teachers to engage parents through open days.

It emerged from the discussions that many systems were trying to link data systems in education with labour market, social security and tax systems so that individuals could be followed through their whole life. There was a general effort to interlink data systems.

Workshop II: Data and Trust

Ms Tracey Burns (OECD/CERI) and Ms Lucie Cerna (OECD/CERI) each led one of the two sessions of this workshop. Lead input was provided by Mark Tucker (NCEE, USA) and Astrid Søgne (Municipality of Oslo, Norway) in the first and second sessions respectively.

In this workshop, participants examined how the use of data affects trust towards teachers and schools, whether the introduction of data changes the functioning dynamics in schools or between governance levels and how data affect the work of central and local authorities. They provided concrete examples of a time when the use of data seemed to contribute to strengthening or weakening trust in the system, as well as attempts that were made to restore trust if it was weakened.

A lively discussion ensued on the relationship between data and trust and various different stakeholders. Parents, for example, tend to react very positively to posting achievement data and the increased transparency and quality assurance was related to strengthening trust. On the other hand, participants gave the example of quality control being introduced to monitor teacher practice as more problematic: in some countries this was interpreted as implying distrust in teacher professionalism. This led to difficult relationships and claims that the data would harm teachers' creativity, motivation and self-confidence in some countries. Participants also remarked on the role of the media and publicly posting achievement data – although it was felt that this could raise the trust of parents in the system, it was feared that these data could be misused, for political reasons (ranking as politics) but also personal ones (parents using the data to selectively transfer their children to better schools). These practices have given rise to equity concerns in a number of countries, as the parents and stakeholders who are most able to use the data tend to have more education and higher incomes than parents that do not use these data. This then affects trust in education as a pathway to upward social mobility.

One of the other cautions raised was that the enormous amount of data available could give the illusion of being able to trace exactly cause and effect. Simple models of teacher performance (linked to student achievement, for example, and then having an impact on teacher pay and promotion) were given as examples of reforms that did more harm than good to trust in the system. Thus, there is a delicate balance to maintain between trust and the use of data for accountability that all countries were working towards.

Workshop III: Learning Analytics

Mr Henno Theisens (The Hague School of Applied Sciences, The Netherlands) and Ms Tracey Burns (OECD/CERI) each led one of the two workshops on Learning Analytics. The lead-input in both sessions was provided by Mr Peter Karlberg (Swedish National Agency for Education, Sweden); with his presentation revolving around the EU-funded LACE project (Learning Analytics and Community Exchange).

This workshop presented the emerging field of learning analytics, variously described also as Data Analytics, Data Mining, and Big Data. As the field is developing there are a number of competing ideas about what would count as learning analytics, and this workshop took a very broad definition, which included such things as computer-based testing and use of evaluation and assessment data. The EU project aims at the “measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in

which it occurs.” (Source: First International Conference on Learning Analytics and Knowledge (LAK11), Banff, Alberta, Feb 27-Mar 1, 2011). As the topic was new to many of the participants, the focus of the workshop rested on the detailed explanations of learning analytics in general and the LACE project in particular.

One of the outstanding questions was how likely it was that Learning Analytics and the use of big data would reach the classroom in a widespread manner. While the experts in the field feel that this would take between 3-5 years, the workshop participants were less convinced that change would come so quickly. In particular, there were a number of questions and issues revolving around privacy and the ethics of this practice, which seemed would take some time to resolve. What did become clear is that, in the absence of broader knowledge on the topic, there was room for potential exploitation of data and classrooms by researchers. While this could be a positive (new frontiers and methodologies for addressing difficult questions), it was also a potential negative if care was not taken to protect the rights and obtain informed consent from students and/or their parents. A lively discussion was also had around issues regarding capacity of schools, teachers, and even researchers to use these techniques, privacy, causality and practical implementation.

Workshop IV: Estonian Data System (in Estonian)

Organised separately for Estonian participants, this workshop in Estonian language was led by Margus Kärner, Marko Mölder and Tommy Tomson from Estonia. The participants discussed their expectations for a central education data system in Estonia.

Third keynote address

Ms Birgit Lao-Peetersoo (Foundation Innove) and Ms Aune Valk (Estonian Ministry of Education and Research) gave the third keynote address on the Estonian data system on the morning of the second day.

Estonia has had more than 10 years of e-government and e-elections, and there are many services for citizens through e-governance. One example is the EHIS (Estonian Education Information System) which is a unified system where educational data is stored, processed, analysed and transferred (e.g. to international organisations such as the OECD). It allows students and educators to access their own personal data. EHIS cooperates with several data systems, such as the Electronic Assessment Bank (EIS), the Estonian Research Portal or the State register of occupational qualifications. For instance, the EIS is an electronic system which provides an opportunity to authorise e-items and perform e-tests, and as such serves as input to school assessment.

Overall, the EHIS has increased the decision-making capacity of education stakeholders, for instance in terms of monitoring and evaluation as well as the allocation of financial resources. The system provides stakeholders with data and insights regarding education and as such may increase trusting relationships. Nonetheless, there are outstanding questions about governance of the data system such as the distribution of service provision between the state and the private sector. There are several recent developments of the system, such as linking EHIS with the tax register to connect education with labour market outcomes of university graduates, as well as connecting it with PIAAC data for the Nordic PIAAC database located in Statistics Denmark. It is further intended to offer comprehensive and comparable information about activity and performance indicators for schools' self-assessment and development.

Discussion

A number of technical questions were raised by the audience, including the links between this database and other international databases (to allow for tracking of students that were studying in other countries, for example). One question raised by the audience was concerned with how trust in the data system can be facilitated. To this the presenters responded that there have not been any instances of data abuse in education (in contrast to the health sector), because users only see their own scores. To secure privacy in the system, there are two key principles: first, each user has to identify himself/herself through an ID card, and second, there is a hierarchical system of access, which creates a log file for each user. A complementary explanation was that there is demand for seeing data in readable and easily analysable form, and trust is created by people using the data system.

Panel: *What can and what should we measure in education?*

The panel was composed of four members: Mr Jaak Aaviksoo (Estonian Member of Parliament), Ms Tracey Burns (OECD/CERI), Mr Rien Rouw (Ministry of Education, Culture and Science, The Netherlands), and Ms Claudia Schreiner (Federal Institute for Educational Research, Innovation and Development of the Austrian School System, Austria). It was moderated by Mr Henno Theisens (The Hague University of Applied Sciences, The Netherlands).

The panellists were first asked the question what could and should be measured in education. Ms Schreiner responded that it depended on what the purpose of data collection was (e.g. research, governance or quality development in schools), but argued that most things in education could be measured. Nonetheless, there were some restrictions in terms of balancing gain versus costs. Such costs do not only refer to the financial resources but also possess an ethical dimension.

Her intervention was followed by Mr Rouw who drew on a quote from “Hotel California”, stating that ‘you can check out any time you like, but you can never leave’ from data. Mr Rouw added that almost everything is already being measured. Seeing this, data in itself is useless – ultimately it depends on what is done with it, and “smart data” sets are necessary to give the proper guidance to govern education systems. However, emphasising the ethical dimension of data collection and analysis, he cautioned about measuring disabilities of children (such as dyslexia) since it led to certain expectations.

Next, Ms Burns responded that virtually everything could be measured given enough financial resources and time, but perhaps not everything should be measured since a saturation point will be reached in terms of how much can actually be used in a meaningful manner. Therefore, the power of data might be both under- and over-estimated since it is not always clear what could be done with all the collected data. The important question was how to make the data system usable.

The fourth panellist, Mr Aaviksoo, emphasised that there was no general agreement on what made sense to be measured, but it was important to find out what the use of data was before starting to collect it. For him, education was not about academic achievement, but about individual progress, so it was useful to link educational indicators with broader socio-economic indicators (i.e. progress in broader sense).

These statements were followed by a discussion between the panellists and the audience members. Some audience members cautioned that not everything could be measured well, such as social and emotional skills, critical thinking, civic participation or creativity, whereas others thought that reliable instruments could be found to measure even critical thinking or being innovative. There was also a discussion about the ethical dimensions of measurement – it was important to ask who was measuring what and for what purpose. Mr Rouw described that more should be measured in education in order to improve policies but there was a risk of focusing only on outcomes. Ms Schreiner advised against prematurely limiting data collection per se, but emphasised that it is crucial to exert caution in the use and publication of data. Since education was contextual, Mr Aaviksoo suggested proposing two to three priorities and then developing indicators to measure these priorities. Moreover, Ms Burns urged the education sector to learn from other sectors for developing and measuring indicators.

Adieux

Ms Tracey Burns (OECD/CERI) summarised the lessons learned throughout the conference as well as the next steps of the project. She thanked the participants and especially the Estonian hosts on behalf of the OECD and the GCES project for making this conference such a success.

Mr Kalmar Kurs, Estonian Ministry of Education and Research, concluded with highlighting that this was the eight meeting with the OECD since Estonia had joined the organisation in 2010, and that education was a priority for the country. He thanked the OECD and the Estonian organisers and encouraged participants to distribute knowledge from the conference.