Accountability and children's outcomes in high-performing education systems

Analytical maps of approaches to measuring children's education, health and well-being outcomes in high-performing educational systems

Review conducted by the School Accountability Review Group

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TECHNICAL REPORT

The results of this systematic review are available in four formats:

SUMMARY	Explains the purpose of the review and the main messages from the research evidence
REPORT	Describes the background and the findings of the review(s) but without full technical details of the methods used
TECHNICAL REPORT	**Includes the background, main findings, and full technical details of the review**
DATABASES	Access to codings describing each research study included in the review

These can be downloaded or accessed at **http://eppi.ioe.ac.uk/reel/**

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CONTENTS

List of abbreviations

DCSF	Department for Children, Schools and Families
COOL	Educational Careers Cohort Survey
ECM	Every Child Matters
EPPI-Centre	Evidence for Policy and Practice Information and Co-ordinating Centre
Eurydice	The information network on education in Europe
IEA	International Association for the Evaluation of Educational Achievement
INCA	International Review of Curriculum and Assessment Frameworks Internet Archive
OECD	Organisation for Economic Co-operation and Development
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
TIMMS	Trends in International Mathematics and Science Study
UNICEF	United Nations Children's Fund

Country abbreviations

Au	Australia
Be	Belgium
De	Denmark
Fi	Finland
Hu	Hungary
Ir	Ireland
Ja	Japan
Ko	Korea
Ne	The Netherlands
NZ	New Zealand
Si	Singapore
Sw	Sweden
Swi	Switzerland

Executive summary

What did we want to know?

The research question for this review was as follows:

What indicators are deployed to measure children's education, health and well-being outcomes in countries with high-performing educational systems and how are they used?

To answer this question we identified a sample of countries with high-performing education systems and examined:

- whether they deployed indicators to measure children's education, health and well-being outcomes
- which such indicators were used, and
- how these indicators were deployed.

Who wants to know and why?

This report was commissioned by the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) at the Institute of Education, University of London, on behalf of the Department for Children, Schools and Families (DCSF) for England. The Government is interested in improving outcomes for all children and in narrowing the gap between the highest and lowest performing groups of children. Since the publication of Every Child Matters in 2003 the Government has also been keen to set educational attainment in the context of other child outcome indicators. The outcome of this study is deliberately narrowly focused on systematically building a descriptive analytical map and does not evaluate different practices. Its purpose is to provide background information for policy makers and strategists and to support wider debate on the issues.

What did we do?

Countries were selected using four frequently referenced international surveys. These were:

- UNICEF 2007: Child poverty in perspective: an overview of child well-being in rich countries
- PISA 2007a, 2007b – International standardised assessment of 15 year olds
- TIMSS 2003 (Gonzales et al. 2004) – Mathematics scale scores of 13-14 year olds
- TIMSS 2003(Gonzales et al. 2004 – Science scale scores of 13-14 year olds.

Our sample comprised thirteen countries: the seven countries in the top 10 of the UNICEF list AND on at least one other list - Belgium, Denmark, Finland, Ireland, the Netherlands, Sweden and Switzerland; the five countries in the top 20 of all three of the non UNICEF lists - Australia, Hungary, Japan, Korea and New Zealand; and Singapore as it was top of the TIMSS 2003 mathematics and science lists.

Our examination of the literature was based on the methodology used for EPPI-Centre systematic reviews, although with some differences. Firstly we departed from the usual method because we searched websites which contained policy documents relevant to answering the research question rather than electronic databases of peer-reviewed literature. During May and June 2008 we searched for governments' reports, other official documentation and academic studies such as comparative studies and country reports. Using the EPPI-Centre methodology we screened titles and abstracts, and full documents using inclusion and exclusion criteria. A second departure was to stop short of an in-depth review because it was not appropriate to apply the usual criteria for judging academic studies to all the included material. Summary findings for each country were compiled,

checked where possible with contacts within each country, analysed and used to build descriptive maps.

What did we find?

We found 109 documents that gave information about outcome indicators about our sample. We found a good amount of information (over 20 publications) for three countries (Australia, Singapore and Sweden) and a reasonable amount (between 10 and 20 publications) for a further five (Finland, Hungary, Ireland, Japan and the Netherlands). We had less than ten publications for five countries: Belgium, Denmark, Korea, New Zealand and Switzerland.

We found information from all four of our main sources of information (government websites, Organisation for Economic Co-operation and Development, International Review of Curriculum and Assessment Frameworks and The information network on education in Europe) for five countries (Finland, Hungary, Ireland, the Netherlands and Sweden). For three of our countries (Australia, Belgium and Japan) we found material in three of the four sources, while information about the remaining five countries (Denmark, Korea, New Zealand, Singapore and Switzerland) was found in only two of the four sources (not the same sources for each country).

An analysis of this information revealed evidence of educational outcomes being used in all countries but was limited for Switzerland. There was evidence of health outcome indicators in use in Australia, Finland, Ireland, Japan, Korea, New Zealand, Singapore and Sweden. Well-being outcomes were found for Australia, Belgium, Finland, Ireland, Japan, Korea, the Netherlands, New Zealand, Singapore and Sweden. Outcome indicators were used for monitoring and accountability by all countries but the evidence base for Korea, Singapore and Switzerland was limited. We used this information to build these analytic maps of types of outcome indicators and their uses.

Analytical maps

- Education indicators found frequently were attainment and participation in education and employment; social and emotional development and environmental indicators occurred infrequently.
- Health indicators were varied in type but found infrequently they included aspects of general public health and healthy lifestyles.
- Well-being indicators were also varied in type but not often found they ranged from perceptions of well-being; family environment; relationships and social participation; education, employment and income; housing, homelessness and environment to criminal activity.
- Outcome indicators were mostly used for the purposes of monitoring performance of systems and standards; and for accountability at national and school level and occasionally at regional. Indicators informed the development of policies, national programmes and school improvements. They were also used to monitor equity and to direct resources.

Individual child indicators were sometimes used within schools for allocating pupils to teaching groups or to streams and for admission to different types of schools. They were also used for reporting progress and attainment to parents and pupils. Singapore used indicators to monitor the rights of the child.

Only two countries – Ireland and Japan- reported a board range of outcomes in a holistic way.

What did we conclude?

A more nuanced understanding of how outcome indicators were used can be gained by looking at the purposes of monitoring and accountability. As a result of our examination of the material, we distinguished four models that illustrated different emphases in the use of child outcome data. These models are heuristic devices rather than analytic descriptions, it is not the case that they exist in pure forms and we characterise them as follows:

Accountability model: an accountability led model in which outcomes were rigorously monitored at reporting levels (schools, regions, national) for the purposes of management and accountability (Australia and the Netherlands). This approach required national standardised measures of attainment and benchmarks by which schools, states and local areas could compare performance.

School community model: a reporting model in which outcomes were monitored at national level and effort was focused at policy level on identifying and removing barriers to learning but which was relatively relaxed about within system accountability at school level (Finland).

Social capital model: where improving child outcomes were part of plans to increase individual citizen's contributions to the economy of the country and to strengthen social networks (Japan and Singapore).

Psycho-social model: where improving mental and physical health and well-being were seen as prerequisites to improving learning outcomes (Australia).

What were the implications?

On the basis of our findings we highlight issues on which policies makers might learn from other countries' practices:

There is widespread and increasing interest in monitoring the performance of education and children's service systems and in monitoring performance across an increasing range of outcomes. There is extensive policy borrowing. Government needs to recognise that policy structures and cultural practices are different in different systems.

Government should consider developing a periodic statistical report combining key education, health and well-being indicators which would provide a comprehensive description of outcomes for children indicating patterns and trends which would inform policy making and strategic planning.

Given the practices in other high performing systems, government should now reflect on whether reporting of child outcomes at school level in league tables may be counter productive. It is thought by some of the governments we explored to be unhelpful because schools in deprived areas may be doing well given the profile of their students but appear to be failing when compared to schools in affluent areas. The performance of the education and wider children's services system could be monitored using national standardised tests without the need to report at school level. With benchmarked data it would still be possible to compare performance and trends in schools in similar socio-economic circumstances.

Government should consider the best way to collect child outcome indicators since there are alternatives to current practices. Not all national testing needs to be annual or for the whole cohort – some subjects could be tested periodically and/or with a representative sample of pupils. When testing does occur, this is a good opportunity to gather other information about pupils, by the completion of general surveys at the same time.

Government should undertake work to refine the use of outcome indicators to better understand patterns of social inequality at national and local levels and to direct resources to combat disadvantage.

CHAPTER ONE

Background

In this chapter we explore the aims and rationale of the study, discuss the definitional and conceptual issues associated with the subject and set out the research question. We discuss the policy and practice contexts, consider the research background and describe the funders and authors of this research.

1.1 Aims and rationale for the study

We set out to provide an analytical map of approaches to the measurement and monitoring of children's outcomes across education, health and well-being in high-performing education systems. We were commissioned to examine international perspectives on approaches to measuring and using information about children's outcomes, as well as to contribute to the emerging knowledge about the characteristics of high-performing education systems (see Barber and Mourshed, 2007).

Results of international surveys including PISA[1], PIRLS[2] and TIMSS[3] have revealed apparent disparities in attainment between educational systems, and have sparked intense interest in what appear to be high-performing education systems (Mullis et al., 2003, Mullis et al., 2005, Mullis et al.,2007, OECD, 2005, Schleicher, 2008). Some commentators believe that the appearance of such international comparative evidence has been a driver for policy change in education (Doyle, 2008, Schleicher, 2008). More recently, United Nations Children's Fund (UNICEF) published a wider-ranging secondary comparison of children's well-being in twenty-one affluent countries (UNICEF, 2007). This report attracted significant press and policy attention because of the poor performance of the UK in relation to children's relationships, risk behaviour, well-being and poverty, whilst also raising obvious questions about the nature of the evidential base for making judgements about health and well-being (see Appendix 1.2 for a brief description of the international studies referred to in this study).

1.2 Definitional and conceptual issues

1.2.1 High performance

Although there is considerable policy interest in comparative educational performance, there is as yet no reliable or agreed framework for identifying 'high-performing educational systems' nor any consensus about which outcomes should be used for judging performance. Some countries repeatedly perform well, but few tests cover the same range of countries and there is no evidence on 'value-added performance' – only crude outcome measures of the performance of a sample of young people. For this reason we cannot be sure that countries which perform well are indeed high-performing nor whether their high educational performance derives from the organisation, management and delivery of their education system rather than, say, cultural factors to do with the status of education.

The Organisation for Economic Cooperation and Development (OECD) has recognised some of these difficulties and has categorised education systems against two performance measures: a measure relating to average pupil performance and a measure related to social equity (based on the gap between the highest and lowest performing groups) (Schleicher, 2008). Schleicher explored these measures by looking at attainment in science. He demonstrated that some systems with above average performance in science, such as New Zealand and the UK, score below average in measures of social equity, whilst some systems with high social equity

1 The Programme for International Student Assessment (PISA) is an internationally standardised assessment that was jointly developed by participating countries and administered to15-year-olds in schools; it includes results for England and Scotland.

2 The Progress in International Reading Literacy Study (PIRLS) is an international comparative study of the reading literacy of young students; it includes results for England and Scotland.

3 The Trends in International Mathematics and Science Study (TIMSS) provides data on the mathematics and science achievement of US students in grade 4 and grade 8 compared with that of students in other countries; it includes results from Scotland, but the insufficient sample for England makes the results unusable.

in science (such as Israel and Norway) score below average for pupil performance. Moreover, in most cases, countries which performed well in aspects of elements of performance in some subjects did less well in others: French pupils, for example scored relatively highly in the use of scientific evidence but very poorly in knowledge of the earth and space. For these reasons, the concept of 'high-performing education systems' needs to be treated with considerable caution, and more work needs to be done to understand the complex ecology of national patterns of performance, and to set it in the wider context of the management of education systems.

On the other hand, there is now a wide and rapidly extending range of international evidence on performance from international comparative measures such as PIRLS, PISA and TIMSS. These data, almost all of them referring to measures of short-term cognitive attainment, were supplemented in 2007 by a UNICEF report which looked in more overview terms at children's well-being in affluent societies. Taken together, these reports do suggest that some countries manage education systems which produced high outcomes in relation to performance, equity and measures of well-being. For example, Finland consistently performed highly on measures of pupil performance and high levels of social equity, and the Finnish model has begun to exert high influence on UK policy makers (Adonis, 2007).

In order to examine practices in education systems which perform well across a number of measures – which we will refer to by the portmanteau term 'high-performing education systems' - we developed a definition of high performance based on combining data across the UNICEF and cognitive performance tests. *For the purposes of this study, high-performing education systems were defined as those which perform well against both educational attainment indicators (PISA and TIMSS) and the UNICEF report that also included health and well-being indicators*. As far as we know, this is the first time that a research study has attempted to provide a clear framework for selecting and identifying high-performing systems.

1.2.2 Defining outcomes

The 'outcomes' of education are multiple. A persistent argument used in much critical policy work is that outcomes-based approaches to the assessment of education themselves narrow the scope of educational practices. The key markers of a civilised and educated society – tolerance, open-mindedness, creativity and so on – cannot be measured in terms of 'measurable' outcomes, and, indeed, the outcomes of education go far beyond what can be measured (Pring, 2005). However, education is a large component of any government's public spending and treasuries typically look for evidence of returns on investment. In many countries, therefore, measures of the returns to educational investment are sought. Most typically the return to educational spending has been measured in terms of short-term cognitive measures such as examination results, short-term non-cognitive measures including completion rates, participation rates in higher education or youth unemployment and long-term returns to individuals in terms of lifetime earnings (Wolf, 2002, Goldin and Katz, 2008).

As a result of the Every Child Matters (ECM) policy initiative (HM Treasury, 2003), the Government of England has been seeking to develop measures of children's outcomes which go beyond relatively narrow measures and encompass wider outcomes. Here too, there is complication. In a modern, complex society, governments routinely collect data on a wide range of aspects of children's lives – immunisation and sickness rates, part-time employment, youth crime and so on. Little of this data is reported in a way which informs decision-making about the outcomes of education and children's service provision: much of it relates to wider policy needs, such as demographic information which is required to plan the demand for health, schooling and social services, or crime data which is needed to plan for the provision of prison places.

As the ECM experience shows, however, what is especially challenging for the Government is to draw together relevant data in order to inform policy and practice, and it is these data which we are interested in. We are not concerned to map all the data collected by governments on children (which would be a massive undertaking in itself). Instead we set out to understand the data related to the outcomes of education and other children's services that governments draw on in their engagement with these services and service areas. We have therefore included material relating to children's outcomes in educational attainment (general cognitive or specific to reading, writing, mathematics or science), health and other measures of well-being which are seen by governments as relevant to their engagement with children's services providers. In addition we examined material related to measuring, recording, reporting and assessing outcomes in relation to the use of these data as performance indicators.

1.3 Research question

What indicators are deployed to measure children's education, health and well-being outcomes in high-performing educational systems and how are they used?

In answering this question, we have sought to identify what knowledge exists about:

- whether indicators are deployed to measure children's education, health and well-being outcomes in high-performing educational systems;
- which such indicators are used across a range of high-performing educational systems; and
- how chosen indicators are deployed.

1.4 Policy and practice background

1.4.1 Policy

There is increased concern in and beyond this country about children's well-being which has resulted in the English Government's ECM agenda, and the international UNICEF report (2007) on children's well-being. This policy strand is closely intertwined with another: the concern to compare system-wide performance in education between countries, which has been a feature of increasingly influential comparative studies such as PIRLS, PISA and TIMSS. As a result there is interest in how, if at all, high-performing systems measure indicators of children's well-being. This has led DCSF to commission this study of practices in the identification, audit and monitoring of measures of children's education health and well-being, in order to obtain an international perspective against which to plan future research, develop policy and review the system for monitoring children's outcomes in England.

1.4.2 Practice

In England the Government has overseen an extensive programme of reform in children's service provision, including the construction of 150 local authority Children's Services Departments, the establishment of Children's Trusts and the introduction of joint area reviews (Bachman et al., 2007). This programme culminated in the reshaping of central government administration and the publication of the Children's Plan with the aspiration to make England 'the best place in the world for children to grow up' (Department for Children, Schools and Families, 2007) and ensure system-wide focus on improving children's outcomes. Currently the Government lacks an effective performance management system to test accountability across the wider range of outcomes, although it has recently published proposals to broaden the focus of school inspection to include wider outcomes.

Implementation of ECM highlighted stark difficulties in mapping children's outcomes. In England accountability for educational outcomes, as measured in short-term cognitive indicators in literacy, mathematics and science (and a wider range of subjects at 16) has largely been at school-level. School-level accountability has been a powerful feature of education policy and practice, although widespread concern has been raised about the validity, reliability and fitness for purpose of the available measures (e.g. Statistics Commission, 2004). What is less clear is how schools and others might be held accountable for wider outcomes; the relationship between accountability at school-level and at local area level; and the availability of routinely collected indicators beyond the short-term cognitive measures provided by test results.

1.5 Research background

1.5.1 Children's outcomes

The Government is aiming to improve outcomes for all children and narrow the gap between the highest and lowest performing groups of children (Kendall et al., 2008). Whilst there is evidence to suggest that children's cognitive attainment has improved in England over the last decade and a half, there remains concern about how this attainment compares to that of children in other developed countries (Department for Children, Schools and Families, 2007).

Research evidence for the relationship between national policy intervention and improved child outcomes is difficult to find. The most recent synthesis of the impact of welfare reform on children's outcomes concluded that impacts of reforms differ with the stage of a child's development, but most are relatively short-term (Grogger et al., 2002). Much international evidence on children's outcomes suggests that outcomes are driven by long-term structural features of children's lives: with exposure to poverty an overwhelming determinant (Jones et al., 2002, Plewis et al., 2001).

One set of concerns has related to the nature of appropriate indicators which might be used to explore children's outcomes. Most of the measures against the five outcomes are negative indicators: measures of children's illness are more readily than their health, of those occasions when they do not make a positive contribution (e.g. crime statistics) rather than of measures when they do. The measurement and assessment of children's outcomes is therefore a policy challenge for the Government.

1.5.2 Research methodology

The DCSF and the EPPI-Centre realised that a substantial amount of what is known about practice rests in policy and review documents rather than in the research literature, and sought an analytical map of this practice. So although this study was commissioned by the EPPI-Centre, and deploys elements of the centre's conventional systematic review methodology, it also adopts a distinctive approach to the collection, collation, appraisal and presentation of evidence. Whereas conventional systematic reviews draw on a range of peer reviewed research evidence to establish the current state of knowledge about a defined research question, this study uses policy documents and reports to develop analytical maps which describes a range of current policy practices in different polities. Our approach was to acquire information from relevant websites in a systematic way using defined search strategies, and to verify the outcomes of those search strategies wherever possible by using informants in policy roles. It did not seek to reach conclusions about the

effectiveness or impact of practices but to provide, on the basis of systematic enquiry, an analysis of approaches to the measurement of children's outcomes in high-performing education systems.

The study takes the form of a 'scoping map', as conceptualised by the EPPI-Centre. The model for this approach is the process of 'descriptive mapping' during a systematic review, which is designed to answer questions about what research is available on a given topic and uncover gaps.[4] A scoping map is intended to describe the characteristics of relevant literature rather than weigh the empirical evidence that exists in relation to the effectiveness or otherwise of different interventions. As a result, this report does not evaluate the methodological rigour of studies or synthesise their findings.

1.6 Funders, users and authors of the study

This mapping exercise was commissioned by the EPPI-Centre at the Institute of Education, University of London, on behalf of the Department for Children, Schools and Families (DCSF) for England. It is intended for policy makers and strategic planners in England who are reviewing the types and range of indicators currently in use for monitoring children's outcomes and holding children's services providers to account for their performance.

The maps may also be of use to policy makers, strategic planners and government bodies to whom children's service providers are accountable in other countries who are reviewing approaches to measuring outcomes for children and young people.

The research team was based at the Institute of Education, University of London. The team had considerable experience of using indicators of children's outcomes in education, health and well-being having all previously evaluated Children's Trust Pathfinders. Professor Chris Husbands has a background in policy analysis and advice, particularly in relation to schooling. Ann Shreeve has practical experience of using indicators to monitor the education system in England. Dr Natalia R. Jones has a background in quantitative research studies particularly in the health sector as well as working as an evaluator and researcher. Professor Chris Husbands (Bills et al., 2007, Bills et al., 2008) and Ann Shreeve (Bills et al., 2007) have previous experience of using EPPI-Centre procedures for conducting systematic reviews.

4 http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=175

CHAPTER TWO

Methods used in the Review

This chapter details each stage of the study to ensure that it is accountable, replicable and updateable. Further details of the methods are available in Appendices 2.1 to 2.6.

2.1 Description of the methods

We began by establishing a set of criteria for identifying and sampling 'high-performing education systems', using data from four international studies of outcomes for children and young people:

- UNICEF 2007: Child poverty in perspective: an overview of child well-being in rich countries
- PISA 2007a, PISA 2007b – International standardised assessment of 15 year olds
- TIMSS 2003 (Gonzales et al. 2004)– Mathematics scale scores of eighth grade students (13-14 year olds) and
- TIMSS 2003 (Gonzales et al. 2004) – Science scale scores of eighth grade students (13-14 year olds).

Firstly we identified countries which were listed in the top 10 of the UNICEF list AND on at least one other list. This produced seven countries: Belgium, Denmark, Finland, Ireland, the Netherlands, Sweden and Switzerland. Secondly we identified countries which were listed in the top 20 of all three of the non UNICEF lists (PISA 2007a, PISA 2007b, TIMSS 2003 science and TIMSS 2003 mathematics). The rationale for this was that these countries appeared to demonstrate relatively consistent success across a range of education indicators. This produced a further five countries: Australia, Hungary, Japan, Korea and New Zealand. Alongside these twelve countries Singapore was also added as it was top of both the TIMSS 2003 mathematics and science lists. A summary of the characteristics of selected countries can be found in Appendix 2.1.

2.2 User involvement

Contacts in each country were identified by representatives of the DCSF and the EPPI-Centre; they were mainly located in the ministry responsible for education, although in one case they were at a university. The contacts included senior advisers, analysts, statisticians, planners and an academic who were involved in research, planning, information sharing or international affairs. An email was sent asking them to arrange access for us to any recent government publications.

Six ministry contacts (Demark, Ireland, Korea, Singapore, Sweden and Switzerland) responded to the email and provided us with information on government policy. Towards the end of the data collection period we emailed contacts and asked them to comment on our summaries of their country's approach and to provide any further relevant information. Six contacts replied (Australia, Belgium Flemish Community, Demark, Ireland, New Zealand and Sweden) and the information provided was used to update summaries.

2.3 Identifying and describing material

Websites were searched systematically during May 2008 for relevant research, policy, legislation and statistics (see Appendix 2.2 for addresses of ministry websites). Inclusion and exclusion criteria were applied to titles, abstracts and contents (see Appendix 2.3). Further material was provided by ministry contacts by the cut off date of 17th September 2008.

2.4 Inclusion and exclusion criteria

To ensure that only relevant government publications and official or semi-official reports were included an explicit list of inclusion and exclusion criteria was developed to exclude material that was inappropriate. During May 2008, the criteria were applied hierarchically to screen titles and abstracts beginning with inclusion criterion 1.

Inclusion criterion 1: We included material relating to countries identified in the first stage of the research, regardless of the country of publication.

Inclusion criterion 2: We included material published within the last eight years. Justification: we were concerned with current practice, rather than past practice. Eight years was a relatively arbitrary cut-off, but captures all approaches established and used since PISA 2000.

Inclusion criterion 3: We included material relating to children and young people's (aged 0-19) outcomes in educational attainment (general cognitive, or specific to reading, writing, mathematics or science), children's health and other measures of children's well-being. Justification: to exclude further and higher education; to be more explicit about the age range of children/young people.

Inclusion criterion 4: We included material related to measuring, recording, reporting and assessing children and young people's outcomes in relation to the use of this data as performance indicators.

Inclusion criterion 5: We included material that was in the English language.

The documents and websites which made it through the title and abstract screening were screened in full during June 2008 using the original inclusion and exclusion criteria and the additional criterion:

Inclusion criterion 6: We included the most recent published report where it was part of a regular review cycle e.g. annual report for 2007.

Exclusion criteria are reported in Appendix 2.4.

2.5 Quality assurance

Titles and abstracts were screened by two members of the research team following two moderation exercises by researchers and an external moderator. The first moderation exercise, designed to establish how consistently the original version of the inclusion and exclusion criteria were being applied to the titles and abstracts, showed a sound level of agreement between the three researchers. There was agreement on six (of ten) titles and abstracts before discussion and ten after discussion. A small sample was moderated by an external moderator, who came to the same conclusion.

There was a good level of agreement between the three researchers when applying the second version of the inclusion and exclusion criteria to a sample of ten full documents during the second moderation exercise. An external moderator moderated the same sample and came to the same conclusion as the research team.

2.6 Analytic maps

The material remaining after the application of the inclusion and exclusion criteria were keyworded using a study specific keywording sheet (see Appendix 2.5) adapted from the EPPI-Centre Core Keywording Strategy (EPPI-Centre, 2002). In addition, researchers extracted relevant information about each country's approach using an information retrieval coding tool (see Appendix 2.6) designed to gather evidence to answer:

- Whether, and which indicators were used by government(s).
- How indicators were used.

Summaries of each country's approaches were complied, shared with contacts and revised. The revised summaries were analysed to produce the analytical maps of which and how indicators were used.

CHAPTER THREE

Identifying and describing studies: results

In this chapter we present the results of the filtering process and the characteristics, volume and range of included documents. We conclude by describing which outcome indicators were found and how they were used.

3.1 Studies included from searching and screening

Figure 3.1 illustrates the process of filtering from searching to analytic mapping. A total of 652 citations were identified through systematic searches of three websites INCA[5]=12, OECD[6]=631 and Eurydice[7]=9.

Titles and abstracts were screened using the inclusion criteria, described in section 2.4. The majority of papers excluded at this stage did not meet our third inclusion criterion: material relating to children and young peoples' (aged 0-19) outcomes in educational attainment, children's health and other measures of children's well-being.

The initial screening yielded 114 papers potentially relevant to our analytic map. A further 54 papers were identified through hand searching ministries' websites. Allowing for papers that were unattainable because URLs did not work (7) and duplicates (9), 152 documents and an extra 21 documents that were identified during information retrieval stage went through to full screening, making a total of 173 documents.

At the second stage of screening, a further 64 papers were excluded, again most commonly on the grounds that they did not meet our third criterion. This resulted in a final total of 109 papers that met our criteria for inclusion in the systematic map. The database closed on 30th September 2008. After that date documents received were not included, but will be in future updates to this report.

3.2 Characteristics of the included studies (systematic map)

3.2.1 Volume and range of materials

We found a good amount of information (over 20 publications) for three countries (Australia, Singapore and Sweden) and a reasonable amount (between 10 and 20 publications) for a further five (Finland, Hungary, Ireland, Japan and the Netherlands). We had less than ten publications for five countries: Belgium, Denmark, Korea, New Zealand and Switzerland. Table 3.1 shows the source and number of material reviewed by country.

We found information from all four of our main sources of information for five countries (Finland, Hungary, Ireland, the Netherlands and Sweden). For three of our countries (Australia, Belgium and Japan) we found material in three of the four sources, while information about the remaining five countries (Denmark, Korea, New Zealand, Singapore and Switzerland) was found in only two of the four sources (not the same sources for each country).

3.2.2 Characteristics of documents

The majority of the documents we identified were government publications or reports on individual countries. Only 13 documents were comparative studies. The material we examined was in the main of recent origin with about two-thirds published between 2006 and 2008. We found the most information about the secondary and post-secondary phases of education (see Table 3.2).

5 INCA is the International Review of Curriculum and Assessment Frameworks Internet Archive. It provides regularly updated descriptions of government policy on education in Australia, Canada, England, France, Germany, Hungary, Ireland, Italy, Japan, Korea, the Netherlands, New Zealand, Northern Ireland, Scotland, Singapore, Spain, Sweden, Switzerland, the USA and Wales. It is funded by the Qualifications and Curriculum Authority in England. (www.inca.org.uk)

6 OECD is the Organisation for Economic Co-operation and Development. It provides a setting in which governments can compare policy experiences, seek answers to common problems, identify good practices, and co-ordinate domestic and international policies. It is one of the world's largest sources of comparable statistics, economic and social data. There are currently thirty full members of OECD. (www.oecd.org)

7 Eurydice is an institutional network for gathering, monitoring, processing and circulating reliable and readily comparable information on education systems and policies throughout Europe. It covers the education systems of the Member States of the European Union, the three countries of the European Free Trade Association which are members of the European Economic Area, and the EU candidate countries involved in the EU Action Programme in the field of Lifelong Learning. (www.eurydice.org)

Figure 3.1 Filtering of papers from searching to map to synthesis

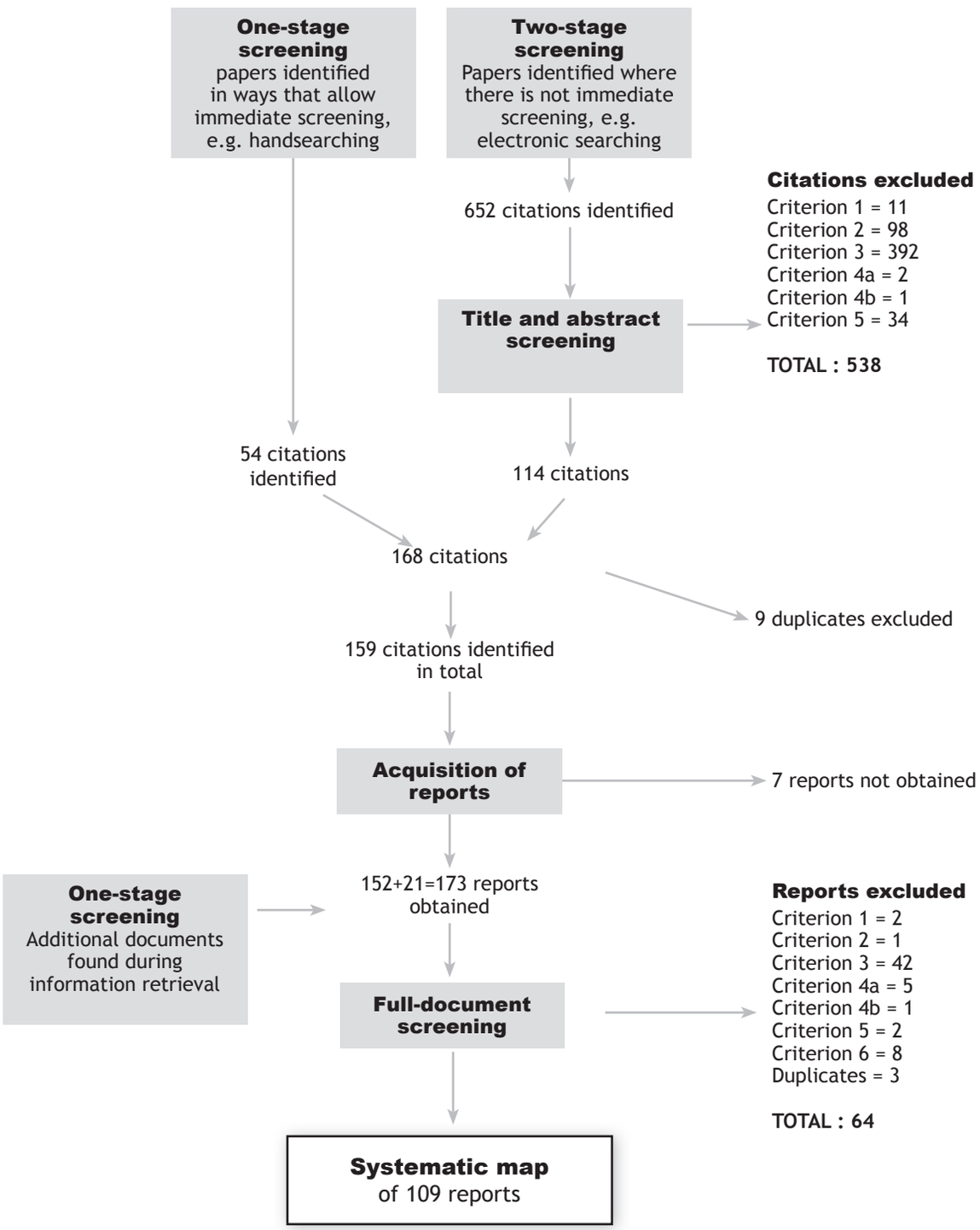

Table 3.1: Sources of material included by country

	Number of studies				
	Government websites and recommendations	**OECD**	**INCA***	**Eurydice**	**Total**
Australia	10	3	13	0	26
Belgium	2	1	0	3	6
Denmark	3	0	0	1	4
Finland	4	5	1	1	11
Hungary	2	3	8	1	14
Ireland	6	1	8	1	16
Japan	4	4	9	0	17
Korea	1	0	1	0	2
The Netherlands	2	3	11	1	17
New Zealand	6	0	1	0	7
Singapore	13	0	9	0	22
Sweden	6	7	11	1	25
Switzerland	0	1	1	0	2
Total	**59**	**28**	**73**	**9**	**169**

*INCA comparative studies are usually related to more than one country and were counted more than once. In this table we show how many of the INCA studies related to each country. There were 13 INCA studies in total.

Table 3.2: Main characteristics of the documents

	Number of studies (mutually exclusive)
Publication type	
Government publication	53
Non-government publication	4
International organisation – comparative study	13
International organisation – report on an individual country	39
Date of publication	
2000	5
2001	2
2002	6
2003	7
2004	8
2005	9
2006	23
2007	33
2008	16
Phase	**Number of studies (not mutually exclusive)**
Child care 0-3	15
Pre-school	20
Primary phase	73
Lower secondary	73
Upper secondary phase	93
Post-secondary non-tertiary	41
Tertiary – first stage	38
Tertiary – second stage	28

Table 3.3: Documents on child indicators: sector and use of indicators, by country

	Number of publications (not mutually exclusive)				
	Sector				
	Education	Health	Well-being	Other	Total
Australia	24	2	3	0	29
Belgium	6	0	1	0	7
Denmark	4	0	0	0	4
Finland	10	1	2	0	13
Hungary	14	0	0	0	14
Ireland	15	3	3	1	22
Japan	15	2	4	1	22
Korea	2	1	1	0	4
The Netherlands	17	0	2	0	19
New Zealand	7	1	1	0	9
Singapore	20	2	3	1	26
Sweden	21	3	4	0	28
Switzerland	2	0	0	0	2
Total	**157**	**15**	**24**	**3**	**199**

3.2.3 Countries for which we had limited evidence

In Belgium there are three ministries responsible for education, one each for the Flemish, French and German Communities. Only the Flemish Community had web pages available in the English language but they were of a general nature and not very specific. Belgium was not an INCA country so there was no information from their comparative studies. Only four documents contributed to the analysis of child outcome indicators used in Denmark and these were drawn from just two sources - the education ministry and the Eurydice website. Our evidence base for Korea was also very limited - we obtained only one document from the ministry website and one INCA comparative study. The ministry website had an English portal but searching for detailed information was difficult, for example the education statistics website was only available in the Korean language. Material relating to child outcome indicators in Switzerland was scarce - we found just one document from the OECD website and one INCA comparative study. There is no education ministry for Switzerland as the 26 Cantons are responsible for education and the Canton's websites were not available in the English language. Although New Zealand and Singapore are not OECD or Eurydice countries their government websites provided a wealth of information. Despite these limitations, for the sake of completeness countries with high-performing education systems with a poor range and volume of material were included in the analytical maps.

3.2.4 Types and use of indicators

The majority of publications covered child outcome indicators about education and their uses. Fewer publications covered health and well-being outcomes and their uses. Just three publications included information on other types of outcomes and all of these were criminal justice. Overall we found a good volume of information about which and how indicators were used for Australia and Sweden and a poor level for Denmark, Korea, and Switzerland. We had an adequate level of information for other countries (see Table 3.3).

3.3 Summary of results

We established whether indicators were used for measuring education, health and well-being outcomes and how they were used and summarised findings for each county in Appendix 3.1. Using these summaries we compiled tables recording the type and frequency of indicators and how they were used (see Appendix 3.2). The results of this analysis are summarised below.

Education outcome indicators found were mainly measures of attainment and participation in education and employment (all countries but limited information for Switzerland). Some measures of equity, schools equipment and teachers qualifications were also found. The Netherlands had recently introduced indicators of social and emotional development and the home and school environments.

Health outcome indicators were typically general public health or healthy life style measures and occurred infrequently across eight countries (Australia, Finland, Ireland, Japan, Korea, New Zealand, Singapore and Sweden). The most common health outcome indicators of general public health were mental health, including suicide (which was also used as a measure of well-being) mortality,

oral health, morbidity, injury and poisoning, sexual health and substance misuse. Most frequently used healthy lifestyle indicators were of physical activity and physical development.

Well-being outcome indicators were also varied in type and found infrequently in ten countries (Australia, Belgium, Finland, Ireland, Japan, Korea, the Netherlands, New Zealand, Singapore and Sweden). The most common indicators were socio-economic indicators of education, employment and income followed by family environment, and relationships and social participation. Children's perceptions of their own well-being; housing, homelessness and environment; and criminal activity indicators were collected less frequently.

Outcome indicators were mostly used for the purposes of monitoring and accountability. We found a good amount of information about the monitoring of child outcomes and the development of national policy. Some of the countries used indicators to measure equity and to monitor national services for education, health and well-being. Educational indicators were used for monitoring schools (Australia, Belgium, Denmark, Finland, Hungary, Japan, Ireland, New Zealand and Sweden) and national standards (all countries except Switzerland). Indicators informed the development of policies (Australia, Belgium, Finland, Hungary, Ireland, Japan, Korea, the Netherlands and New Zealand) and school improvements (Australia, Belgium, Finland, Hungary, Japan and New Zealand).

We found less information than we expected about how outcomes were used for the purposes of accountability at national and school-levels. However, indicators were used as a means of holding individual schools (Australia, Belgium, Denmark, Finland, Hungary, Ireland Japan and Sweden) and the education system (Australia, Belgium, Finland, Hungary, Ireland, Japan, the Netherlands, New Zealand and Singapore) to account. We found some evidence of outcomes being used to inform national improvement programmes (Australia, Belgium and New Zealand), directing resources (Belgium, Finland, New Zealand and Sweden) and for holding states, local authorities or municipalities to account (Australia, Denmark and Sweden).

Indicators were also used for other purposes. There was a little evidence of outcomes being used for monitoring economic factors such as allocation and management of resources to meet children's needs and for improving services in education, health and well-being systems. Individual child indicators were sometimes used within schools for allocating pupils to teaching groups or to streams and for admission to different types of schools. They were also used for reporting progress and attainment to parents and pupils. Singapore used outcome indicators in a report to the United Nation on the Convention of the Rights of the Child.

Reports on outcome indicators often covered health, education and well-being separately however, Japan and Ireland produced reports that covered education, health and well-being outcomes together, alongside other indicators.

CHAPTER FOUR

Analytic maps

This chapter presents the findings of the exercise to map the use of child outcome indicators by countries with high-performing education systems. The map is drawn from thirteen narrative summaries of each country's uses of indicators of child education, health and well-being outcomes (Appendix 3.1) and charts summarising the frequency with which they were used (Appendix 3.2). Two charts containing descriptions of actual health and well-being measures (rather than the generic types of indicators reported in this chapter) are given in Appendix 4.1. Additionally we have provided a list of published indicators for Australia, Ireland and Japan, the most detailed countries, in Appendix 4.2.

We stress the proviso that we only report here on what we found during our systematic search for material in the English language from a limited number of websites. It may be the case that the information we retrieved was inaccurate or out of date. It is highly likely that information from other sources or in languages other than English may shed light on areas where we found no information.

4.1 Analytic account of mapping exercise

Our descriptive maps identifying education, health, well-being indicators and the use of outcome indicators by countries with high-performing education systems drew on a variety of measures. These included education outcome indicators such as attainment and participation in education and health indicators around general public health and healthy lifestyles. Some of the well-being indicators were family environment and housing and homelessness. Uses of child outcome indicators included monitoring child outcomes and informing national policy.

4.2 Map of educational outcome indicators

In this section we map the main education outcomes indicators which were used. Attainment indicators were common, these were mainly performance in subjects. In terms of measures of attainment we comment on the data sources used, when in a child or young person's life attainment was measured, which groups were sampled and how data were analysed. As well as attainment, participation in education and employment indicators was often measured, while a few countries collected indicators of social and emotional development and environmental factors.

4.2.1 Attainment in subjects

From our evidence base we found that almost all countries used attainment as a child outcome indicator although not all the material we found about attainment referred to specific subjects. However, there was evidence of literacy and competence in the national language being measured in many countries (Australia, Belgium, Hungary, Ireland, Japan, Korea, the Netherlands, New Zealand and Sweden) and second language learners' use of the national language in Australia and Sweden. Use of the indigenous language by native people was measured in New Zealand. Numeracy and/or mathematics were measured in nine countries (Australia, Belgium, Hungary, Ireland, Japan, Korea, the Netherlands, New Zealand and Sweden). Competence in English was measured in Japan, Korea, the Netherlands and Sweden. The Netherlands also measured use of a second foreign language. Performance in science was measured in

Table 4.1: Map of types of education child outcome indicators

Type of education indicator	Details
Attainment	*Subjects*: language, mathematics and science, citizenship etc. *Data sources*: national standardised tests, voluntary tests, periodic surveys, international surveys *Timings*: entering school, within the primary phase, on completion of primary school, within the secondary phase, on completing compulsory secondary school, after leaving compulsory school *Sample groups*: specific groups of children: boys and girls, ethnic groups, indigenous people, immigrants, second generation immigrants, bilingual pupils *Analysis*: progress, value added
Participation in education and employment	Enrolment Attendance Home schooling Suspensions Exclusion from school School completion Destination on leaving school Return to education after dropping out Dropout rates in higher education Youth unemployment Employment of graduates
Social and emotional development	Psychosocial aspects of pupils' development
Environmental factors	Home School

Australia, Ireland, Japan, Korea and New Zealand. Citizenship was measured in Australia and Hungary, and social studies in Japan and Korea. Information technology attainment was measured in Australia, Korea and the Netherlands. Belgium and the Netherlands measured performance in biology. Other subjects referred to only once, by the Netherlands, were: physics, chemistry, environmental studies, history, geography, economics, technology, life skills, visual arts, music, drama and dance: they also measured intelligence. Australia, Denmark and Finland measured performance in vocational subjects. (See Appendix 3.2, Table 3.2.1).

4.2.2 International comparisons

We found that some countries referred to their performance in comparative tests: twelve countries mentioned PISA 2007a (all countries except Korea), four TIMMS (Belgium, Hungary, New Zealand and Singapore and five PIRLS (the Netherlands, New Zealand, Singapore, Sweden and Switzerland). Some countries used indicators for making international comparisons, comparing their own performance with other countries. We found evidence of the use of findings from international comparative studies of attainment of pupils. Four (Denmark, Finland, Ireland and Japan) of the twelve countries in our sample that participated in PISA 2007a took the results into account, including using them to better understand why they were successful, to compare their results against other countries, to identify trends or to identify areas for improvement. In Ireland the report contextualising PISA 2007a results was produced by the school inspectorate. International comparators are also used by governments (Australia, Belgium, Hungary, Ireland, the Netherlands, New Zealand, Singapore, Sweden and Switzerland) as an external check on both the nationally school system and outcomes for children, with a view to identifying areas for investigation and (in Sweden) to target resources (see Appendix 3.2, Table 3.2.2).

4.2.3 Social, environmental and citizenship indicators

The Netherlands and Ireland collect a broader range of indicators than commonly seen in other countries. An Educational Careers Cohort Survey (COOL) covering ages 5-18 started in 2007-2008 that collected indicators about pupils' social and emotional development; environmental factors about the home and school and citizenship competencies (see Appendix 3.2, Table 3.2.3).

4.2.4 Data sources and collection

Most countries had some form of national compulsory testing (Australia, Belgium, Hungary, Ireland, Japan, the Netherlands, New Zealand,

Singapore and Sweden) and some had voluntary tests as well (Finland, the Netherlands and Sweden). Australian states had their own tests and in Belgium district school inspectors set some tests.

Various methods of collecting education indicators were used. Whilst the Netherlands used a longitudinal cohort survey, five countries used sampling (Belgium, Finland, Hungary, Japan and New Zealand). Australia triennially tested their pupils in some subjects (see Appendix 3.2, Table 3.2.4).

In Japan children's (and teachers') perceptions were collected through surveys conducted alongside national tests which resulted in good coverage of the sample groups' surveyed. The topic of these surveys was well-being.

4.2.5 Timings of measurement of attainment indicators

Attainment was most commonly measured at the end of compulsory schooling (Australia, Belgium, Hungary, Ireland, Japan, the Netherlands, New Zealand, Singapore and Sweden). In four countries outcome indicators for attainment were measured within all three of the school phases: primary, lower secondary and upper secondary (Australia, Belgium, Hungary, and New Zealand). Attainment was measured at the end of primary schooling (Australia, Belgium, Ireland, Japan and the Netherlands) and at the end of the lower secondary phase (Australia, the Netherlands, Singapore and Sweden). A few countries measured children's attainment on entry to school (Australia, Hungary, the Netherlands and New Zealand) (see Appendix 3.2, Table 3.2.4).

4.2.6 Participation in education and employment

Children's enrolment in school was commonly measured (Australia, Ireland, Japan, Korea, the Netherlands, New Zealand and Singapore) and occasionally pre-school participation (Australia and Ireland). Other indicators of participation were also used, albeit less often. These included pupils' actual attendance (Australia, Belgium, Ireland and Japan), suspensions and exclusions from school (New Zealand), truancy (New Zealand), school refusals (Belgium), retention in later years of schooling (Australia), home schooling (New Zealand) and grade repetition (Belgium) (see Appendix 3.2, Table 3.2.5).

We found that the school phase with the most number of indicators attached to it was secondary. Indicators were clustered around participation in education and employment outcomes for young people. Educational participation indicators included dropout rates in upper secondary school (Belgium, Finland, Korea, the Netherlands and Sweden), age on leaving school (New Zealand) and school completion rates (Finland). Post-secondary school education was measured, for example destination on leaving school (New Zealand), second level education (Ireland), transfer to higher education (Belgium) and results at the end of the first year of higher education (Belgium). The return to education after dropping out was measured (Denmark and Sweden). There was also interest in collecting outcome indicators for dropout rates in higher education (Belgium). Employment indicators included youth unemployment one year after leaving school (the Netherlands and Finland), the unemployment gap between people in different levels of education (Sweden) and employment of graduates (Korea) (see Appendix 3.2, Table 3.2.6).

4.2.7 Resource allocation

Although not specifically educational outcomes for children, we found evidence of indicators being collected that related to finance, resources, staffing and demographic patterns, which were used for planning school places and the overall education system (Denmark, Ireland, Japan, Korea, New Zealand and Sweden). We also found evidence of resource or input indicators such as numbers of students receiving financial help or training in Singapore and numbers of computers per pupil in Denmark and Korea (see Appendix 3.2, Table 3.2.7).

4.2.8 Equity indicators

In some countries specific groups were measured in order to monitor equality (Australia, Denmark, Finland, New Zealand and Singapore). In Denmark, Finland and Singapore gender differences were examined, with other groups of pupils also scrutinised, including ethnic groups (Singapore), indigenous peoples (Australia and New Zealand), immigrants (Denmark) and bilingual pupils (Denmark). We also found that Denmark collected indicators about pupils with special educational needs (see Appendix 3.2, Table 3.2.8).

4.2.9 Further use of educational data

Progress was measured in Australia, Belgium, Singapore and Sweden. Sweden collected value added measures that used regression analysis developed from research showing that the socio-economic and national background of students, together with the gender composition of students explained a large proportion of the statistical variance between the performance of pupils in different schools. The calculated residual effect was used as a measurement of the relative achievement of the school, as an approximation of the value added by the school (see Appendix 3.2, Table 3.2.9).

4.3 Map of types of health outcome indicators

The researchers note that there was overlap between some health and well-being indicators and

to a lesser extent with education. Health indicators were classified as general public health and healthy life styles. Countries classified indicators in different ways, for instance Australia closely linked health with well-being and education outcomes.

We found no evidence of child health outcomes being collected in five of the countries in our study. Of the eight remaining countries, general public health outcomes were mental health, including suicide (which was also used as a measure of well-being) (Australia, Finland, Ireland, New Zealand and Singapore), mortality (Australia, Ireland and Singapore), oral health (Australia, Ireland and Japan), injury and poisoning (Australia, Ireland and Singapore), sexual health (Australia, Ireland and Singapore) and substance misuse (Australia, Finland and Ireland). Other general health indicators, occurring in at least two countries were morbidity (Australia and Ireland), disability (Australia and Ireland) chronic diseases (Australia and Ireland), auditory health (New Zealand and Sweden) and immunisation (Ireland and Singapore). The most common healthy lifestyle indicators were physical activity (Australia, Finland, Ireland, Japan, Korea and Singapore) and physical development (Finland, Ireland, Japan, Korea and Sweden). A less frequent measure of healthy lifestyles was diet and nutrition (Australia and Ireland), while perceptions of life expectancy were only measured in Australia (see Appendix 3.2, Table 3.2.10).

A composite list of health indicators with actual measures is provided in Appendix 4.1, Table 4.1.1.

Table 4.2: Map of types of health child outcome indicators

General public health	Healthy life style
life expectancy	well-being
mortality	diet and nutrition
morbidity	physical activity
disability	physical development
injury and poisoning	
mental health	
sexual health and reproductive health	
chronic diseases	
oral health	
auditory health	
substance misuse	
immunisation	

4.4 Map of types of well-being outcome indicators

In order to provide policy makers with a broad range of well-being indicators we collated indicators of well-being into six categories: well-being; family environment; relationships and social participation; education, employment and income; housing, homelessness and environment; and criminal activity.

Eight countries gathered well-being indicators on outcomes in education, employment and income (Australia, Finland, Ireland, Japan, Korea, New Zealand, Singapore and Sweden), while five measured relationships and social participation (Australia, Ireland, Japan, the Netherlands and Sweden) and family environment (Australia, Finland, Ireland, Singapore and Sweden). Four countries collected measures of general well-being – usually young people's perceptions (Australia, Belgium, Ireland and New Zealand). Three countries measured housing and homelessness (Australia, Ireland and Sweden) and Ireland collected data about young people's perceptions of their environment such as safety and good places to go in their areas. Ireland, Japan and Singapore collected indicators of criminal activity (see Appendix 3.2, Table 3.2.11).

Australia, Ireland and Sweden had the most comprehensive range of well-being outcome indicators they covered most of the categories in Box 4.3.

Box 4.3: Map of types of child outcome well-being indicators

- Children and young people's perceptions of well-being
- Characteristics of the family environment
- Peer and family relationships and social participation
- Education, employment and income factors that affect well-being
- Housing, homelessness and environmental factors
- Criminal activity

The data for the indicators were collected through surveys of children and young people such as 'perceptions of well-being' as well as routinely collected data such as 'young people subject to care and child protection orders'. Some of the indicators were of positive outcomes such as 'participation rates in voluntary activities'.

A detailed table of well-being indicators and the actual wording of measures drawn mainly from these three countries can be found in Appendix 4.1). The best examples were *Australia's young people their health and well-being* (Al-Yaman et al., 2003) (see Appendix 4.2, Section 4.2.1) and the report on the *State of the Nation's Children - Ireland 2006* (Ireland, Office of the Minister for Children, 2006)(see Appendix 4.2, Section 4.2.2). We only found one well-being indicator for Belgium, Korea and the Netherlands.

4.5 Map of uses of indicators

We found evidence of high-performing systems using educational outcome data on children and young people for monitoring both national standards (all countries except Switzerland) and schools (Australia, Belgium, Denmark, Finland, Hungary, Ireland, Japan, New Zealand and Sweden).

Indicators were used as a means of holding to account both individual schools (Australia, Belgium, Denmark, Finland, Hungary, Ireland, Japan, the Netherlands and Sweden) and the education system (Australia, Belgium, Finland, Hungary, Ireland, Japan, Korea, the Netherlands, New Zealand and Singapore). They were also used for informing the development of policies (Australia, Belgium, Finland, Hungary, Ireland, Japan, Korea, the Netherlands, New Zealand and Sweden) and for the purpose of informing individual school improvements (Australia, Belgium, Finland, Hungary, Ireland, Japan, the Netherlands and New Zealand). There was a little evidence that data were used for informing national improvement programmes (Australia, Belgium and New Zealand) directing resources (Belgium, Finland, Ireland, New Zealand and Sweden) and for holding states, local authorities or municipalities to account for child outcomes (Australia, Denmark and Sweden). Singapore used indicators to monitor the Convention of the Rights of the Child (see Appendix 3.2, Table 3.2.12).

Japan produced monitoring reports for education outcomes annually that also included health and well-being indicators (see Appendix 4.2, Section 4.2.3). Ireland produced the report *State of the Nation's Children – Ireland 2006* as a baseline against which to examine future trends (see Appendix 4.2, Section 4.2.2).

Box 4.4: Map of uses of indicators

- Monitoring performance: child outcomes, national children's services, economic
- Accountability purposes: national, regional, schools
- Selecting pupils: streaming, types of school e.g. vocational
- Reporting performance: to parents, to pupils
- Informing national policies
- Monitoring equity
- Improving children's services systems
- Monitoring the Convention of the Rights of the Child

Some countries with high-performing education systems have distinguished between the monitoring and reporting mechanisms needed for evaluating the national education system as a whole and for holding schools and other providers of services for children and young people to account. The monitoring of national trends does require routine collection of quantifiable data based on standardised procedures that can be analysed in relation to different groups of children in different geographic areas. Indicators of attainment, participation in school and destinations on leaving school are important in this respect.

School league tables as a reporting mechanism were not seen as helpful in some countries – we found them used only explicitly in Singapore; instead schools were encouraged to judge themselves against other similar schools. Schools on the other hand need to be able to evaluate their own performance and need to review their performance against benchmarked data so they can compare themselves to other schools in similar circumstances and report to governing bodies. We found six countries (Belgium, Finland, Hungary, Ireland, and Japan) that reported data at national level but not at school-level as they were of the opinion that 'naming and shaming' schools in already poor socio-economic circumstance would not aid school improvement. Sweden used 'value added' indicators that took account of the profile of individual school's pupil population and used indicators to target resources to needs.

As well as noting that governments routinely use outcome indicators for monitoring and accountability we also found they were used for other purposes in most systems. Individual child indicators were used within schools for allocating pupils to teaching groups or to streams for particular activities and for managing admission to different types of schools (Singapore and the Netherlands). They were also used for formative and summative purposes in reporting progress and attainment to parents and pupils (Australia, Ireland, Japan, the Netherlands and Sweden).

4.6 Models of how indicators were used

It is clear that governments approach the deployment of data on child outcomes in different ways, balancing monitoring and accountability with different emphases. On the basis of our analytical maps we have built four models that appear to characterise these different emphases; it is not the case these models exist in 'pure' forms in any of our study countries, but these types characterise different approaches.

Model 1: An accountability model. In this model outcomes are rigorously monitored at reporting levels (schools, regions and national) for the purposes of management and accountability, with a particular emphasis on schools. This approach requires national standards and benchmarks by which schools, states and local areas can compare their performance (Australia and the Netherlands).

Model 2: A school-community model. This is a reporting model in which outcomes are monitored at national level and effort is focused at policy level on identifying and removing barriers to participation but which is relatively relaxed about within system accountability. For example, in Sweden the indicator 'poor fluency in the national language' is used to direct resources to schools regarded as being in need of such additional funding. There may be no or very limited school inspection, with school self evaluation being important. External school inspection has an advisory role focused more on helping schools improve the curriculum, teaching and learning rather than evaluating the school's performance in terms of outcomes for children and young people. Child outcome indicators are used to direct resources to allow schools to compensate for inequalities such as the failure of students to reach national attainment targets and to combat poor health by increasing health provision (Finland).

Model 3: A social capital model. Here improving child outcomes are part of plans to increase individual citizen's contributions to the economy of the country, and to establish a basis for strengthening social networks. Children are highly valued because declining birth rates and an aging population mean they will be the mainstay of the economy in the future. There is concern with young people's perceptions of their well-being and their take-up of opportunities for social participation such as leisure activities and their experiences of making a social contribution through volunteering and forming positive relationships with their peers. This spirit is embodied in the Japanese Zest for Living initiative that aims to improve the health of young people's minds and bodies and educational outcomes by emphasising ethical living, public spirit and compassion for others as well as academic achievement (Japan and Singapore).

Model 4: A psycho-social model. This model emphasises young's people's mental and physical health and well-being as prerequisites to improving learning outcomes. This draws on the relationship between health inequalities and access to education, and that between poor education outcomes and poor health outcomes. Young people who leave school earlier and who are unemployed perceive their health and their quality of life to be poorer than more advantaged groups who leave school later and have better jobs. We glimpse the essence of this approach in Australia where each school is required to take account of issues such as measures to combat bullying (Australia).

CHAPTER FIVE

Implications

Interpretation and application of the results of this study requires further work which is outside the scope of this study. This chapter draws attention to limitations of this study and to the principal implications for policy in England. Finally we suggest some areas for further research for strategic policy makers.

5.1 Strengths and limitations of the analytic maps

5.1.1 Limitations to the methods

In this study we departed from the systematic review convention by adapting a recently used search method pioneered by a previous review group (Bills et al., 2008) that used websites, rather than electronic databases to search for relevant material. In our research we identified three different types of website containing country reports or comparative studies and developed a systematic search strategy for each, as well as undertaking a more free ranging 'hand search' of ministry websites. These search strategies helped ensure consistency in the website searches and enabled the research team members to use their time efficiently and effectively. In the case of government websites the strategy provided a guide to searching that included an instruction to search more widely if the search produced limited results – similar to the 'hand searching' of journals used in the EPPI-Centre methodology. Materials found during the searches were screened for relevance in the usual way using inclusion and exclusion criteria.

Our methods also differed from the EPPI-Centre methodology as we considered the range, volume and the relevance of material found for each country to the research questions so that we could assess whether or not we had a comprehensive evidence base from which to draw conclusions. Our judgements were based on:

- the number of sources of information for each country (range)
- the number of documents found for each country (volume)
- the amount of detail found in documents (relevance)

We did not appraise quality because we were not looking at research evidence. The materials examined were government documents such as annual reports, policy documents or statistical profiles, and descriptive country or comparative reports from international organisations (OECD, INCA and Eurydice). From these documents we were able to identify indicators used by governments and the uses to which they were put. The few academic studies available to us were descriptive reports of the approaches of different countries rather than evaluations or studies of relationships between different variables. These descriptive reports were useful to us as they contained information about whether and which child outcome indicators were used and the purposes which they were used for.

While our methods allowed us to triangulate our findings using different sources, our evidence base was restricted. The systematic approach that we followed allowed for some deviation but in the main we adhered to an agreed process. Language was a barrier to us and we are aware from contacts that some of the information that we were seeking was available but not in English. Clearly, the evidential base for this report substantially lay in policy documents and reports. Wherever possible, we tested our conclusions through direct contacts with informants in ministries and policy units in our study countries, but this was not always possible.

5.1.2 The focus of material included in the map

Our searches produced a wealth of information about education indicators but a smaller amount about health or well-being. This was not surprising as our search of government websites began with the ministry responsible for education. In most cases the remit of the ministry responsible for education was narrowly focused on education; however in some countries it was much wider and included some or all of the policy areas of culture, sport, science, technology, youth affairs, employment and community. Our Irish contact helpfully directed us to information from their Ministry for Children. As we mostly dealt with education ministries the majority of the government documents we examined rarely contained measures of health and well-being, they mostly covered only educational outcomes. It may be the case that if the search was widened to ministry sites responsible for health, social care or children we may have found more outcome indicators in use. Where we did find evidence of all three outcomes, for example in Ireland and Japan, there was a greater likelihood that outcomes for children were being considered in a broader context rather than as just in the domain of the education system.

We expected to find evidence of the use of child outcome indicators in the annual reports of inspectorates of schools. We anticipated that these reports on education would hold the national system to account for outcomes for children. However, where we found annual reports on education systems they tended to report the progress in implementing initiatives or compliance with government policies such as the national curriculum and school self-evaluation rather than national trends in outcomes for children and young people.

International studies with their focus on education provided us with information about the process of evaluation and monitoring used by different countries and gave us some details about the outcome data available. However these international studies did not examine how services providing for children's health and well-being were monitored and evaluated which was a limitation to our evidence base.

5.2 What the analytic maps mean for decision makers

We have already entered some caveats about the issues involved in learning from the practices of 'high-performing education systems', and the inherent difficulties in the concept on our current measures. However, in this section we identify some possible implications of our work.

In England there is a rich collection of child outcome indicators for education, health and well-being. Whilst the English dataset – especially in education – has been noted for its range and depth, combining indicators is more challenging. Currently assessment is something which is 'done to' pupils in whatever sphere of activity they are engaged. However, assessment could be augmented to include a greater emphasis on pupils' perceptions of their well-being and their experiences. Crucially there may be a need for a periodic report that combines key education, health and well-being indicators to provide a comprehensive description of outcomes for children including trends that can be used by policy makers and planners.

The evidence of our study is that national standards can be monitored by analysing outcomes of standardised tests without the need to report at school-level, and this echoes recent policy work in the UK (Green, Bell, Oates and Bramley, 2006). With appropriately benchmarked data it is also possible to report the state of play and trends in schools in similar socio-economic circumstances - that is, in statistical neighbours. Such an approach would provide detailed information for the purposes of monitoring the performance of the education system as a whole, policy making and prioritising the allocation of resources at lower overall cost. The evidence of some of the high-performing education systems we have explored is that sampling and rigorous national and sub-national reporting generates secure information about standards.

It also follows that child outcome indicators could be collected in alternative ways to current practices. Not all national testing needs to be annual or for the whole cohort – some subjects could be tested periodically and/or be carried out with a representative sample. For instance: within the primary and secondary phase whole cohorts of pupils could be sampled and different subjects tested in different years. On-line pupil perception surveys could be extended to a wider age range and given more importance and reported in a combined education, health and well-being annual report on outcomes for children.

An obvious use of indicators by high-performing education systems is for monitoring performance and socio-economic disparities between schools, and then using such data as a basis for developing policies for reducing social inequality. In England because of the wide socio-economic differences in the population equity is a major issue that the Government has found difficult to solve. The extent of the problem is illustrated by comparing performance and social equity in high-performing counties. The OECD/PISA (PISA, 2007a, PISA 2007b) analysis of socio-economic disparities on student performance identified the UK and Ireland as having high average performance but large socio-economic differences. The majority of high-performing countries in PISA in our study were identified as having high average performance and high social equity (Australia, Belgium, Hungary, Japan, Korea, the Netherlands, New Zealand, Sweden and Switzerland). This analysis suggests that reducing social inequality may itself be connected with

higher performance. The effective use of indicators of equity by the Government could help focus resources and effort where it is needed.

5.2.1 Types and use of child outcome indicators

Of the types and range of education outcome indicators found across all high-performing education systems the majority are collected in England at similar times in a young person's school and post-compulsory school career. Of those indicators not collected in England it is worth noting 'competence in study skills', 'home and school environment' and 'pupils' psychosocial development' which were collected in the Netherlands. Young people's outcomes in these three areas are likely to contribute to their academic and personal development and may merit consideration as additional indicators.

An awareness of educational performance in comparison to other countries provides an international perspective that can help identify areas for development. We found that some countries made good use of their participation in international standardised assessment surveys and produced reports comparing their performance with other similar countries and exploring trends within their country. In general, it seemed to us that many of the systems we examined were more conscious about their desire to compare their performance against international benchmarks, and less concerned to deploy data for intra-national comparison.

It is paramount that effective use is made of existing routinely collected data for health and well-being by those responsible for monitoring, evaluating and developing children's services. The successful use of routinely collected data – and, concomitantly, the training of officers to make effective use of sometimes complex datasets – would seem to be sensible. General health indicators are available from the England Department of Public Health and indicators of children's health and life style may be routinely collected by other government bodies such as indicators for 'housing and homelessness'. Young peoples' perception data is available through national on-line surveys and this could be extended to younger children. It would be worth reviewing the current data set for England against those in the list of health and well-being indicators given in Appendix 4.1, Tables 4.1.1 and 4.1.2 and Appendix 4.2.

5.2.2 Monitoring education systems

Our findings suggest that there are lessons to be learnt about which and how indicators of children's outcomes are collected, reported and used. As we indicated above, some countries with high-performing education systems have distinguished between the monitoring and reporting mechanisms needed for evaluating the national education system as a whole and for holding schools and other providers of services for children and young people to account. In these countries, different approaches are used to monitor performance and to secure accountability for system development and outcomes. It does not seem to be the case that these approaches increase burdens on schools.

5.2.3 Monitoring equity

Reducing inequality requires identifying pockets of deprivation and working to reduce it. In situations where the characteristics of the school population were changing because of economic factors like immigration or within country movements of population, equality and social cohesion were important considerations. To understand these issues governments examined child outcome indicators for example 'competency in speaking the national language' in relation to specific groups of children and young people such as children of recently arrived immigrants, second generation immigrants and indigenous people. These indicators were then used to target resources where they were most needed.

5.2.4 Monitoring the effectiveness of education, health and well-being systems

There were few examples of the combined reporting of children's outcomes in education, health and well-being within one report. We only found two examples of reports of national trends in a range of outcomes for children and young people: the Japan's education at a glance 2006 an annual statistical report (see Appendix 4.2, Section 4.2.3 for a full list of contents) and the inaugural State of the Nation's Children - Ireland 2006 (see Appendix 4.2, Section 4.2.2 for an extract from the summary of main findings). The presentation of statistics in these ways gave the most complete descriptions we found of outcomes for children and young people in single countries.

The evidence base for these reports drew on studies carried out periodically by various government departments co-ordinated in Japan by the ministry responsible for education and in Ireland by the ministry responsible for children. The reports provided informative data sets for use by educators reviewing current provision and planning for the future. A one off report by the Australian Institute of Health and Welfare (2003) (Al-Yaman et al., 2003) combined reporting of comprehensive health and well-being outcomes with some educational factors. The statistical analysis needed for this type of cross-cutting statistical report is a massive undertaking requiring a co-ordinated initiative with access to data from across government departments and agencies. In England the government is data rich and could produce a statistical analysis that brought together key indicators that would be useful for developing policy and strategic planning.

5.2.5 Methods of collecting child outcome indicators

The annual routine collection of outcome indicators for whole populations of groups of children is time consuming for those involved in recording, collating and reporting. If the purpose of monitoring data is to provide information about the national system other approaches may be more efficient and economic. For example:

- sampling rather than whole population testing as in Japan and New Zealand
- longitudinal cohort studies that sample groups of children as in the Netherlands
- periodic rather than annual sampling – Australia collected some data every three years, PISA standardised assessments are usually every three years.

We note the Government's concerns that indicators used to measure the five every child matters outcomes are mainly negative indicators. Some countries have used pupil perception data to collect positive information such as 'participation rates in volunteer activities' or 'experience of helping to stop bullying or the bad behaviours of friends'. Perception data could be collected using on-line surveys, as in the Netherlands, and/or conducted at the same time as national tests as are student and teacher perception surveys in Japan.

5.3 Implications for future research

We have noted at several points in this report that there are many ways in which this approach breaks new ground. Methodologically, the adaptation of the conventional EPPI-Centre method, although not wholly unique, is relatively novel. Analytical maps can provide only a reasonably high level set of descriptions of practices, and begs many questions about the impact, effectiveness and the operation of the practices we have described. We have also noted that the concept of 'high-performing education systems', despite its ready acceptance in policy discourse, remains relatively unexamined.

For these reasons, we conclude by outlining areas where the Department may wish to consider undertaking more work. The first relates to understanding in greater detail the nature of high performance in education systems. Whilst there appears to be evidence that some systems – notably those in Scandinavia – are able to sustain high levels of average performance, high levels of equity and high levels of children's well-being – other systems appear to be either actively or passively experiencing trade-offs between different aspects of performance. Considerable work is required to understand this, which will inevitably involve the relationship between children's outcomes, educational governance and the cultural settings in which children's outcomes are identified and managed. There is some evidence from our contacts to suggest that there might be considerable interest from other governments in addressing such questions.

The second area in which work might be done relates to the management of datasets and their use at various levels of the education system. We have observed that education, health and well-being systems are not short of potential measures. The challenge is to use the data which is either already collected or which might be collected to inform action at various levels of the system: whether in terms of national policy-making, national administration, local administration or institutional leadership. Whilst English schools have become expert users of data in the last decade and a half, in many cases the sophistication of the use of the data has far exceeded the reliability and validity of the data available – schools operate with very small sample sizes. Work might be done on addressing the scope to bring together more reliable and valid datasets and to equip policymakers and leaders with the skills needed to use these constructively to inform policy and implementation; effectively, this would involve drawing on elements of what we have called the 'school-community' model.

Linked to this, we have been struck by the extent to which many of the systems have been seeking to benchmark and analyse their performance not in terms of its own internal strengths and weaknesses but against the findings of international surveys. Work might be done on linking the available English national datasets to international datasets which make this outward looking a comparatively routine activity.

CHAPTER SIX

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Appendix 1.1: Authorship of this report

This work is a report of a systematic review conducted by the Gifted & Talented Review Group

The authors of this report are:

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Appendix 1.2: A brief description of international studies referred to in this study

The Programme for International Student Assessment (PISA) is an internationally standardised assessment that was jointly developed by participating countries and administered to15-year-olds in schools.

The survey was implemented in 43 countries in the 1st assessment in 2000, in 41 countries in the 2nd assessment in 2003, in 57 countries in the 3rd assessment in 2006 and 62 countries have signed up to participate in the 4th assessment in 2009.

Tests are typically administered to between 4,500 and 10,000 students in each country. In PISA 2007a the UK ranked ninth.

The Progress in International Reading Literacy Study (PIRLS) is an international comparative study of the reading literacy of young students. PIRLS studies the reading achievement and reading behaviours and attitudes of fourth-grade students (9 to 10 year olds) in the United States and students in the equivalent of fourth grade in other participating countries.

PIRLS was first administered in 2001 and included 35 countries, and was administered again in 2006 to students in 45 education systems (including countries and sub-national education systems, such as Canadian provinces and Hong Kong, a Special Administrative Region of the People's Republic of China). The next PIRLS is scheduled for 2011. PIRLS is co-ordinated by the International Association for the Evaluation of Educational Achievement (IEA).

The Trends in International Mathematics and Science Study (TIMSS) provides data on the mathematics and science achievement of United States eighth grade students (13 to 14 year olds) and grade 4 (9-10 year olds) compared to that of students in other countries. TIMSS data has been collected in 1995, 1999, 2003, and 2007. TIMSS 2007 results will be released on December 9, 2008.

The UNICEF report *Child Poverty in Perspective: An overview of child well-being in rich countries* (2007) provides a picture of child well-being in twenty-one relatively affluent countries through the consideration of six dimensions: material well-being, health and safety, education, family and peer relationships, subjective well-being, behaviours and lifestyles informed by the Convention on the Rights of the Child and relevant academic literature. In this study the United Kingdom was bottom in family and peer relationships and behaviour and risk; twentieth in subjective well-being; eighteenth in material well-being, seventeenth in educational well-being and twelfth in health and safety. Overall the UK was bottom of the table just lower than the United States.

Appendix 2.1: Summary of the characteristics of selected countries

Figure 2.1.1 shows the total populations and the school age populations of the 13 countries. It can be see that Japan has the largest total population, with Ireland having the smallest population. The mean population across all the countries is 21 million, although this reduces to 12.2 million if Japan is excluded. Japan and Korea also have the largest populations of school age children, while Singapore and Ireland have the smallest populations. The mean population of school age children is 3.5 million, although this is reduced to 2.3 million without Japan. (Source 'http://www.census.gov/ipc/www/idb/tables.html#region')

The total population of children in primary and secondary schools is shown in Figure 2.1.2. This follows the same pattern as the population aged 5-19. On average there are 3 million children in schools across the 13 countries, this reduces to 2 million if Japan is excluded.

Across the 13 countries included in our study the number of schools ranged between 39,000 in Japan to 355 in Singapore. The average number was 8,600. The Netherlands, Australia, Korea and Japan had more schools than average.

Table 2.1.1 shows the compulsory school age of the 13 countries. This varied with the youngest age being five and the oldest being 18. Hungary and the Netherlands had the longest period of compulsory school age, being from five to 18. Singapore had the shortest period of compulsory school age, being from six or seven to 12 or 13.

Figure 2.1.1: Total midyear population and population aged 5-19 (2008)

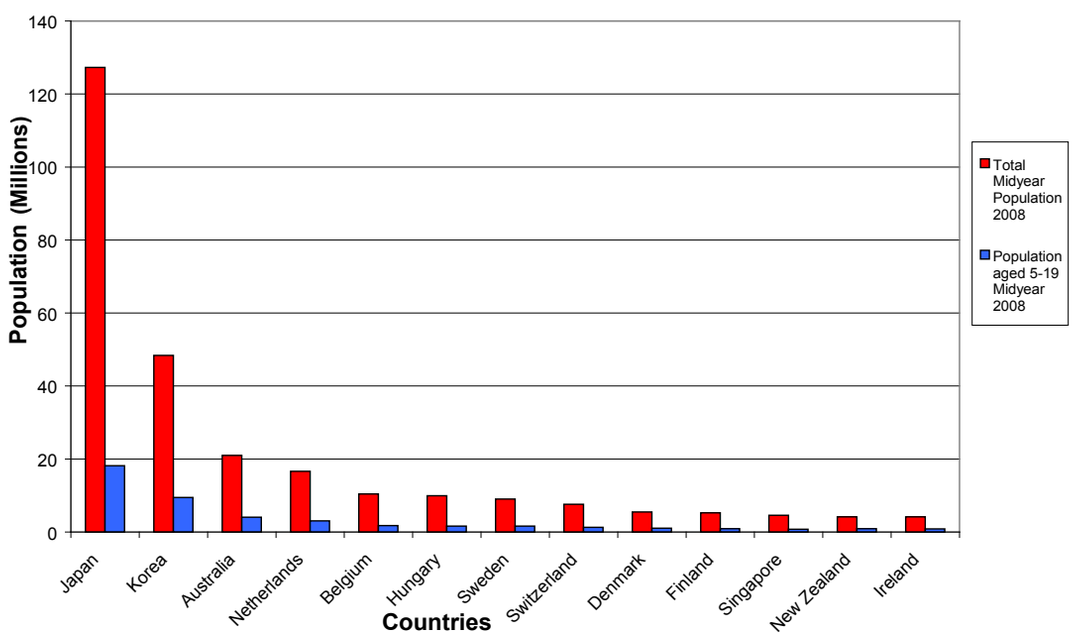

Figure 2.1.2: Population in primary and secondary schools in 2006.

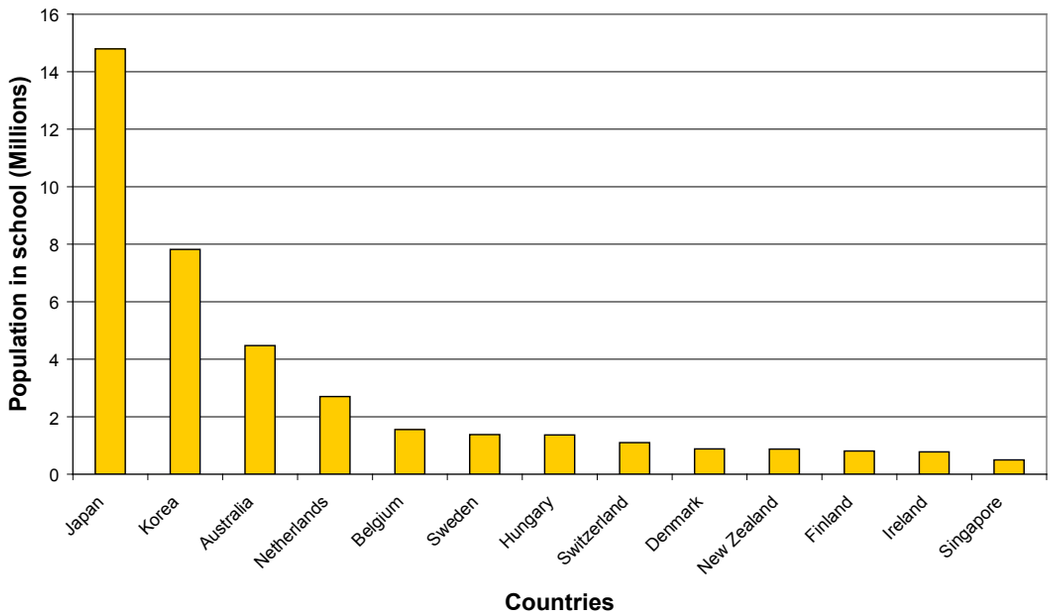

Table 2.1.1: Compulsory school age and education responsibility

	Compulsory school age	Who holds responsibility for education
Australia	5-15	Australian Government - Ministerial Council on Education Employment, Training and Youth Affairs and Departments with responsibility for education in six states and two territories
Belgium	6-18	Three Communities: Flemish, French and German
Denmark	7-16	Danish Ministry of Education
Finland	7-16	Ministry of Education
Hungary	5-18	Ministry of Education
Ireland	6-16	Department of Education and Science
Japan	6-15	Ministry of Education, Culture, Sports, Science and Technology
Korea	6-15	Ministry of Education
The Netherlands	5-18	Ministry of Education, Culture and Science
New Zealand	6-16	Ministry of Education
Sweden	7-16	National Ministry of Education and Research
Switzerland	varies 6/7 - 15/16	26 Cantons
Singapore*	age 6/7 - 12/13*	Ministry of Education

*although lower secondary schooling in Singapore is not compulsory (up to 16/17 years) attendance is universal.

Table 2.1.1 also lists the agencies that hold responsibility for education in the 13 countries. In 10 countries a national government ministry holds responsibility. However, in three counties the responsibility is devolved to region level. In Belgium this is the three Communities – French, German and Flemish, while in Switzerland each of the 26 Cantons takes responsibility for the education in their region. In Australia the responsibility is held by the six states and the two territories, with a national government Ministerial Council on Education Employment, Training and Youth Affairs and Departments providing an overview.

Appendix 2.2: Ministries' websites searched in this study

Country	Sub divisions	Website title	Website address
Australia		Department of Education, Employment and Workplace Relations	http://www.dest.gov.au/
Belgium	Flemish	Education in the Flanders	http://www.ond.vlaanderen.be/english/
	French	L'enseignement en Communauté francaise de Belgique	http://www.enseignement.be/
	German	Ministerium der Deutschsprachigen Gemeinschaft Belgiens	http://www.unterrichtsverwaltung.be/
Denmark		Ministry of Education	http://eng.uvm.dk/
Finland		Ministry of Education	http://www.minedu.fi/OPM/?lang=en
Hungary		Department of Education and Science	http://www.okm.gov.hu/main.php?folderID=137
Ireland		Department of Education and Science	http://www.education.ie/home/home.jsp?pcategory=27173&ecategory=27173&language=EN
Japan		Ministry of Education, Culture, Sports, Science and Technology (MEXT)	http://www.mext.go.jp/english/
Korea		Ministry of Education and Human Resources Development	http://www.moe.go.kr/english/english.html *(Note: not accessible in English)*
The Netherlands		Ministry of Education, Culture and Science	http://www.minocw.nl/english/index.html
New Zealand		Ministry of Education	http://www.minedu.govt.nz/
Singapore		Ministry of Education	http://www.moe.gov.sg/
Sweden		Ministry of Education and Research	http://www.sweden.gov.se/sb/d/2063
Switzerland	(26 cantons)	Ministry of Education	http://www.european-agency.org/site/national_pages/switzerland/government/ministry.html

Appendix 2.3: Details of the systematic searches and screening of titles and abstracts

2.3.1 Ministries responsible for education

The English versions of websites of thirteen ministries with responsibility for education were searched for relevant research, policy, legislation and statistics. The home pages were browsed for relevant links and the 'search' facilities used to search for the keywords. Some sites had 'advanced search' facilities, these were used when available and notes were made of the search strategy.

2.3.2 Organisation for Economic Co-operation and Development (OECD)

The OECD's website was searched to identify bodies responsible for monitoring the performance of each country's education, health and social and welfare systems. The search strategy involved searching by <country> then by <information by topic>. The three 'topic' categories were <education>, <health> and <social and welfare issues>.

Singapore was the only country in our sample not in the OECD.

2.3.3 International Review of Curriculum and Assessment Frameworks Internet Archive (INCA)

The INCA database was searched for information on included <countries> in:

- the comparative tables
- thematic probes
- thematic studies

Belgium, Denmark and Finland were not included in this search as they were not part of INCA.

2.3.4 The information network on education in Europe (Eurydice)

The Eurydice web site was searched by <country> and <'The database for education systems in Europe'> by the theme <evaluation>.

Non-European countries (Australia, Japan, Korea, New Zealand and Singapore) were not part of Eurydice. We found no information for Switzerland.

Appendix 2.4: Exclusion criteria used in this study

Exclusion criterion 1: We excluded material not relating explicitly to the sampled countries approaches to measuring outcomes.

Exclusion criterion 2: We excluded material published before 2000.

Exclusion criterion 3: We excluded material not relating to children and young people's (aged 0-19) outcomes in education, health or well-being.

Exclusion criterion 4a: We excluded material relating to aspects of children and young people's outcomes other than measurement, recording, reporting and assessment.

Exclusion criterion 4b: We excluded material relating to uses of data on children and young people's outcomes other than as performance indicators.

Exclusion criterion 5: We excluded material that was not in the English language. Justification websites sometimes give pdfs of material that were not in English; some websites were not available in English.

Exclusion criterion 6: We excluded previous reports in the review cycle e.g. the annual report for 2006. The reasons for this criterion were that we were interested in the most up to date information and reports tended to be repetitive in the indicators that they covered.

Appendix 2.5: Study specific keywords: Accountability and children's outcomes in countries with high-performing education system

A.1 Origin of included papers	A.1.1 Government website A.1.2 OCED A.1.3 INCA A.1.4 Eurydice A.1.5 Electronic database (please specify)
A.2 What was the main characteristic of the document/ study?	A.2.1 Government publication A.2.2 Non-government publication A.2.3 International organisation – comparative study A.2.4 International organisation – report on an individual country
A.3 Language	A.3.1 English A.3.2 Other – please specify
A.4 Date of publication	A.4.1 2000 A.4.2 2001 A.4.3 2002 A.4.4 2003 A.4.5 2004 A.4.6 2005 A.4.7 2006 A.4.8 2007 A.4.9 2008
A.5 In which country was the document/study produced?	A.5.1 Australia A.5.2 Belgium A.5.3 Denmark A.5.4 Finland A.5.5 Hungary A.5.6 Ireland A.5.7 Japan A.5.8 Korea A.5.9 Netherlands A.5.10 New Zealand A.5.11 Singapore A.5.12 Sweden A.5.13 Switzerland A.5.14 International organisation

	A.6.1 Australia A.6.2 Belgium A.6.3 Denmark A.6.4 Finland A.6.5 Hungary A.6.6 Ireland A.6.7 Japan A.6.8 Korea A.6.9 Netherlands A.6.10 New Zealand A.6.11 Singapore A.6.12 Sweden A.6.13 Switzerland
A.7 Which age phase(s) did the study cover?	A.7.1 Child care 0-3 A.7.2 Pre-school A.7.3 Primary phase A.7.4 Lower secondary A.7.5 Upper Secondary A.7.6 Post secondary – non tertiary A.7.7 Tertiary – first stage A.7.8 Tertiary – second stage
A.8 From which sector(s) was/were the child outcome indicators in the document/study drawn?	A.8.1 Education A.8.2 Health A.8.3 Well-being A.8.4 Other (please specify)
	A.9.1 Accountability – national A.9.2 Accountability – school/local A.9.3 Monitoring – child outcomes A.9.4 Monitoring –national services (education, social care, health systems) A.9.5 Monitoring – economics (allocation and management of resources to meet children's needs) A.9.6 National policy A.9.7 Equality A.9.8 Improving the system (education, social care, health systems) A.9.9 Convention of the Rights of the Child

Note

The classification of age phases in section 7 of the research specific keyword sheet is based on the International Standard Classification of Education (ISCED 1997) used by Eurydice. We added 'child care 0-3' to cover the phase before pre-school.

ISCED 0: Pre-primary education: pre-primary education is defined as the initial stage of organised instruction. It is school- or centre-based and is designed for children aged at least 3 years

ISCED 1: Primary education: this level begins between 5 and 7 years of age, is compulsory in all countries and generally lasts from four to six years.

ISCED 2: Lower secondary education: it continues the basic programmes of the primary level, although teaching is typically more subject-focused. Usually, the end of this level coincides with the end of compulsory education.

ISCED 3: Upper secondary education: this level generally begins at the end of compulsory education. The entrance age is typically 15 or 16 years. Entrance qualifications (end of compulsory education) and other minimum entry requirements are usually needed. Instruction is often more subject-oriented than at ISCED level 2. The typical duration of ISCED level 3 varies from two to five years.

ISCED 4: Post-secondary non-tertiary education: these programmes straddle the boundary between upper secondary and tertiary education. They serve to broaden the knowledge of ISCED level 3 graduates. Typical examples are programmes designed to prepare pupils for studies at level 5 or programmes designed to prepare pupils for direct labour market entry.

ISCED 5: Tertiary education (first stage): entry to these programmes normally requires the successful completion of ISCED level 3 or 4. This level includes tertiary programmes with academic orientation (type A) which are largely theoretically based and tertiary programmes with occupation orientation (type B) which are typically shorter than type A programmes and geared for entry into the labour market.

ISCED 6: Tertiary education (second stage): this level is reserved for tertiary studies that lead to an advanced research qualification (Ph.D. or doctorate.

Appendix 2.6: Coding tool: information retrieval summary sheet for use by researchers

This coding tool was developed and tested using a small sample of material sourced from government/ministry websites. Prompts drawn from our preliminary findings have been added to give examples of the kinds of information we have gathered to date.

1. Record at the end the material included from Part 2 screening.

2. Read the material and make notes on this summary sheet.

3. Please indicate in the yes/no columns whether or <country> has these arrangements.

4. Use the 'Other' column to add information specific the <country>.

5. At the end of the information collection sheet is another sheet to record queries you would like to put to government/ministry contacts.

Country name		**Researcher/date**			
Section C	**Study specific**	**Prompts: examples found in material reviewed during pilot**	**Yes**	**No**	**Other: please specify. Web links to key documents in English and since 2000** **Continue on the following sheet if necessary**
	Does the national government collect indicators of children's:				
1	**education**				
2	**health**				
3	**well-being**				
	If yes to 1				
4	**Which types of indicators are used for measuring outcomes in education?**				
		attainment			
		progression			
		absence			
		permanent exclusion			
		participation in sport & PE			
		destination on leaving school			
		completion of vocational course			
	If yes to 2				
5	**Which indicators are used for measuring health outcomes?**				
		obesity			
		depression			
		alcohol consumption			
		substance misuse			
		physical development & health			
		motor fitness of students			
		food education/lifestyle			
		leisure and study activities			
	If yes to 3:				
6	**Which indicators are used for measuring well-being?**				
		acts of violence in schools			
		number of children in care			
		number on child protection register			
		number of child carers			

Country name		**Researcher/date**			
Section C	**Study specific**	**Prompts: examples found in material reviewed during pilot**	**Yes**	**No**	**Other: please specify. Web links to key documents in English and since 2000** **Continue on the following sheet if necessary**
7	**Does the country collect other child level indicators? e.g.**				
	social capital	volunteering			
		trust and tolerance			
		political interest			
	youth justice	entrance into youth justice system			
8	**What other indicators (that are connected with outcomes for children) are collected?**				
	national data	trends in numbers of students			
		expenditure			
	school-level data	quality of education			
		efficiency			
		management			
		self evaluations			
		inspections			
		average class size			
		required class time			
		ratio of subjects			
	teacher level data	qualifications			
		teacher-pupil ratio			
		non-teaching staff trends			
	levels of poverty	income			
		employment of parents			
	housing	decent housing			
	mental health of parents	parental mental health			
	school places	school places			
9	**What is the nature of the data?**				
	data collection	OECD/PISA			
		TIMSS			
		government body			
		schools			
		local authority, Länder, municipality, state			
	sample population	children			
		specific group: first grade, school leavers			
		identifiable group: ethnic minority groups			

Country name		Researcher/date			
Section C	**Study specific**	**Prompts: examples found in material reviewed during pilot**	**Yes**	**No**	**Other: please specify. Web links to key documents in English and since 2000** **Continue on the following sheet if necessary**
	sample frame	all			
		sub group e.g. stratified sample			
	sample group	child			
		cohort			
		school			
		local authority, Länder, municipality			
		type of school e.g. public/private/ language e.g. Belgium-Flemish, German, French			
		census data			
	frequency of collection of data	annually			
		every three years			
		one off			
10	**For what purposes are the data used?**				
		school accountability-governors			
		school accountability-parents			
		school accountability-inspection			
		school self evaluation			
		local authority, Länder, municipality, state: accountability			
		national accountability-quality of education			
		national accountability-standards			
		review/adapt national curriculum			
		specific purpose not stated			
11	**Who uses the data?**				
		parents			
		school managers			
		school governors			
		local authority, Länder, municipality, state			
		inspectorate			
		National Board of Education			
		Government/ministry responsible for education			
		Council for evaluation			
		Regional government offices			
		educators			

Appendix 3.1: Summaries of the use of indicators of child education, health and well-being outcomes by countries with high-performing education systems and how they use them

This appendix summarises the information retrieved during our systematic search for information about thirteen countries with high-performing education systems: Australia, Belgium, Denmark, Finland, Hungary, Ireland, Japan, Korea, the Netherlands, New Zealand, Singapore, Sweden and Switzerland. Each summary describes the evidence base, whether or not the government collected indictors and if they did which types of indicators were collected for education, health and well-being outcomes. Summaries conclude with a description of how indicators were used in each country. These summaries were used for compiling the analytical maps.

It should be noted that we have only reported what we found in published material which may itself be inaccurate or subject to recent changes. It also means that there may well be information not found during our search that could fill in gaps in our findings.

A3.1.1 Australia

Twenty-six documents contributed to this review (OECD n=3; Government/ministry and recommendations n=7, INCA n=13, Eurydice n=0 and 3 found when reviewing government/ ministry websites for data extraction). A draft of this summary was reviewed by the Director of the National Centre for Education and Training, Australian Bureau of Statistics who clarified some points and provided additional information.

Did the national government collect child outcome indicators?

The national government's Ministerial Council on Education, Employment, Training and Youth Affairs collected child outcome indicators on education. We found evidence of health and well-being indicators being collected by the Australian Institute of Health and Welfare, Australia's national health and welfare statistics and information agency.

Which types of indicators were used for measuring outcomes in education?

The types of indicators used were attainment, progression, participation in education and training and attendance. Measures were developed by the Performance, Measurement and Reporting Task Force. In May 2008, students in years Y3, Y5, Y7, Y9 (ages 8/9, 10/11, 12/13 and 14/15 took the first annual national tests in literacy and numeracy as part of the National Assessment Programme. The attainment of Y10 and Y12 students was measured. Children with English as a second language were assessed in the early and late primary school. The National Assessment Programme also involved conducting triennial tests in science, civics and citizenship and information and communication technology literacy. Some states formally assessed school entrants to primary school. Individual states conducted their own statutory tests in certain year groups. Other outcomes measured were pre-school children's participation in education, retention rates for Y7 to Y8 (states vary) to Y10 and Y12 and progression rates of school leavers in education and training. Australia participated in PISA comparative studies

Which types of indicators were used for measuring outcomes in health?

Indicators for measuring health were reported in the Australia's Young People their Health and Well-being 2003. There were three broad groups of indicators of youth health: (1) health status and outcomes; (2) risk and protective factors; and (3) services and interventions. Health status had two subgroups: life expectancy and well-being; and mortality, morbidity and disability. The risk and protective factors group

had five subgroups: environmental factors; socio-economic factors; community capacity; health behaviours; and person-related factors. The services and interventions group was not divided into any subgroups in the current framework. The areas covered within this group included health programs, health promotion and intervention, health services to individuals, inter-sectoral services, community services and youth services. Details of the contents of this report are provided in Appendix 5.1.1.

Which types of indicators were used for measuring outcomes in well-being?

A quality of life survey was reported in Australia's Young People their Health and Well-being 2003 it covered - quality of life, quality of life and education, quality of life and employment. The report also included indicators relating to the family environment such as young people subject to care and child protection orders, young people in 'out of home care', volunteering, membership of clubs and associations, housing, homelessness and juvenile justice. This report had a section on education, employment and income that included some of the indicators reported previously.

How were indicators used?

The federal responsibility was strategic while the states had more latitude to make operational decisions. Education outcome indicators were used to develop national standards for example national literacy and numeracy benchmarks have been developed for Y3, Y5, Y7 and Y9. Parents could compare their children's results against these national benchmarks. Results of national tests were used to compare outcomes for children in different states and territories. National data were used to monitor trends and set targets for improvement. Attainment indicators were used to group students by ability in some subjects. Data were collected for indigenous and non-indigenous populations of children for monitoring educational outcomes. PISA international studies allowed comparisons by gender, indigenous/non-indigenous students and socio-economic groups.

Indicators were used for accountability purposes by government and made public in annual reports on schooling in Australia and used to develop policy and programmes at national and state level. National data were available to schools so that they could identify strengths and weaknesses in their teaching programmes.

3.1.2 Belgium

Six documents contributed to this review (OECD n=1; Government/ministry and recommendations n=2, INCA n=0 and Eurydice n=3). There were three ministries responsible for education one each for the Flemish, French and German Communities. Only the Flemish education ministry web site had a few pages available in the English language but they were of a general nature not specific enough for the purposes of this review. A draft of this summary was reviewed by a member of the Department of Staff Education and Training in the Flemish Community.

Did the national government collect child outcome indicators?

Information on outcome indicators were not collected at national level since the responsibility for education was with the Communities. However there was evidence that the ministries (Flemish, French and German Communities) responsible for education did collect education outcome indicators for children and the Flemish education ministry collected well-being indictors. Information about health indicators was available through the Belgian Health Survey.

Which types of indicators were used for measuring outcomes in education?

In the *Flemish Community* the main indicator used for measuring educational outcomes for children was attainment with some evidence of the use of grade repetition and registration refusals.

In the Flemish Community we found that pupils gained a certificate of primary education. At the end of secondary education they gained the certificate of secondary education after successfully completing six years of general secondary education (ASO), technical secondary education (TSO), or secondary education in the arts (KSO) or seven years of vocational secondary education (BSO).

Our informant told us that output indicators which were being used by the Flemish community inspectorate for example: falling behind, repeating a year, dropout, detailed information on graduates (for example by stage and type of education), internal and external intake and progress, problematic absence, transfer to higher education and results at the end of the first year of further education.

Our Flemish Community informant told us that representative surveys of pupils (peilingsonderzoek) were undertaken on behalf of the government by a university research team. These assessments were focused on the core curriculum and the test results marked by the research team. In 2002 the first assessment in primary education was on reading comprehension and mathematics. In 2004 the first assessment in the first stage of secondary education was on information processing. In 2005 there was a survey in primary education about environmental studies (nature) and in 2006 biology, in the first stage of secondary education. Since 2007 two assessments per year were organised. In 2007 there was a 'national' assessment of Dutch in primary education and of French in the first stage of secondary education.

There was evidence that the government were aware of the outcome indicators from PISA and TIMSS.

The education ministry of the *French Community* collected indicators of attainment and progress. Outcome indicators of reading were collected in the second and fifth year of primary school and in the second year of secondary school. For each school it administered, the organising body (pouvoir organisateur) produced an annual activity report that detailed rates of success; grade repetition; and number and reasons for registration refusals. In the majority of districts, the school district inspector organised a district examination (examen cantonal) at the end of the sixth year of primary education. Indicators collected about young people included performance in the certificate of education awarded on leaving compulsory schooling; success rate, repetition and dropout of students from first generation outside universities; success rate, repetition and dropout of students from first generation in higher education. A Steering Committee was charged with providing the education system with a coherent system of indicators however the material included in this review did not provide this level of detail. Since 1965, the French Community has regularly taken part in the international surveys organised by the International Association for the Evaluation of Educational Achievement (IEA): PISA, TIMSS and PIRLS. There were two inspectorates one for schools directly administered by the French Community the other for grant added schools.

The *German Community* was responsible for a small number of schools. We found no examples of the indicators used by the ministry to monitor educational outcomes. There was no inspectorate although there was a small Pädagogische Inspektion und Beratung, with a brief to supervise, inspect and advise schools. We found evidence from 2007 that the education ministry for the German Community had developed goals/key competencies for pre-primary education, primary education and the first stage of secondary education. At this time key competencies for the second and third stages in secondary education were still being worked out. It was unclear from the evidence found what the key competencies were or what indicators would be used to measure performance in them.

Which types of indicators were used for measuring outcomes in health?

The material included in this review provided no evidence of the use of health indicators. Our Flemish Community informant told us that specific information on health indicators was not collected by the policy domain for education and training but was available through the Belgium Health Survey. Unfortunately there was insufficient time available to follow-up this lead.

Which types of indicators were used for measuring outcomes in well-being?

There was evidence that school inspectors in the Flemish Community talked with pupils about their perceptions of well-being. Specific themes were used and results recorded on the 'scales or subscales' of a scientifically developed survey of 'well-being of pupils'. However we did not find actual wordings of these indicators.

How were indicators used?

The Flemish Community school inspectorate did produce reports. The inspectorate provided inspection reports for schools and their organising bodies (*inrichtende macht*) to provide a basis for future development. Schools wanting government recognition or financial support must meet the attainment targets set and we infer produce indicators to substantiate their claims, be adequately equipped and have sufficient teaching materials. Our informant reported that the financing conditions and subsidising conditions were broader than mentioned in this text. She also told us that elements of the inspection were well-being and health, infrastructure, didactic material, attainment targets etc. These different elements were integrated in the individual report that the institution received.

Our Flemish Community informant reported that the key tasks of the inspectorate were the control of the quality of education and the recognition of educational institutions. In order to accomplish these key tasks, the inspectorate examined whether the attainment targets or developmental objectives were being achieved and whether the other legislative obligations were being properly observed e.g. applying a timetable for the core curriculum. To this end, the inspectorate conducted school audits. The audit was carried using the CIPO instrument (CIPO= Context – Input – Process – Output) which was adapted to every level of education.

Only the results at the level of the Flemish Community system were published. Results of individual schools, classes or pupils were not published. The results of these surveys were the starting point of a process of communication, consultation, debate and formulation of action points (suggestions for improvement of our education in the assessed topic). This process might result in specific measures or suggestions for improvement that could be taken at the level of the Flemish government, schools or teacher education. The results of international surveys were used actively in developing policy documents.

The inspectorate produced an annual report (*Onderwijsspiegel* (Mirror of Education)) that described the state of education during the previous school year and put forward policy recommendations, both at general policy level and at school level. Under the terms of a decree it was

in first instance intended for the Members of the Flemish Parliament. Information on individual schools was not integrated in these reports. International comparisons such as PISA and TIMSS were used to evaluate the education system at Community level. See information integrated above.

We found evidence that two inspectorates in the French Community provided the government with indicators relating to results and progress made in schools, entities, areas and the whole of the Community and that they published an annual activity report.

3.1.3 Denmark

Four documents contributed to this review (government/ministry and recommendations n=3, Eurydice n=1). The ministry of education website had an English portal and a basic search engine. A draft of this summary was reviewed by an education contact in Denmark who clarified some points and provided additional information.

Did the national government collect child outcome indicators?

We found evidence that the government measured indicators of children's education outcomes. Measures of spend and general information about schools (e.g. numbers of pupils) were also collected. We found nothing to indicate measures of child health and well-being were collected.

Which types of indicators were used for measuring outcomes in education?

We found that the education outcome indicators being collected were on the different stages of education, destination after the completion of basic education, children with special needs, immigrant children and to some extent attainment.

Vocational training was considered highly in Denmark, and was differentiated from general upper secondary education. Several vocational education measures existed. The number of students taking the different types of vocational courses was measured (in school or on placement) as was the amount of time taken to complete vocational courses, and the numbers of pupils who travelled abroad for some of their training. For pupils who attended general upper secondary education the choice of subjects was measured. The destination of pupils after completing both basic and upper (general and vocational) school was measured, as were completion and dropout rates. Whether students returned to education after dropping out was also measured.

Immigrants and the descendents of immigrants were groups of children who were measured in Denmark. The number of pupils in basic school who attended classes in the teaching of 'Danish as a second language' was measured, as was the type of youth education undertaken by immigrants and their descendents, and their completion rates. A second specific group of children who were measured were those who had some kind of special teaching/education. However, there was no collection of data about the types of special needs these children had (e.g. the number of physically disabled pupils).

The availability and use of computers and the internet by Danish school children was measured. This measure was compared internationally. In terms of attainment Denmark participated in the OECD PISA studies.

Which indicators were used for measuring health outcomes?

In Denmark there was no national survey of children's health and well-being. Instead schools had to assess their students/pupils physical and psychological well-being through an 'Educational-Environmental Assessment'. Schools were free to decide how this assessment was done, thus there were no national outcome measures of health and well-being.

Which indicators were used for measuring well-being?

See above.

How were indicators used?

The Ministry of Education produced a document which outlined the Danish education system, describing trends and developments in various areas of education. As well as describing the situation in Denmark there was some international comparison within this document. A statistics website existed which had some education measures detailed on it (in English). It was possible that there was more detailed information available in Danish.

Education in Denmark was evaluated in various ways. Institutions were evaluated both internally by schools and externally by municipalities. As legally, all pupils' education and learning had to be continuously evaluated, the state supplied a national testing system. In addition a national evaluation institute carried out surveys and provided guidance in evaluation and a national school authority monitored private schools and the local municipalities care and running of public schools.

No systematic school inspection system existed for public schools at the state level. Municipalities were responsible for public primary and lower secondary schools. No information on the curriculum and teaching methods were collected, although some input information was gathered (such as the number of teacher-hours provided in

the different forms). The outcomes of teaching and learning (e.g. grades in the different subjects) were collected and made public. The Eurydice publication on the evaluation of educational institutions and the education system reported a current debate about the need for a higher level of transparency through the use of pre-defined criteria as the basis for evaluations. Consideration was being given to developing output measures, evaluating targets and focusing on competences.

3.1.4 Finland

The range, volume and relevance of material for Finland were judged to be satisfactory. Eleven documents contributed to this summary from three sources (OECD n=5, Government/ministry and recommendations n = 4, INCA n=1, Eurydice n=1). The ministry of education website had an English portal and an advanced search option. Finland was not an INCA country but supplementary details were included in one report. We received no reply to our request for clarification and further information from a knowledgeable informant in Finland.

Did national government collect child outcome indicators?

A strong welfare state supported equity in Finnish education. It worked to prevent certain barriers to education like chronic bad health or housing shortages that required families to move consistently creating instability in schooling. Information was collected about these barriers so that they could be tackled.

Which types of indicators were used for measuring outcomes in education?

We found evidence that there were measures to evaluate the education system including learning outcomes covering basic education and vocational education and training. The system included the preparation of tests and their pilot testing, their organisation, analysis of results and reporting of conclusions. The evaluation of learning outcomes in basic education was carried out regularly in the main subjects of the curriculum on a sample basis. About 100 schools were randomly selected to take tests intended to monitor the quality of education, and municipalities could 'buy into' these tests for their own purposes.

The evaluation of the learning outcomes of schools and students were intended to be 'encouraging and supportive by nature'. The aim was to produce information that helped both schools and students develop. There was no national testing of learning outcomes, there were no school ranking lists or inspection systems.

Evidence suggests that Finland appeared to benchmark its performance in PISA standardised tests against other Nordic countries. Boys and girls performance were considered. We found some evidence that Finland was setting in place monitoring and assessment systems for early childhood education and care.

The following outcome measures appeared to be collected systematically to monitor system performance: dropout rates in upper secondary school; graduation from upper secondary school and employment rates after compulsory schooling.

The Ministry of Education evaluated an education provider's performance by measuring, among others, the rate of completion of studies, the occupancy rate of student places, and how students find employment and were admitted to further studies.

The Finns were well aware of the PISA results, and there had been some effort within the country to understand why outcomes were so successful. The most prevalent narrative we heard gives credit to high teacher quality, a standard curriculum, the incorporation of various welfare services and an overall commitment to equality.

Which indicators were used for measuring health outcomes?

Finnish plans for pupil and student welfare were aimed at promoting and maintaining good learning, good physical and mental health as well as social well-being among pupils(Health Care Act (66/1972)). The following indicators appeared to be particularly significant:

- proportion of 16-18 year olds who smoke
- alcohol and drug misuse levels
- gambling addiction
- access to care within time limits
- health differences between socio-economic groups
- weight
- exercise rates.

Which indicators were used for measuring well-being?

In 2003, educational legislation was revised to incorporate measures introducing regulations on pupil and student welfare. This legislation revision aimed at emphasising more explicitly the meaning of comprehensive child and youth welfare and that of a safe learning environment. The aim was to introduce into educational legislation principles of early intervention and preventive action against problems relating to child and youth development. The definition of pupil and student welfare had the same content in legislation governing each particular educational structure (Child Welfare Act (683/1983).

How were indicators used?

The Ministry of Education and the National Board of Education were responsible for implementing education policy and for administering the education system at the central government level. However, many matters were decided by the education and training providers themselves that was, local authorities and their consortia. Evaluation was stipulated by law in 1999; schools and educational institutions were required to undertake self-evaluation, and a national system for evaluating learning outcomes was established. Evaluation of schooling and self-evaluation in schools were therefore the basic tools in the present-day monitoring of school performance. In 2004, three quarters of the basic and upper secondary schooling providers had an evaluation system that was specified to some extent. In these cases, 90% of teachers had participated in the design of the evaluation system.

The National Board of Education determined the national core curriculum and the implementation timetable. The financial contribution from the ministry to schools was partly performance based. The OECD Equity note was critical of Finland's evidence base and recommended:

> *that the Ministry of Education consider options for making the process of policy-making more soundly based on evidence including considering institutional change, creating an office responsible for data analysis and evaluation, for dissemination of results to interested participants, and for maintaining relationships with Statistics Finland and other statistical agencies; and procedural change, establishing in the template for new policy documents a standard section entitled 'research and data' which should describe the evidence bearing on the policy proposals set out in the documents.*

The national evaluation system of education consists of three sections:

- evaluation system of learning outcomes;
- production of indicators;
- evaluation projects with varying topics (situational or thematic evaluations).

The indicators were created to produce long-term information on educational trends and the operational capacity of the education system. Two types of indicator were being produced. Firstly, there were annual indicators, which were fewer in number and aimed to cover the continuous production of the most significant numerical monitoring data on educational outcomes. Secondly, for more detailed reviews on the state of education produced regularly every few years, extensive periodic indicator data was compiled from the various educational outcomes.

Admission to general upper secondary schools was competitive, but there was no internal tracking or streaming in schools. At both the national and the municipal levels, national tests were used only for diagnosis and improvement; the results were not made public at school level, as they were against regimes of 'naming and shaming'. Information was published on other types of aggregate differences – such as rural-urban and gender differences.

Statistics Finland collected information on every individual, using a single identification number, creating the ability to pull together all kinds of information about parents, their income and employment, numbers of children, residential location and relocation, the education of children, receipt of other social services, and the like; and these data were available over time, in theory enabling longitudinal analysis of important issues. However, OECD reported that this information was not well-used by schools.

The inspectorate system in education was abolished in Finland at the beginning of 1990s.

3.1.5 Hungary

The range, volume and relevance of material included in this summary were judged to be satisfactory. Fourteen documents from four sources contributed to this summary (OECD n=3; government/ministry and recommendations n=2, INCA n=8 and Eurydice n=1). The ministry responsible for education had a few pages available in the English language but they were of a general nature not specific enough to give us the level of detail needed for a full account of the outcome indicators used for measuring outcomes for children.

Did the national government collect child outcome indicators?

While there was evidence that the government collected child outcome indicators for education there was no evidence in the limited amount of information on the ministries website in the English language of indicators for health or well-being.

Which types of indicators were used for measuring outcomes in education?

We found that attainment was the main type of indicator of child outcomes used in education. The National Assessment of Basic Competencies (NABC), were responsible for tests in mathematics and reading/literacy that were first introduced in Grades 6, 8 and 10 (students aged 12, 14 and 16 respectively) in 2004. The second round of NABC testing also tested students in Grade 4 (age 10). The school leaving examination érettségi vizsga at the end of upper secondary school középiskola was not standardised until 2005. The two level (standard and advanced level) érettségi vizsga were introduced in 2005, they

were based on standard requirements and were both a school leaving examination and an 'entrance examination' to higher education institutions. National representative surveys were carried out occasionally e.g. national system-wide evaluation of programmes of kindergartens (2001/2002), the effectiveness of teaching Hungarian language and grammar (mother tongue) through examining the (érettségi vizsga) tests of the subject (2002), and language competence of pupils in English and German (2003). From September 2004 the heads of educational institutions were obliged to measure and assess those first year pupils whose basic skills and competences needed to be improved more than that of the others. We found evidence that in addition to Hungarian measurement programmes the international context provided by IEA (Civic Education, PIRLS, TIMSS-R) and OECD (PISA, ICT) programmes were found to be sources of invaluable information. A relatively new initiative concerned the creation and operation of an educational indicator system in Hungary built on the indicator systems of the OECD and the EU. The collection of outcome indicators data by ethnic group were hindered because the 1992 Act on the Protection of Personal Data and Disclosure of Data of Public Interest provided that 'personal data may only be collected and processed with the consent of the individual or if it were required by law.' Thus, after this date, the government were no longer permitted to identify individuals by ethnicity in the process of collecting data on education. However, social scientists have identified Roma as an identifiable group that were over represented in special schools and segregated classes.

Which types of indicators were used for measuring outcomes in health?

The material included in this summary provided no evidence of the use of health indicators.

Which types of indicators were used for measuring outcomes in well-being?

The material contributing to this summary provided no evidence of the use of well-being indicators.

How were indicators used?

There appeared to be a national system for public accountability that included educational quality assessment, institutional evaluation and a pupils' performance measurement system that was adopted in June 2006. No details were found about which indicators were used to monitor and evaluate the system. The stated purpose of the national assessment was to evaluate the system. Testing was described as 'not high stakes for pupils' and at present there were no school league tables. It was unclear whether or how school head teachers or governing bodies used indicators even though the 2002 amendment of the Act on Public Education made it compulsory for every institution of public education in Hungary to design and operate a scheme for quality assurance.

A child's progression through the education system was dependent on some key outcomes but we found no evidence that they were measured by the government. A certificate confirming a child's attendance in kindergarten education was a pre-requisite for entry to compulsory education. A child's performance in primary school affected the type of secondary school or type of course they attended. However there was no primary leaving certificate. Children may repeat a year if they did not reach the required standard.

Policy reviews were conducted following PISA 2003 they resulted in the stated aims to develop high standards of literacy and numeracy, including improved text comprehension and the strengthening of general learning abilities. Government initiatives to improve outcomes for Roma children were a response to PISA 2003 outcome indicators that showed that Hungary had exceptionally large differences in performance between children of high and low socio-economic status. Hungary had very small performance differences within schools and great differences between schools most of which were attributable to family background. PISA 2003 results placed Hungary just one rank above the bottom in regard to one of the study's key equity indicators: The OECD Equity Note was critical of the weak reporting of outcomes and pointed out that the government had little knowledge about differences in outcomes among ethnic and income groups.

3.1.6 Ireland

Overall the range, volume and relevance of the material in this summary were good. Sixteen documents contributed to this summary from four sources (OECD n=1; Government/ministry and recommendations n=4, INCA n=8 and Eurydice n=1). The Eurydice material, although in our time frame, was older than that of reports on other countries. Our informant from the ministry responsible for education provided us with two more documents that covered gaps in our evidence base on the topics of health and well-being.

Did the national government collect child outcome indicators?

The government collected data on education, health and well-being outcomes for children. As well as indicators found on the website of the ministry responsible for education we also found that The Office of the Minister for Children had compiled a report on the *State of the Nation's Children - Ireland* (2006) that drew on the wide range of datasets available from surveys and government statistics. Four categories of indicator were reported: (1) socio-demographics; (2) relationships; (3) children's outcomes: education, health and social, emotional and behavioural outcomes; and (4) formal and informal supports. The report was based on a national set of child well-being indicators developed in 2005 and included 48

areas of children's lives, considered by multiple stakeholders, including children themselves, to be important. The report listed the indicators and gave details of the measures used. It described the most recent results and compared them to historic data or international data e.g. European Union averages. A summary of these indicators and actual wording of measures is provided in Appendix 5.1.2.

Which types of indicators were used for measuring outcomes in education?

The educational statistics reported in the 2005/6 annual report were mainly about access to provision (such as number of pupils in primary schools by age and school; number of pupils enrolled in Second Level Schools classified by sex, school type, programme and year of course). Outcomes such as attainment and progress were not covered in the annual report despite the fact we found evidence that the attainment of pupils was measured in primary and secondary schools. Standardised tests were introduced during the 2007 calendar year. Schools decided when children should take the tests either at the end of year 1 or at the start of year 2 for seven year olds and at the end of year 4 or the beginning of year 5 for ten year olds. There was no national standardised test during compulsory secondary education. Upper secondary education was offered in secondary schools, vocational schools, community schools and comprehensive schools. This comprised an optional Transition Year and courses leading to three forms of leaving certificate: the Leaving Certificate (Established), Leaving Certificate (Vocational) and the Leaving Certificate (Applied). The school inspectorate produced a report on PISA 2007a that focused on the performance of Irish 15 year olds in comparison with those in other OECD countries in the survey.

The following indicators were found in the *State of the Nation's Children – Ireland* (2006) in the category - children's outcomes in education: early childhood care and education; school attendance; and achievement in the PISA survey - reading literacy, mathematics and science and in the formal and informal supports category: public expenditure on education for children and young people.

Which types of indicators were used for measuring outcomes in health?

The *State of the Nation's Children - Ireland* (2006) report included the following child outcome indicators for health: birth weight, breastfeeding practice, chronic health conditions and hospitalisation, disability, abuse and neglect. The socio-demographics category included child mortality. In the social, emotional and behavioural outcomes category we found these health related indicators: participation in decision-making, reading as a leisure activity, use of tobacco, alcohol and drugs, binge drinking, Illicit drug use, sexual health and behaviour, self-esteem, self-reported happiness, youth suicide, physical activity and eating habits. The formal and informal supports category included:, antenatal care, childhood immunisation, screening for growth and development, accessibility of basic health services for children and young people, children and young people in care and mental health referrals. The report drew on the World Health Organisation's (2000) study of health behaviour in school-aged children.

Which types of indicators were used for measuring outcomes in well-being?

Well-being indicators covered in *State of the Nation's Children - Ireland* (2006) report included non-Irish national children, family structure, parental education level, separated children seeking asylum and Traveller children in the socio-demographics category. Parental and peer relationships in the relationships category. The formal and informal supports category included: economic security, availability of housing for families with children; perceived safety in the community; young people's perceptions of whether or not there are good places in their area to spend their free time; referrals to Garda Juvenile Diversion Programme.

How were indicators used?

The stated purpose of compulsory assessment was formative for use by teachers, parents and students. Results were not for publication.

The ministry used indicators to formulate government policy, monitor quality, and to allocate resources. We found evidence that the government used education outcome indicators to set targets e.g. '90 per cent of students aged 15-18 completing the 'senior cycle', at least on a part-time basis'. Evaluation within the education system in Ireland was largely operated at national level. The government devolved responsibility to school boards of management. Schools conducted self evaluation in line with national models. A school inspectorate conducted an annual programme of inspection of primary and post-primary schools with the purposes of improving the quality of education, improving the national system, and ensuring open accountability by schools to pupils, parents, managerial boards and the wider school community. The inspection focused on:

- whole-school evaluation
- subject inspection in post-primary schools
- in-depth focused evaluation of selected educational programmes or services in schools, and
- inspection of the work of individual teachers.

There was evidence that outcome indicators were used to monitor inequalities. Dips in performance were analysed e.g. first year after transfer to secondary school by ethnic, newly arrived children and socio-economic groups. An analysis of factors linked to attainment in PISA 2007a concluded that factors associated with science performance included student economic, social and cultural status; number of books in the home; other home resources; and certain characteristics of schools. Sé Sí provided an evaluation of gender and education in Ireland. (Boys were significantly more likely than girls to leave school early and to demonstrate low levels of attainment in education - published July, 2007)

The ministry were interested in finding out more about student's performance over time. The National Council for Curriculum and Assessment has commissioned the Economic and Social Research Institute to carry out a longitudinal study of 900 students aged 12 to 15 from 12 schools.

Educational outcomes were used for selecting students for higher education. Students needed high scores in leaving certificates examinations to access places on the most popular courses.

The first *State of the Nation's Children – Ireland 2006* report aimed to provide a description of the well-being of children and young people in Ireland and, as the first such report, to set out a benchmark for developments into the future.

3.1.7 Japan

The range, volume and relevance of material included in this summary were judged to be satisfactory. Seventeen documents from three sources contributed to this summary (OECD n=4; government/ministry and recommendations n=4, INCA n=9 and Eurydice n=0). The ministry responsible for education's web pages available in the English language were very informative and made a good contribution to the summary. We received no reply to our request for clarification and further information from a knowledgeable informant in Japan.

Did the national government collect child outcome indicators?

The government of Japan collected child outcome indicators for education, health and well-being. They were published on-line in what had been for the last three years an annual publication for educators called Japan's Education at a Glance (2006) (See Appendix 5.1.3 for a full list of Japan's indicators). The 2006 publication covered statistics on expenditure, the school system, schools and social, sport and cultural matters. It drew together data from across government departments relevant to education including census data, surveys of sample groups, national surveys, comparative international studies and periodic surveys that had been conducted over a long time span some over twenty years.

Which types of indicators were used for measuring outcomes in education?

The types of indicators used for measuring educational outcomes were mainly attainment with some use of indicators of attendance and destination of students on leaving school. A Nationwide Academic Ability Assessment began in 2007 for:

- all pupils in Year 6, the final year of primary education, aged 11-12
- all pupils in Year 3 the final year of lower secondary school, aged 14-15.

There were tests at the end of compulsory school (depending on the prefecture 15 year olds were tested on Japanese, social studies, mathematics, science and English), and on completion of senior high school (Certificate of Upper Secondary Education). Sampling for 10-15 year olds was used before national tests were introduced in 2007 in five subjects: Japanese, English (Years 7 to 9), mathematics, science and social studies. The assessment also included questionnaires for students and teachers. PISA standardised assessment results were fully analysed and reported showing that educators were considering international comparisons and trends as well as internal factors.

In addition to outcome indicators we found comprehensive information about demographic trends and distribution of students, important because of the forecasted declining school-age population. Expenditure on education by both government and families were also reported. Information was provided about resources, human and physical, such as schools and teachers number of institutions, class size, teaching time and ratio of subjects, students per computer, numbers of teaching and non-teaching staff, teachers who could use computers and school doctors. An obvious concern with health and safety risks was reflected in the monitoring of schools' anti-earthquake measures.

Which types of indicators were used for measuring outcomes in health?

Health indicators collected included physical development and health e.g. age by height; trends in rate of students with decayed teeth; motor fitness e.g. 50m dash and lifestyle habit. Some of these indicators were found in long term studies providing an opportunity to look back over decades.

Which types of indicators were used for measuring outcomes in well-being?

Indicators used to measure children's well-being included trends in acts of violence, bullying, number of students who refused to attend school, upper

secondary school dropouts and participation rates in volunteer activities. This information came from surveys conducted by the Cabinet Office on topics such as time use and leisure activities by young people between 10 and 24 years old and the world youth survey conduced every five years since 1972. The ministry responsible for education conducted its own Comparative Survey on the Experiences of Children that included questions such as experiences of helping handicapped and/or old people and helping to stop bullying or the bad behaviours of friends. Another indicator measured was trends in users of social facilities by type e.g. sports, cultural facilities

How were indicators used?

The ministry responsible for education undertook on behalf of the government the analysis of educational outcomes including attainment. The ministry oversaw a large education system that included forty-seven prefectures that were operationally responsible for upper secondary schools and over 3400 municipalities that were responsible for compulsory education. All prefectures set achievement tests at the end of compulsory secondary education, age 15. School principals administered schools. More autonomy had been given to schools self-governance required them to ensure the quality of education by conducting self-evaluations and making the results public

Schools were monitored by government inspectors to ensure that the ministry's courses of study were being followed. However, there was no nationally centralised system of school inspections. Instead supervisors (*Shidoshuji*) visited schools and observed teaching and the school curriculum in practice. They held discussions with school staff and provided guidance and advice on the curriculum, teaching and school management issues. The visit cycle was determined by the local board of education. From the documents found it was unclear whether or not the monitoring of schools included a review of child outcomes.

There were examples of indicators being used for formative purposes both for the improvement of schools and students. The purposes of the Nationwide Assessment of Academic Ability introduced in 2007 were two-fold firstly the results were intended to be used to improve teaching methods; not used for school ranking or 'unhealthy competition'. Secondly the results were reported to parents and students so that they could identify where they needed to improve. (Parents paid for extra tuition if their child fell behind.) A statutory record of primary student's attainment and attendance was updated annually and transferred to secondary school. Children received an elementary school (primary school) leaving certificate (age 12), but usually progressed automatically from their local elementary school to their local junior high school.

Government policy initiatives were informed by child outcome indicators. The 'Zest for Living' initiative that aimed to improve the health of young people's minds and bodies was the government's response to the downward trends in physical fitness and athletic ability, increases in child obesity, and increases in crime and misconduct by children.

There was also evidence that new reforms were influenced by and could be monitored to some extent by the existing data set of child outcome indicators. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) had set as objectives for educational reform in the 21st century:

(1) cultivating dynamic Japanese people who think and act on their own initiative,

(2) cultivating top-level human resources who will lead the Century of Knowledge,

(3) cultivating Japanese people who will inherit and create a spiritually rich culture and society, and

(4) cultivating Japanese people who were educated to live in the international community.

MEXT will work to further enhance the fostering of solid academic abilities, spiritual wealth with regard to ethics, public spirit, a compassionate heart, and sound bodies, and will promote reforms including those targeted at the universities.

3.1.8 Korea

The range, volume and relevance of material used in this summary were poor. Two documents from only two sources contributed to this summary (government/ministry and recommendations n=1, INCA n=1). The ministry of education website had an English portal and a basic search engine but we found only one relevant document. An education statistics website existed but it had no English portal. Korea was not a Eurydice country. We received no reply to our request for clarification and further information from a knowledgeable informant in Korea.

Did the national government collect child outcome indicators?

We found evidence to suggest the government measured indicators of child education. We found a few measures which could be classed as representing child health and well-being. An education statistics project existed, run by a research institute with the ministry of education. This project collected and analysed data on Korean education, based on a survey across all schools and educational institutions in Korea (n~=20,000).

A national assessment system was in place which measured pupil achievement. Small samples of students were tested at these ages: 11, 14 and 15

using formal written tests which included multiple choice and constructed response items.

Which types of indicators were used for measuring outcomes in education?

Enrolment rates into kindergarten and elementary schools were determined. Advancement rates from elementary school to middle school to high school were measured, as were employment rates of graduates of general and vocational high school and dropout rates. Numbers of computers in school and the number of pupils per computer were measured, as were the supply of textbooks and the distribution of free textbooks.

More general schooling measures were also collected, such as the number of schools, students, teachers and clerical staff, the numbers of students per class and per teacher, the size of schools and the building area per student. Measures of spend were also collected.

The national assessment tests were conducted in two subjects each year. Korean language, mathematics, science and social studies were assessed every two years. English communication and information technology were assessed every three years.

Which types of indicators were used for measuring outcomes in health?

The weight, height, breast circle and sitting height of students were reported, which were classed as their physical development. Measures of fitness were also reported. These were the number of seconds it takes to run 50m, the distance in cm for a standing long jump, the number of sit-ups, the number of press-ups, a sit and reach measure and the number of minutes and seconds it takes to run a set distance (Elementary School 1,000m, Middle and High School girls 1,200m, Middle and High School boys 1,600m). These measures were classed as physical strength.

Which types of indicators were used for measuring outcomes in well-being?

The numbers of school meals supplied were recorded.

How were indicators used?

Educational statistics were perceived as very important and were considered the primary source for the development of the national education policy, as well as providing an analysis of the overall education situation. The data were collected in order to provide a comprehensive understanding of Korean education and help drive education policy and academic research.

International comparisons of Korea against other countries were also considered important. The Korean document contained a section which compared Korea to Japan, UK, USA and France. This considered students per teacher and class, school enrolment rates, percentage of the population that had attained at least tertiary education, upper secondary enrolment patterns, public educational expenditure, expenditure relative to GDP, and mathematics achievement and problem solving at 15 years.

3.1.9 The Netherlands

The range volume and relevance of material used in this summary were judged to be good. Seventeen documents from four sources contributed to this summary (OECD n=3; government/ministry and recommendations n=2, INCA n=11 and Eurydice n=1). We received no reply to our request for clarification and further information from a knowledgeable informant in the Netherlands.

Did the national government collect child outcome indicators?

While we found evidence that the government collected child outcome indicators for education and some for well-being there was no evidence in the limited amount of information on the ministries website in the English language of indicators for health.

Which types of indicators were used for measuring outcomes in education?

We found that the types of indicators used for measuring outcomes in education were mainly attainment, participation and destinations of students leaving compulsory education.

There was a national assessment system at the end of pre-school. There was statutory assessment on completion of lower secondary education at age 15, and optional testing on completion of primary education (age 12). At 15 students were tested in Dutch, the English language, a second foreign language (usually French or German), mathematics, biology, physics and chemistry, information technology studies, history and politics, geography, economics, technology, life skills, and at least two of: visual arts, music, drama, or dance.

There were two alternative pupil monitoring systems called CITO and IPMON.

> *The system developed by the National Institute for Educational Measurement (CITO) comprised an integrated series of tests with a psychometric basis that allowed pupils' progress to be measured and a system for the manual or computerised registration of pupils' achievements. The CITO tests for 12 year olds covered: language, arithmetic/mathematic, study skills, and world orientation.*
>
> *The IPMON system (IPMON = Instrument for Independent Periodic Assessment) was based on the use of Teaching Age Equivalents (DLEs). These showed how many*

months' teaching a pupil needed on average to reach a given level of attainment. Test results were recorded in pupil and class profiles. A pupil profile was a card on which all the pupil's test results were recorded. The same card was used from year 1 of primary school to the first year of secondary school. Class profiles were based on the marks scored by a particular class in a specific test or series of tests. This card stayed with the same class from year 3 to the first year of secondary school.

Over the last two decades, a number of cohort surveys measured the educational performance of pupils and schools, on the basis of test scores. This started with the National Educational Priority Policy Evaluation Programme (LEO) cohort study in primary schools. This evaluation was followed by the PRIMA cohort survey (primary education) and the VOCL cohort survey (secondary education).

The Educational Careers Cohort Survey (COOL), covering ages 5 to 18, started in the 2007/2008 school year, and will eventually provide longitudinal data on the development of children and young people within the Dutch education system (primary, secondary and adult and vocational education) which could be used for both policy and research purposes. The COOL survey will examine: pupils' cognitive development (literacy, numeracy and intelligence); the psychosocial aspects of pupils' development; pupils' social and emotional development; environmental factors (home, school); educational careers; and the development of citizenship competences.

Indicators used to measure participation in schooling included: participation in early childhood education and school leavers before completing upper secondary education.

Destinations of school leavers were measured using these indicators: position of ex-pupils in the labour market, youth unemployment, youth unemployed after a year of leaving school

Which types of indicators were used for measuring outcomes in health?

We were unable to find indicators for measuring child outcomes in health.

Which types of indicators were used for measuring outcomes in well-being?

In primary and secondary schools pupils' social and emotional development were measured using VISEON, a digital monitoring system. Pupils' progress was measured in broad terms once or twice a year. The results were recorded in individual reports and class lists. The individual reports were based on the pupil's scores in a given series of tests, usually over a period of several years. The class lists showed how well each child in the class had done in a particular test, enabling the teacher to assess whether his or her method of teaching was proving effective. Average scores at class or school level may prompt reconsideration of the methods employed by the school, thus encouraging self evaluation.

How were indicators used?

Indicators of child outcomes were used by schools to select pupils, by schools and their governing boards for internal self evaluation and planning, by further and higher education institutions to select students, by the school inspectorate for external evaluation and by the Education Council who gave advice to the government on policy and legislation. Parents were informed about their child's progress and attainment.

Indicators of attainment were used by schools to select pupils for different types of educational provision on entry to school, at the end of primary school and school leaving examinations grant access to further and higher education. The purpose of the national assessment system at the end of pre-school was to identify children with special educational needs. The optional primary school leavers' test was intended as an aid for teachers in advising parents as to the right secondary school for their child. School leaving examinations of all types: VMBO (pre-vocational education, 16+), HAVO (17+), and VWO (18+), granted access to further and higher education of designated types. In rare cases children whose performance did not meet the required standard were required to repeat the class (one to two per cent per annum).

CITO tests were used by over 85% of all primary schools. As well as using the results to report the performance of individual pupils they were used to show how well a particular school was performing. The schools that used the test were sent two reports, one comparing the performance of the school concerned with all the other schools that used the test and the other comparing the school's performance with that of other schools with a similar pupil population. This second report gave the school an indication of the effectiveness of its curriculum. By splitting up the test into 15 sections, it provided information on discrepancies in scores between the various sections for example if the school's score for reading comprehension was much lower than the total score for language this may prompt further analysis, leading to changes in the school's curriculum. The school inspectorate also used the test to assess an individual school's performance.

Entry to secondary schools was by selection. The receiving school board (analogous to the school governing body) decided on admissions, on the basis of the primary school report and recommendation and parental preference. The recommendation was based on the child's general performance and, increasingly, on his/her results in the CITO Final Test of Primary Education. Some

secondary schools conducted their own tests. If the school board refused admission, parents had a right of appeal. Sixty per cent of all students transferred to VMBO, the least demanding of the three secondary school types/tracks.

In general, parents received a report (issued at least three times a year) that was followed by a parents' evening where parents could discuss the results with the teacher. Most schools reported more than just learning results.

Every school was inspected annually so that developments could be monitored and possible risks could be assessed. The inspection system used digital school dossiers and school report cards. The primary and special school report card gave information on results obtained, the atmosphere in the school, the text books and teaching materials used, the quality of the lessons and the contacts the school maintains with parents and the local community. For secondary schools the report card gave the particulars of the school, and the results it had achieved for instance in the leaving examination, and the quality of its teaching and contain information on the educational and general climate in the school. Periodic quality inspections, embracing every aspect of the inspection framework for the sector in question, were carried out every four years in the primary and secondary education sectors. Municipalities did not seem to be involved in holding schools accountable.

The school inspectorate used its own data for the national annual Education Report and publications on specific themes. Its inspection reports, theme reports and the Education Report were available on the internet. There was evidence that performance in international as well as national tests helped identify where there were room for improvement. The inspectorate had pointed out that although Dutch pupils scored well in international comparative surveys (PISA, PIRLS) national studies indicated that certain parts of education would benefit from improvement.

The Education Council advised the government on matters relating to education, such as the main outline of policy and legislation. It occupied an independent position vis-à-vis the ministries of education. There were examples of child outcome indicators being used to inform policy e.g. Combating School Failure. The national objective was to halve the number of early school-leavers per school year as compared to 2002.

3.1.10 New Zealand

Seven documents contributed to the draft review (Government/ministry and recommendations n=2, INCA n=1). An education statistics website exists. Our ministry of education informant provided additional information citing four new government website pages.

Did the central government collect child outcome indicators?

The central government education ministry had an education statistics website where it collected and displayed information on education indicators. This included information on achievement, participation and resourcing as well as analysis of education information, including education sector indicators and key education themes.

Some measures of well-being and health were also collected.

Which types of indicators were used for measuring outcomes in education?

Indicators of reading literacy, mathematics and science were measured across primary, middle and secondary schooling, while the percentage of the Maori population proficient in te reo Maori was also measured. (A significant proportion of the Maori population were not te reo Maori speakers. The majority of te reo Maori learners were learning Maori as their second language and they were not all from the Maori ethnic group.) Qualifications at leaving school were measured as was destination after leaving school (including youth unemployment) and age when leaving school. Truancy, suspensions and expulsions from school were collated as was home schooling.

Levels of Maori and Pasifika schooling were measured, as were international students in schools. The ethnic composition of schools was collated, as were the numbers of school trustees who were Maori and Pasifika.

General schooling measures such as student numbers, school numbers, type and enrolment were also collected, alongside measures of spend and teaching staff qualifications.

Indicators were collated around themes with some measures appearing in more than one theme. The themes were: education and learning; student participation; family and community; effective teaching; quality education providers; and resources. These indicators were used to assess the 'health' of the education system and were published on a national research and statistics website (www.educationcounts.govt.nz). They were incorporated in annual monitoring publications that looked at both the system as a whole and at specific parts of the system such as groups within the system.

Optional school entry tests (aged 5) measured literacy, numeracy and oral language based on observation methods by class teachers. The Assessment Tools for Teaching and Learning (asTTle) was an educational resource for assessing literacy and numeracy (in both English and Maori) developed for the Ministry of Education by the University of Auckland. It was first developed in 2000. The asTTle provided teachers, students,

and parents with information about a student's level of achievement, relative to the curriculum achievement outcomes and national norms of performance for students in years 4 to 12. The National Education Monitoring Project (NEMP) assessed a sample of children aged 8/9 and 12/13, annually, across all curriculum subjects, although each child was assessed in only one third of the areas. Knowledge, skills, motivation and attitudes were also assessed. Students were assessed in four ways: using one on one assessment with a teacher, as a group with three other students, independently on a pen and paper task and working independently on hands on stations. NEMP was designed to inform the national curriculum, and provide information on trends in education, but did not assess the whole nation.

The National Certificate of Educational Achievement (NCEA) was the national secondary school qualification for students in years 11 to 13. NCEA can be gained in three levels; students usually work towards NCEA Level 1 in Year 11, Level 2 in Year 12, and Level 3 in Year 13. However, NCEA was very flexible and students could study at a mix of levels during a year.

NZQA (the New Zealand Qualifications Authority) provided detailed data including qualification information by a range of demographic variables, and information on individual standards. They were reported at two levels:

- National secondary school statistics
- School by school statistics.

Which types of indicators were used for measuring outcomes in health?

The number of children who failed a hearing test in their first year of school was measured.

Which types of indicators were used for measuring outcomes in well-being?

Rates of youth suicide were measured, as were some measures which indicated poverty levels, including education of the primary caregiver, children living in low income households and affordability of tertiary education.

How were indicators used?

Indicators of children's education were collected in New Zealand in order to inform education policy and practice and to allow for relationships between education and the labour market to be considered. The New Zealand government had a goal that 'All young people were in education, skills development, or structured learning, relevant to their needs and abilities, until the age of 18'.

International comparisons were important in New Zealand; they compared their literacy, mathematics and science indicators against international benchmarks and means using the PIRLS, PISA and TIMSS data.

School entry assessment were used to provide information on individual children to help teachers and schools to understand and support the child's needs when entering school, plan teaching (the main reason), and to help schools evaluate their school programmes. It was also intended to enable the Ministry of Education to build a database of children's needs at school entry, thus contributing to national policy and the allocation of resources. The national assessment that occurred later in the school career was for evaluative purposes, it aimed to provide a picture of achievements of school children. This was so trends in educational performance could be identified, good information could be provided to policy makers and curriculum planners and so the public could know about trends in education.

3.1.11 Singapore

The range, volume and relevance of material included in this summary were satisfactory. Twenty-two documents contributed to this summary from only two sources (OECD =none; Government/ministry and recommendations n=13, INCA n=9 and Eurydice =none). Singapore was not an OECD or Eurydice country so no materials were available from these sites. However there was a good amount of material on the government websites. We received no reply to our request for clarification and further information from a knowledgeable informant in Singapore.

Did the national government collect child outcome indicators?

We found evidence that the government collected data on education, health and well-being outcomes and input data that gave an insight into preventative initiatives designed to enhance children's lives and encourage independence from rather than dependence on state welfare.

Which types of indicators were used for measuring outcomes in education?

The main types of indicators found during our search were attainment, progression, value added, participation and equality. There was no assessment on entry to primary school. There was a national standardised assessment system during compulsory primary education for pupils aged 10 and 12. National certificated assessment took place in lower secondary school at age 16/17 and in upper secondary school at 18. The percentage of the cohort who dropped out of school was also considered in relation to the United Nations Convention on the Rights of the Child. There was also evidence that outcomes in international tests such as TIMSS were monitored. An indicator of academic value added by the school was mentioned

in relation to school achievement and honour rolls but it were unclear how this was measured. The indicator of participation used was the mean years of schooling over the last decade, from 1984 to 1994, for Singapore residents aged 25 and over. It examined male and female differences as well as age disparities. The equality indicators used were performance of Chinese, India and Malay ethnic groups in the PSLE (primary leaving certificate), GCE 'O' and 'A' Level Examinations for the past ten years (1991-2000) compared to overall performance.

Input indicators were also measured by the government for instance number of pupils who had benefited from the Straits Times' School Pocket Money Fund for children from low-income families to help them with school-related expenses and students receiving training in cyber wellness values.

Which types of indicators were used for measuring outcomes in health?

Many public health outcome indicators for children were collected. Indicators included mortality, immunisation, accidental injuries, suicide and sexually transmitted diseases. As well as outcome indicators input indicators were collected such as percentage of pupils in all schools having annual health screenings by health teams comprising nurses and doctors.

The National Physical Fitness Award (NAPFA) test was introduced in Singapore schools in 1982 at the secondary and pre-university levels and in 1992 at the primary level. Since 1992, the percentage of students passing the NAPFA test had been used as an indicator of the fitness level of the student population. The NAPFA test of 6 test items was developed by the Sports Medicine and Research Centre of the Singapore Sports Council in 1981. The design of the test items in the NAPFA test had evolved and the norms were updated regularly.

Which types of indicators were used for measuring outcomes in well-being?

The Ministry for Community, Youth and Sport (MCYS) set out National Standards for Child Protection (2002). We found evidence of the monitoring of enquires to the child protection helpline related to child abuse, results of full-scale investigations into child abuse cases and a profile of child abuse cases.

Additionally we found youth justice child outcome indicators used for monitoring trends. These included number of juveniles arrested by crime classification, young offenders under 18 sentenced to imprisonment and reformative training, minors detained in detention facilities and the number of people under 20 years of age arrested for drug addition. There were also indicators of the results of preventative measures such as: re-offending of children placed on court diversion schemes. The indicator - juvenile offenders sentenced to judicial caning with a light cane - was also monitored.

Many of the initiatives designed to divert children from risk and support families were led by voluntary organisations funded by MCYS and the National Council of Social Service (NCSS). MCYS and NCSS oversaw, administered and funded voluntary welfare organisations delivering school social work programmes and services in schools and Family Service Centres providing casework and counselling, as well as preventive and developmental programmes targeting children and youth, and institutional care services.

How were indicators used?

Our evidence base gave us some information about how outcomes were used for monitoring outcomes for children and for school accountability at the national level. However we have no information about the process involved in holding schools to account or if schools were accountable to governors (or their equivalent), parents or local authorities.

Indicators were used for selecting pupils for streaming and entry to different types of secondary school and for judging the performance of schools. Progression within primary schools was mainly open though children might repeat the final year. Children were streamed at the end of Year 4 (aged 10) for the final two years of primary education – via a school-based examination in English, the mother tongue and mathematics. At age 12, the end of primary education, children took the Primary School Leaving Certificate. At lower and upper secondary entry was subject to performance in school leaving certificates or other evidence of performance. At upper secondary schools there were distinct school types for students of different educational aptitudes.

The ministry of education had an 'awards for schools' system that comprised seven types of award over three levels – special awards, level two awards and level one awards that were judged on achievement, academic added value, physical and aesthetics and character development. However details about the indicators used for making these awards were not found.

Child health, well-being and youth justice outcomes were the main types of indicators used in the context of periodic reporting to the United Nations' Committee on the Rights of the Child.

3.1.12 Sweden

Twenty five documents contributed to this review (OECD n7; Government/ministry and recommendations n6, INCA n11 and Eurydice n1). A draft of this summary was reviewed by a contact in the Ministry of Education and Research who clarified some points and provided additional information.

Does the national government collect child outcome indicators?

We found evidence that the government collected

child outcome indicators for education and well-being. Our search did not find any health outcome indicators. Our informant told us that Sweden was participating in an OECD project about the social outcomes of learning and as part of the investigation has mapped Swedish policy and research concerning the effects of education on health and social capital.

Which types of indicators were used for measuring outcomes in education?

The main type of indicator used for measuring outcomes in education was attainment we also found participation and destinations on leaving school indicators.

Age 9 (Year 2): voluntary diagnostic tests in literacy (Swedish) and numeracy. Data was not available on a national basis.

Age 12 (Year 5): voluntary tests in Swedish/Swedish as a second language, English and mathematics.

Age 16 (Year 9): Compulsory tests in Swedish/Swedish as a second language, English and mathematics. compulsory school leaving certificate.

Age 18/19: National tests in Swedish/Swedish as a second language, English and mathematics. Upper secondary school leaving certificate. The number of students leaving with incomplete leaving certificates was also measured.

Although the tests for year 5, the mid point of compulsory schooling, were not mandatory, 90 per cent of municipalities declared them compulsory and required the results to be used for public reporting within the municipality. Additional materials were provided for diagnostic testing. The Government planned to introduce goals and national tests in Swedish and mathematics for school year 3 from 2009. The national tests focused on knowledge and understanding, not facts. There was a national system of marks used for teacher assessment.

The internet based information system SIRIS had information about the 4,900 compulsory schools and the 800 upper secondary schools that exist in the country. SIRIS was accessible by everyone at www.skolverket.se. It included results from national knowledge tests, results of teacher assessments, an annual quality report, national quality reviews and basic information about the specific school like size, costs, composition of students by sex, foreign background and educational level of the parents.

National indicators on early childhood education and care were developed and monitored by the National Agency for Education. They included child-staff ratios and quality indicators.

The participation in education indicator was the dropout rate (defined as the rate of students leaving with incomplete leaving certificate) in upper secondary schools and study interruption.

The destination of school leavers' indicator was the unemployment gap between people with different levels of education

Which types of indicators were used for measuring outcomes in health?

No references to child health indicators were found in the English language material reviewed for this research. Our Swedish informant told us that school health care exists and that students' height, weight, sight and hearing were measured. However, the data was not available on a national basis.

Which types of indicators were used for measuring outcomes in well-being?

Types of indicators used for measuring children's well-being included vulnerable and at risk children, economics, homelessness and volunteering.

Vulnerable and at risk indicators included:

- children in vulnerable situations who grow up in homes in which physical or psychological violence takes place,
- children who were neglected,
- children who had been subjected to sexual abuse,
- children of substance abusers,
- children of people who were mentally ill,
- unaccompanied refugee children and
- children who live in conditions of long-term economic vulnerability.

An economic indicator of poverty used was children in households with an economic standard below 60% of the median disposable income of the population.

A national survey of homelessness included indicators that measured those with children, and children with parents born abroad. Another indicator was households dependent on housing allowance.

A survey of volunteering in Sweden includes the category 16-29 year olds.

How were indicators used?

Indicators were used by teachers, pupils and parents for formative and summative purposes.

Indicators were used for the self evaluation and external evaluation of schools. They were monitored and resources directed to improve equality of opportunity for all pupils. Locally municipalities and nationally the government directed resources to identified needs. The government monitored international and national trends to check the school system and identify areas for further investigation and to target resources.

Parents and pupils were informed about progress in each subject through written assessments from school year 1 (new regulation from 1 July 2008). Pupils who did not achieve the goals set out for their age group received a developmental dialogue between teachers, pupils and parents followed by an action plan.

There were internal and external evaluations of schools and public reporting of individual schools' results. Schools were inspected every six years. Attainment indicators were subjected to regression analysis to give an approximation of the value added by the school (only school year 9). Parents had access to information about schools to help them choose schools for their children. Indicators were used in the dialogue between the school and the municipality about the distribution of different resources to improve schools. Our informant reported that from 1 October 2008 a new National Agency will be established, responsible for the national inspection and supervision of schools with the aim of strengthening national quality control.

The National Agency for Education was the body that ensured the government meets its targets by supervising, inspecting, and scrutinising schools. The government funds national evaluations to provide an in-depth study of specific areas to check the school system and provide a basis for further development and to explore future needs. It monitored equality e.g. attainment outcomes of recent immigrants and follows up findings of international studies equality studies. This monitoring resulted in an increased focus on basic skills development, schools in segregated areas (schools with multilingual students) and the teaching of Swedish as a second language. The recent 2007 Budget Bill set several action points with dedicated funding e.g.

To ensure that all pupils have equivalent opportunities, 'schools which have large numbers of pupils who fail to attain educational targets will be given extra resources. In 2006 and 2007, the National Agency for School Improvement will be allocated 225 million kronor to improve educational conditions in vulnerable areas.

The Government has allocated 500 million Swedish kronor to improve accessibility in psychiatric care. This applies in particular to paediatric psychiatry, in which the Government intends to improve the care guarantee with the aim that the waiting time for investigation should never exceed a month for children and young people.

To strengthen the support of women exposed to violence and of their children, the Swedish Government decided on an investment of just over 100 million kronor a year in 2006.

3.1.13 Switzerland

The range, volume and relevance of material used in this summary were poor. Two documents contributed to this summary from only two sources (OECD n=1, INCA n=1). There was no education ministry for Switzerland, the 26 Cantons were responsible for education and none of their education websites were available in English.

Did the national government collect child outcome indicators?

No. Education in Switzerland was the responsibility of the 26 Cantons, and there was no national assessment, nor was there any evidence of national indicators being collected by the national government for any other reason. There were moves towards a national assessment system across the Cantons which would measure minimum standards across core subjects (first and second languages, mathematics and natural science).

We found evidence that most Cantons continually assess pupil ability throughout the year, using regular tests and evaluation instruments.

Which types of indicators were used for measuring outcomes in education?

Switzerland takes part in the PISA international standardised assessment surveys that measured levels of mathematics, literacy and science attainment. It also took part in the Progress in Reading Literacy Study (PIRLS), which measured reading at 4th grade level. The PISA study contains a measure of engagement in school life. Measures of spend, class size, school entry criteria, the decision making structure of schools as well as teachers' salaries and working hours were also highlighted in OECD's Switzerland's education at a glance.

Which types of indicators were used for measuring outcomes in health?

We found nothing to indicate that measures of health were collected.

Which types of indicators were used for measuring outcomes in well-being?

We found nothing to indicate that measures of well-being were collected.

How were indicators used?

As most of the indicators collected were by PISA/ OECD they were used to make international comparisons. Once the national assessment system is implemented in Switzerland it will be used to determine standards of education. Currently Cantons use evaluation instruments to compare standards across classes within schools.

Appendix 3.2: Frequency of indicators found and how they were used

A3.2.1 Education outcome indicators

We found evidence of educational outcome indicators in these categories:

- attainment in different subjects
- use of international comparative surveys
- social, emotional and environmental indicators
- timings of measurement of attainment
- participation in education: pre-primary to upper secondary
- participation in education and employment
- resource indicators
- equality indicators
- further use of data.

Table A3.2.1: Use of education indicators: attainment by subject

Subjects	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
attainment	12	1	1	1	1	1	1	1	1	1	1	1	1	
mathematics	7		1				1	1	1	1	1		1	
numeracy	3	1				1							1	
literacy	6	1	1			1	1				1		1	
national language	4							1	1	1			1	
second language use	2	1											1	
second foreign language	2					1				1				
indigenous language	1										1			
English	4							1	1	1			1	
science	5	1					1	1	1		1			
information technology	3	1							1	1				
citizenship	2	1				1								
social studies	2							1	1					
biology	2		1							1				
physics	1									1				
chemistry	1									1				
environmental studies	1		1											
history	1									1				
geography	1									1				
economics	1									1				
technology	1									1				
life skills	1									1				
visual arts	1									1				
music	1									1				
drama	1									1				
dance	1									1				
intelligence	1									1				
vocational	3	1		1	1									
Sub totals		**8**	**5**	**2**	**2**	**4**	**4**	**6**	**7**	**19**	**5**	**1**	**7**	**0**
		Au	**Be**	**De**	**Fi**	**Hu**	**Ir**	**Ja**	**Ko**	**Ne**	**NZ**	**Si**	**Sw**	**Swi**

Table A3.2.2: Use of international comparative surveys

Surveys	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
PISA (ma & sc)	12	1	1	1	1	1	1	1		1	1	1	1	1
TIMMS (ma & sc)	4		1			1					1	1		
PIRLS (reading)	5									1	1	1	1	1
Sub totals		**1**	**2**	**1**	**1**	**2**	**1**	**1**	**0**	**2**	**3**	**3**	**2**	**2**

Table A3.2.3: Social, emotional and environmental indicators

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
social and emotional development	1									1				
home environment	1									1				
school environment	1									1				
Sub totals		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**

Table A3.2.4: Timings of measurement of attainment

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
end of upper secondary	9	1	1			1	1	1		1	1	1	1	
in primary phase	8	1	1	1		1	1				1	1	1	
in lower secondary	6	1	1			1		1			1		1	
in upper secondary	5	1	1	1		1					1			
end of primary phase	5	1	1					1		1		1		
sampling	5		1		1	1		1			1			
end of lower secondary phase	4	1								1		1	1	
on entry/end of pre-school including optional	4	1				1				1	1			
voluntary & diagnostic tests	3				1					1			1	
state/district tests	2	1	1											
periodic – triennial tests	1	1												
longitudinal cohort survey	1									1				
Sub totals		**9**	**7**	**2**	**2**	**6**	**2**	**4**	**0**	**6**	**6**	**4**	**5**	**0**

Table A3.2.5: Participation in education: pre-primary to upper secondary

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
enrolment in school	7	1					1	1	1	1	1	1		
attendance	4	1	1				1	1						
pre-school participation	2	1					1							
registration/ school refusals	1		1											
truancy	1										1			
suspensions	1										1			
expulsions from school	1										1			
retention later years of schooling	1	1												
home schooling	1										1			
grade repetition	1		1											
Sub totals		**4**	**3**	**0**	**0**	**0**	**3**	**2**	**1**	**1**	**5**	**1**	**0**	**0**

Table A3.2.6: Participation in education and employment: end of secondary to post-secondary

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
dropout rates in upper secondary	5		1		1				1	1			1	
youth unemployment year after leaving school	2				1					1				
return to education after dropping out/ study interruption	2			1									1	
age on leaving school	1										1			
secondary education completion rates	1				1									
transfer to second-level education	1						1							
destination on leaving school	1										1			
unemployment gap between people with different levels of employment	1												1	
results at end of first year of further education	1		1											
transfer to higher education	1		1											
dropout rate from higher education	1		1											
employment rate of graduates	1								1					
Sub totals		**0**	**4**	**1**	**3**	**0**	**1**	**0**	**2**	**2**	**2**	**0**	**3**	**0**

Table A3.2.7: Resource indicators

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
demographic/ financial	5						1	1	1		1		1	
no of computers in schools/per pupil	2			1					1					
supply/ distribution of text books	1								1					
pupils receiving financial help	1											1		
teacher qualifications	1										1			
Sub totals		**0**	**0**	**1**	**0**	**0**	**1**	**1**	**3**	**0**	**2**	**1**	**1**	**0**

Table A3.2.8: Equity indicators

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
equity indicators	5	1	0	1	1	0	0	0	0	0	1	1	0	0

Table A3.2.9: Further use of data

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
progress	4	1	1									1	1	
value added	1											1		
Sub total		**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**

3.2.2 Health outcome indicators

Our search revealed evidence of health outcome indicators in use in Australia, Finland, Ireland, Japan, Korea, New Zealand Singapore and Sweden.

Table A3.2.10: Health indicators by country

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
physical activity	6	1			1		1	1	1			1		
mental health	5	1			1		1				1	1		
physical development	5				1		1	1	1				1	
oral health	3	1					1						1	
mortality	3	1					1					1		
injury and poisoning	3	1					1					1		
sexual health and reproductive health	3	1					1					1		
substance misuse	3	1			1		1							
auditory health	2										1		1	
morbidity	2	1					1							
disability	2	1					1							
chronic diseases	2	1					1							
diet and nutrition	2	1					1							
immunisation	2						1					1		
life expectancy	1	1												
Sub totals		**12**	**0**	**0**	**4**	**0**	**13**	**2**	**2**	**0**	**2**	**6**	**3**	**0**
		Au	**Be**	**De**	**Fi**	**Hu**	**Ir**	**Ja**	**Ko**	**Ne**	**NZ**	**Si**	**Sw**	**Swi**

3.2.3 Well-being outcome indicators

Well-being outcomes were found for Australia, Belgium, Finland, Ireland, Japan, Korea, the Netherlands, New Zealand, Singapore and Sweden

Table A3.2.11: Well-being indicators by country

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
education, employment, income	8	1			1		1	1	1		1	1	1	
family environment	5	1			1		1					1	1	
relationships and social participation	5	1					1	1		1			1	
Perceptions of well-being	4	1	1				1				1			
housing, homelessness & environment	3	1					1						1	
criminal activity	3						1	1				1		
Sub totals		**5**	**1**	**0**	**2**	**0**	**6**	**3**	**1**	**1**	**2**	**3**	**4**	**0**
		Au	**Be**	**De**	**Fi**	**Hu**	**Ir**	**Ja**	**Ko**	**Ne**	**NZ**	**Si**	**Sw**	**Swi**

3.2.4 Uses of indicators

Documents often covered more than one aspect of monitoring and accountability; for example some Eurydice country reports and INCA comparative tables and reports described outcome measures, how schools monitored children's attainment, how schools were monitored and provided information about the government body accountable for children's outcome. We found a good amount of information about the monitoring of child outcomes and the development of national policy. Some of the countries used indicators to measure equality and to monitor national services for education, health and well-being. We found less information than expected about how outcomes were used for the purposes of accountability at national and school levels. There was a little evidence of outcomes being used for monitoring economic factors such as allocation and management of resources to meet children's needs and for improving systems for services for education, health and well-being. Singapore used outcome indicators in a report to the United Nation on the Convention of the Rights of the Child.

Table A3.2.12: Use of indicators by country

Indicators	Frequency	Au	Be	De	Fi	Hu	Ir	Ja	Ko	Ne	NZ	Si	Sw	Swi
Monitoring standards	12	1	1	1	1	1	1	1	1	1	1	1	1	
Monitoring - international comparisons	12	1	1	1	1	1	1	1	1	1	1		1	1
Monitoring - schools	9	1	1	1	1	1	1	1			1		1	
Monitoring - local authorities, municipalities	2		1	1										
Monitoring - regions, states	1	1												
Monitoring – children's rights	1											1		
Accountability - system	10	1	1		1	1	1	1	1	1	1	1		
Accountability - schools	9	1	1	1	1	1	1	1		1			1	
Accountability - regions, states	2	1											1	
Accountability - local authorities, municipalities	1			1										
Reporting to parents	5	1					1	1		1			1	
School results not published	5		1		1	1	1	1						
School improvement	8	1	1		1	1	1	1		1	1			
Schools - selection, streaming	5	1				1	1			1		1		
Target - setting	2	1					1							
Policy - e.g. equity, aims	10	1	1		1	1	1	1	1	1	1		1	
Management - direct resources	5		1		1		1				1		1	
National programmes - curriculum, teaching, learning, assessment	3	1	1								1			
Sub totals		**13**	**11**	**6**	**9**	**9**	**12**	**9**	**4**	**8**	**8**	**4**	**8**	**1**
		Au	**Be**	**De**	**Fi**	**Hu**	**Ir**	**Ja**	**Ko**	**Ne**	**NZ**	**Si**	**Sw**	**Swi**

Appendix 4.1: Indicators and actual measures of health and well-being outcomes

Table A4.1.1 shows the actual health indicators and wording of measures used by Australia, Ireland, Japan, New Zealand and Sweden.

Table A4.1.1: Indicators and actual measures of health outcomes for children and young people

Indicator	Measures	Country
Life expectancy		
Perceptions of health	Proportion of young people aged 15-24 years rating their own health as excellent, very good or good.	Au
Mortality		
Death rates	Death rates for young people aged 12-24 years.	Au
Morbidity		
GP attendance	Rate of GP consultations per young person aged 12-24 years.	Au
Hospital attendance	Hospitalisation rate for young people aged 12-24 years.	Au
	The 10 most frequent conditions resulting in hospitalisation among children.	Ir
	The number of children on hospital waiting lists.	Ir
Time off for illness	Proportion of young people aged 15-24 years who had had days away from work or study because of illness or injury in the previous 2 weeks.	Au
Use of state healthcare	Mean number of Medicare services processed per young person aged 12-24 years.	Au
Health actions	Proportion of young people aged 15-24 years taking a health-related action in the past 2 weeks.	Au
Disability		
Disability rates	Prevalence rate for disability in young people aged 15-24 years.	Au
	Prevalence rate for severe or profound core activity restriction among young people aged 15-24 years.	Au
	The number of children under 18 registered as having an intellectual disability, expressed as a proportion of all children. This can be subdivided by grade of disability: (a) mild; (b) moderate; (c) severe; and (d) profound.	Ir
	The number of children under 18 registered as having a physical or sensory disability, expressed as a proportion of all children.	Ir
Injury and poisoning		
Injury rates	Incidence rate for injury of young people aged 12-24 years.	Au
	Injury hospitalisation rate for young people aged 12-24 years.	Au

Indicator	Measures	Country
	Injury death rate for young people aged 12-24 years.	Au
Transport accident rates	Transport accident hospitalisation rate for young people aged 12-24 years.	Au
	Transport accident death rate for young people aged 12-24 years.	Au
Assault rates	Assault hospitalisation rate for young people aged 12-24 years.	Au
	Assault death rate for young people aged 12-24 years.	Au
Death by accidents	Death of young people aged 15-24 years from accidental poisoning by narcotics and hallucinogens.	Au
Mental health		
Rates of mental health disorders	Proportion of young people aged 18-24 years having the highest levels of psychological distress as measured by the K10 scale.	Au
	Prevalence rate for mental health problems among young people aged 12-17 years.	Au
	Prevalence rate for mental health disorders among young people aged 12-24 years.	Au
	Mental health problems and disorders hospitalisation rate for young people aged 12-24 years.	Au
Rates of depression	Prevalence rate for depressive disorders among young people aged 12-24 years.	Au
Rates of anxiety	Prevalence rate for anxiety disorders among young people aged 18-24 years.	Au
Rates of ADHD	Prevalence rate for ADHD among young people aged 12-17 years.	Au
Rates of conduct disorder	Prevalence rate for conduct disorder among young people aged 12-17 years.	Au
Self harm	Intentional self-harm hospitalisation rate for young people aged 12-24 years.	Au
Suicide	Prevalence rate for suicidal ideation for young people aged 12-17 years.	Au
	Suicide rate for young people aged 12-24 years.	Au
	Rates of youth suicide.	NZ
	The number of suicides among children aged 10-17, expressed as a proportion of all children in the same age group.	Ir
Psychiatric hospital admissions	The number of admissions to psychiatric hospitals among children.	Ir
Sexual health and reproductive health		
Sexual experience	Proportion of young people in Year 10 and Year 12 who have had sexual intercourse.	Au
Contraceptive use	Proportion of sexually active young people aged 16-24 who are currently using any contraception to avoid pregnancy.	Au

Indicator	Measures	Country
	Proportion of young people aged 16-24 years who have non-regular sexual partners and who sometimes or never use condoms.	Au
Sexuality	Proportion of young people in Year 10 and Year 12 who are attracted to the same sex, both sexes or unsure of their sexual attraction.	Au
Sexually transmitted infections	Chlamydia, gonococcal infection and syphilis notification rates for young people aged 12-24 years.	Au
	Proportion of students in Year 10 who correctly identified whether a disease was sexually transmitted and proportion of students in Year 12 who correctly identified whether a disease was sexually transmitted.	Au
Pregnancy	Induced abortion rate for young women aged 12-24 years.	Au
	Birth rate for young women aged 12-24 years.	Au
	The number of births to girls aged 10-17 and in total, expressed as a proportion of all girls in the same age group.	Ir
Infectious diseases		
HIV rates	HIV infection notification rate for young people aged 12 -24 years.	Au
Hepatitis rates	Hepatitis A, B and C notification rates for young people aged 12-24 years.	Au
	Meningococcal disease hospitalisation rate for young people aged 12-24 years.	Au
Chronic diseases		
Asthma	Prevalence rate of asthma for young people aged 12-24 years.	Au
	Asthma hospitalisation rate for young people aged 12-24 years.	Au
	Trends in rate of students with asthma.	**Ja**
Diabetes	Incidence rate for type 1 diabetes among young people aged 12-24 years.	Au
	Incidence rate for impaired glucose tolerance among young people aged 12-24 years.	**Au**
	Diabetes hospitalisation rate for young people aged 12-24 years.	**Au**
Cancer	Incidence rate for cancer among young people aged 12-24 years.	**Au**
	Five-year relative cancer survival rates for young people aged 12-24 years.	**Au**
Auditory, oral and visual health		
Hearing	Hearing of students.	**Sw**
	The number of children who fail a hearing test in their first year of school.	**NZ**
Decayed teeth	Trends in rate of students with decayed teeth.	**Ja**
Sight	Sight of students.	**Sw**
Substance misuse		
Age of first substance use	Mean age of initiation: tobacco, alcohol and illicit drugs.	Au
Cigarette use	Proportion of young people aged 12-24 years who are recent smokers.	Au
	Proportion of young people aged 12-17 years who smoke and who buy their own cigarettes.	**Au**
	Proportion of young people aged 14-24 years who are daily smokers.	**Au**
	Proportion of young people successfully quitting smoking in the last 12 months.	

Indicator	Measures	Country
	Proportion of young people successfully quitting smoking in the last 12 months.	Au
	The proportion of children aged 10-17 who report smoking cigarettes every day.	Ir
	The proportion of children aged 10-17 who report smoking cigarettes every week.	Ir
Alcohol use	Proportion of young people aged 14-24 years who drink at risky or high risk levels in the short-term.	Au
	Proportion of young people aged 14-24 years who drink at risky or high risk levels in the long-term.	Au
	The proportion of children aged 15 who report to have had 5 or more alcoholic drinks in a row at least once in the last 30 days.	Ir
Illicit drug use	Proportion of young people aged 12-24 years who had used an illicit drug within the previous 12 months.	Au
	Proportion of young people aged 12-24 years who had used cannabis within the previous 12 months.	Au
	Proportion of young people aged 14-24 years who had injected drugs within the previous 12 months.	Au
	The proportion of children aged 15 who report having used any illicit drugs in their lifetime.	Ir
	The proportion of children aged 15 who report to have used any illicit drugs other than marijuana in their lifetime.	Ir
Illness and death from substance misuse	Drug dependence disorder death rate for young people aged 15-24 years.	Au
	Alcohol and other drug-related violence victimisation rate for young people aged 14-24 years.	Au
	Prevalence rate for substance use disorders for young people aged 18-24 years.	Au
	Substance use disorder hospitalisation rate for young people aged 15-24 years.	Au
	Drug dependence disorder hospitalisation rate for young people aged 15-24 years.	Au
Diet and nutrition		
Energy intake	Proportion of young people aged 12-24 years whose daily energy intake from fats is above the level recommended by NHMRC.	Au
	Mean daily intake of energy of young people aged 12-24 years.	Au
Fruit and vegetable intake	Proportion of young people aged 12-24 years eating sufficient daily serves of fruit and vegetables.	Au
Overweight and obesity	Proportion of young people aged 12-24 years who are overweight or obese.	Au
	Trends in rate of obesity-prone students.	Ja
	Trends in obesity rate.	Ja
Participation in school lunches	School lunch participation rate as a percentage of all kindergarteners and students.	Ja

Indicator	Measures	Country
Food allergies	Trends in percentage of students with food allergy.	Ja
Sleep	Trends in student sleep time.	Ja
Breakfast	The proportion of children aged 10-17 who report eating breakfast on 5 or more days per week.	Ja
Physical activity		
General physical activity	Proportion of young people aged 18-24 years reporting undertaking moderate or vigorous physical activity in previous week.	Au
	The proportion of children aged 10-17 who report being physically active for at least 60 minutes per day on at least 2 days per week.	Ir
	The proportion of children aged 10-17 who report being physically active for at least 60 minutes per day on more than 4 days per week.	Ir
Running	Trends in 50 m dash.	Ja
Throwing	Trends in ball throw (1) softball throw, (2) handball throw.	Ja
Jumping	Trends in standing long jump.	Ja
Strength	Trends in grip strength.	Ja
Sun protection		
Use of sun protection	Proportion of young people aged 12-17 years reporting that they always or usually use some type of sun protection on a sunny day in summer.	Au
Examination of skin	Proportion of young people aged 12-24 years whose skin is regularly checked for changes in freckles and moles.	Au
Physical development		
Height	Trends in average height by age.	Ja
	Comparison of annual growth with parents' generation -height.	Ja
	Height of students.	Sw
Weight	Trends in average weight by age.	Ja
	Comparison of annual growth with parents' generation -weight.	Ja
	Weight of students.	Sw
Immunisation		
Uptake of immunisations	The percentage uptake of D3/P3/T3/Hib3/Polio3 and Meningococcal C3 vaccinations at (a) 12 months and (b) 24 months.	Ir
	The percentage uptake of MMR1 vaccinations at 24 months.	Ir

Table 4.1.2 shows the actual wellbeing indicators and wording of measures used by Australia, Belgium, Ireland, Japan, Korea, New Zealand, Singapore and Sweden.

Table A4.1.2: Indicators and actual measures of well-being outcomes for children and young people

Indicator	Measures	Country
Well-being		
Perceptions of well-being	Proportion of young people aged 15-24 stating they feel: delighted, pleased or mostly satisfied with their life as a whole	Au
	Pupils' perceptions of their own well-being	Be
Self-reported happiness	The proportion of children aged 8-17 who report being happy with the way they are	Ir
Rates of youth suicide	The number of suicides among children aged 10-17 expressed as a proportion of all children in the same age group	Ir
	Rates of youth suicide	NZ
Family environment		
Children seeking asylum/refugees	The number of children seeking asylum, alone or expressed as part of a family, expressed as a proportion of all children	Ir
	Numbers of unaccompanied refugee children	Sw
Helpline calls	Enquires to the Child Protection Helpline related to child abuse by year	Si
Young people subject to care and child protection orders	The number of children who are in the care of the Health Service Executive (HSE) expressed as a proportion of all children (nine subdivisions)	Ir
	Proportion of young people aged 12-17 who were in out-of-home care	Au
	Rate of young people aged 12-16 who are the subject of child protection orders	Au
Assessments for child welfare and protection	The number of children assessed through the Child Protection Notification System, expressed as a proportion of all children	Ir
	Child abuse cases (full-scale investigations): number of cases investigated, number of cases with evidence of abuse, number of cases with lack/no evidence of abuse but need assistance because of stress factor(s) in the family, number of false complaints	Si
Confirmed cases of child neglect	The number of children subject to substantiated notification expresses as a proportion of all children	Ir
	Rate of young people aged 12-16 who are the subject of child protection substantiation	Au
Profile of child abuse cases	Profile of child abuse cases known: physical abuse, sexual abuse, physical neglect, emotional abuse, by year	Si
Vulnerable children	Numbers of children who have been subjected to sexual abuse	Sw
	Numbers of children of substance abusers	Sw
	Numbers of children of people who are mentally ill	Sw
Family structure	The number of children under 18 who live in family household units with only one parent or primary caregiver resident, expressed as a proportion of all children	Ir
Family cohesion	Proportion of young people in families who rated their family cohesion as: fair or poor	Au
Relationships with fathers	The proportion of children aged 10-17 who report that they find it easy or very easy to talk with their mothers when something is really bothering them	Ir

Indicator	Measures	Country
Talking to parents	The proportion of children aged 15 who report that their parents discuss with them how well they are doing at school more than once a week	Ir
Eating a main meal together	The proportion of children aged 15 who report that their parents eat a main meal with them around a table more than once a week	Ir
Relationships and social participation		
Relationships with mothers	The proportion of children aged 10-17 who report that they find it easy or very easy to talk with their mothers when something is really bothering them	Ir
Relationships with fathers	The proportion of children aged 10-17 who reports that they find it easy or very easy to talk with their fathers when something is really bothering them	Ir
Talking to parents	The proportion of children aged 15 who report that their parents discuss with them how well they are doing at school more than once a week	Ir
Eating a main meal together	The proportion of children aged 15 who report that their parents eat a main meal with them around a table more than once a week	Ir
Friendships	The proportion of children aged 10-17 who report to have three or more friends of the same gender	Ir
Bullying	The proportion of children aged 10-17 who report to have been bullied at school	Ir
	Trends in bullying cases for elementary, lower secondary and upper secondary schools	Ja
	Reported experiences of stopping bullying or bad behaviours of friends	Ja
Volunteering	Volunteering rate for young people aged 18-24	Au
	Participation rate in volunteer activities 10-24 (this survey extends to 70-year-olds)	Ja
	Volunteering in Sweden includes the category 16-29-year-olds	Sw
Membership of clubs and associations	Proportion of young people aged 15-24 who are active members of sporting, hobby or community based clubs or associations	Au
Time use and leisure activities	Trends in number of social education facilities by type (e.g. sports, cultural, museums, etc.)	Ja
Experiences of helping handicapped and/or old people	Reported experiences of helping handicapped and/or old people	Ja
Education, employment, income		
Quality of life and education	Reported quality of life among 18-25 year-olds: delighted, pleased, mostly satisfied, mixed, mostly dissatisfied, unhappy or terrible	Au
Quality of life and employment	Reported quality of life of young people aged 18–24 years, by labour force status: delighted, pleased or mostly satisfied	Au
Hardship	Proportion of young people aged 15-24 years who experienced hardship because of a shortage of money (Hardship indicators included problems with rent, heating, bills, borrowing money from organisations and family.)	Au
Income support	Proportion of young people aged 15-24 receiving income support	Au
Employment rates of 15-19 year-olds	Employment rate of 15-19 year olds	Si
School dropouts	Trends in number of upper secondary school dropouts	Ja

Indicator	Measures	Country
	Trends in number of students who refuse to attend schools - elementary and lower secondary	Ja
Relative poverty	The number of children living in households with a household income below the 60% national median, equivalised using the national equivalence scale, expressed as a proportion of all children	Ir
	Children in households with an economic standard below 60% of the median disposable income of the population	Sw
Consistent poverty	The number of children living in households with a household income below the 60% national median, equivalised using the national equivalence scale, and experiencing basic deprivation, expressed as a proportion of all children	Ir
	Numbers of children who live in conditions of long-term economic vulnerability	Sw
	Children in households with an economic standard below 60% of the median disposable income of the population	Sw
	Children living in low income households	NZ
Free school meals	Number of school meals supplied	Ko
Parental level of education	The number of children under 18 whose parents have attained (a) primary, (b) lower secondary, (d) third-level education, expressed as a proportion of all children	Ir
	Education of the primary caregiver	NZ
Household expenditure	Trends in total learning expenditure of households for children expressed as annual expenditure per child	Ja
	Details in total learning expenditure of households for children	Ja
	Trends in student living costs (university)	Ja
	Trends in student living costs (junior college)	Ja
	Trends in education-related expenses as a percentage of household expenditure	Ja
	Total average household spending of five education patterns from kindergarten to university (undergraduate) graduation (estimate)	Ja
Tertiary education	Affordability of tertiary education	NZ
Housing,homelessness and environment		
Homeless families with children	Number of homeless families with children	Sw
	Number of homeless families with children whose parents were born abroad	Sw
Housing allowance	Households dependent on housing allowance	Sw
Availability of housing for families with children	The number of children in families on a local authority housing waiting list, expressed as a proportion of all children	Ir
Overcrowded housing	Proportion of children aged 12-24 who live in overcrowded housing	Au
Youth homelessness	The number of homeless children expressed as a proportion of all children	Ir
	Rate of young people aged 12-24 who are currently homeless	Au
Perceived safety in the community	The proportion of young people aged 10-17 who report feeling safe in the area in which they live	Ir
Environment and places	The proportion of young people aged 10-17 who report that there are good places in their area to spend their free time	Ir

Indicator	Measures	Country
Criminal activity		
Referrals to Garda Juvenile Diversion Programme	The number of children referred to Garda Juvenile Diversion Programme expressed as a proportion of all children	Ir
Juvenile arrests	Number of juveniles arrested by crime classification	Si
Young offenders under 18 sentenced to imprisonment and reformative training	Proportion of young people aged 12-16 in custody in a juvenile justice facility	Au
	Young offenders under-18 years or age sentenced to imprisonment or reformative training	Si
	Number of minors detained in detention facilities	Si
	Number of people under 20 arrested for drug addiction	Si
	Reoffending of children placed on court diversion schemes	Si
	Numbers of young offenders under-18 years or age sentenced to imprisonment or reformative training	Si
Punishment	Number of juvenile offenders sentenced to judicial caning with a light cane	Si
Offenders 18-24	Rate of imprisonment among young people aged 18-24	Au
Victims of crime	Personal crime victimisation rate among young people 18-24	Au
Violence in schools	Trends in occurrence of violence in schools in elementary, lower secondary and upper secondary schools	Ja

Appendix 4.2: Examples of Australia's, Ireland's and Japan's child outcome indicators

4.2.1 Australia's young people: their health and well-being 2003

Australian Institute of Health and Welfare, Canberra

Indicators of youth health and well-being

The following list is a summary of the indicators of youth health and well-being in this report. The indicators, are listed according to the chapter of the report in which they appeared.

Health and well-being

Proportion of young people aged 15-24 years rating their own health as excellent, very good or good

Proportion of young people aged 15-24 years stating that they feel delighted, pleased or mostly satisfied with their life as a whole

Mortality

Death rates for young people aged 12-24 years

Morbidity

Rate of GP consultations per young person aged 12-24 years

Hospitalisation rate for young people aged 12-24 years

Proportion of young people aged 15-24 years who had had days away from work or study because of illness or injury in the previous two weeks

Mean number of Medicare services processed per young person aged 12-24 years

Proportion of young people aged 15-24 years taking a health-related action in the previous two weeks

Disability

Prevalence rate for disability in young people aged 15-24 years

Prevalence rate for severe or profound core activity restriction among young people aged 15-24 years

Injury and poisoning

Incidence rate for injury of young people aged 12-24 years

Injury hospitalisation rate for young people aged 12-24 years

Injury death rate for young people aged 12-24 years

Transport accident hospitalisation rate for young people aged 12-24 years

Transport accident death rate for young people aged 12-24 years

Assault hospitalisation rate for young people aged 12-24 years

Assault death rate for young people aged 12-24 years

Death of young people aged 15-24 years from accidental poisoning by narcotics and hallucinogens

Mental health

Proportion of young people aged 18-24 years having the highest levels of psychological distress as measured by the K10 scale

Prevalence rate for mental health problems among young people aged 12-17 years

Prevalence rate for mental health disorders among young people aged 12-24 years

Mental health problems and disorders hospitalisation rate for young people aged 12-24 years

Prevalence rate for depressive disorders among young people aged 12-24 years

Prevalence rate for anxiety disorders among young people aged 18-24 years

Prevalence rate for ADHD among young people aged 12-17 years

Prevalence rate for conduct disorder among young people aged 12-17 years

Prevalence rate for suicidal ideation for young people aged 12-17 years

Intentional self-harm hospitalisation rate for young people aged 12-24 years

Suicide rate for young people aged 12-24 years

Prevalence rate for substance use disorders for young people aged 18-24 years

Substance use disorder hospitalisation rate for young people aged 15-24 years

Drug dependence disorder hospitalisation rate for young people aged 15-24 years

Drug dependence disorder death rate for young people aged 15-24 years

Sexual and reproductive health

Proportion of young people in year 10 and year 12 who have had sexual intercourse

Proportion of sexually active young people aged 16-24 who are currently using any contraception to avoid pregnancy

Proportion of young people in year 10 and year 12 who are attracted to the same sex, both sexes or unsure of their sexual attraction

Chlamydia, gonococcal infection and syphilis notification rates for young people aged 12-24 years

Proportion of students in year 10 who correctly identified whether a disease was sexually transmitted and proportion of students in year 12 who correctly identified whether a disease was sexually transmitted

Proportion of young people aged 16-24 years who have non-regular sexual partners and who sometimes or never use condoms

Induced abortion rate for young women aged 12-24 years

Birth rate for young women aged 12-24 years

Infectious diseases

HIV infection notification rate for young people aged 12-24 years

Hepatitis A, B and C notification rates for young people aged 12-24 years

Pertussis, meningococcal disease, measles, mumps and rubella notification rates for young people aged 12-24 years

Meningococcal disease hospitalisation rate for young people aged 12-24 years

Indicators of youth health and well-being

Chronic diseases

Prevalence rate of asthma for young people aged 12-24 years

Asthma hospitalisation rate for young people aged 12-24 years

Incidence rate for type 1 diabetes among young people aged 12-24 years

Incidence rate for impaired glucose tolerance among young people aged 12-24 years

Diabetes hospitalisation rate for young people aged 12-24 years

Incidence rate for cancer among young people aged 12-24 years

Five-year relative cancer survival rates for young people aged 12-24 years

Proportion of young women aged 20.24 years who have had a Pap smear in the previous 24 months

Oral health

Proportion of young people aged 12-24 who rate their oral health positively

Percentage of young people aged 12-24 experiencing toothache in last 12 months

Mean DMFT at 12 years and mean DMFT at 15 years

Percentage of young people free of clinical decay at 12 years and at 15 years

Oral health problems hospitalisation rate for young people aged 12-24 years

Proportion of young people aged 12-24 making a dental consultation in the past 12 months

Substance use

Mean age of initiation: tobacco, alcohol and illicit drugs

Proportion of young people aged 12-24 years who are recent smokers

Proportion of young people aged 12-17 years who smoke and who buy their own cigarettes

Proportion of young people aged 14-24 years who are daily smokers

Proportion of young people aged 14-24 years who drink at risky or high risk levels in the short-term

Proportion of young people aged 14-24 years who drink at risky or high risk levels in the long-term

Proportion of young people aged 12-24 years who had used an illicit drug within the previous 12 months

Proportion of young people aged 12-24 years who had used cannabis within the previous 12 months

Proportion of young people aged 14-24 years who had injected drugs within the previous 12 months

Proportion of young people successfully quitting smoking in the last 12 months

Alcohol and other drug-related violence victimisation rate for young people aged 14-24 years

Diet and nutrition

Proportion of young people aged 12-24 years whose daily energy intake from fats is above the level recommended by NHMRC

Mean daily intake of energy of young people aged 12-24 years

Proportion of young people aged 12-24 years eating sufficient daily serves of fruit and vegetables

Physical activity

Proportion of young people aged 18-24 years reporting undertaking moderate or vigorous physical activity in previous week

Overweight and obesity

Proportion of young people aged 12-24 years who are overweight or obese

Sun protection

Proportion of young people aged 12-17 years reporting that they always or usually use some type of sun protection on a sunny day in summer

Proportion of young people aged 12-24 years whose skin is regularly checked for changes in freckles and moles

Family environment

Proportion of young people in families who rated their family cohesion as fair or poor

Rate of young people aged 12.16 years who are the subject of a child protection substantiation

Rate of young people aged 12-17 years who are the subject of care and protection orders

Proportion of young people aged 12-17 years who were in out of home care

Relationships and social participation

Volunteering rate for young people aged 18-24 years

Proportion of young people aged 15-24 years who are active members of sporting, hobby, or community-based clubs or associations

Education, employment and income

School participation rate for young people aged 15-18 years

Apparent retention rates for young people to year 12

Education participation rate for young people aged 15-24 years

Attainment of Year 12 or a post-school qualification by 19-year-olds and attainment of a skilled vocational qualification or higher by 24-year-olds

Proportion of young people aged 14 years who achieved mastery in reading and numeracy

Proportion of young people aged 15-24 years who are unemployed and not in fulltime education

Proportion of young people aged 15-24 years who were long-term (more than 52 weeks) unemployed

Proportion of young people aged 15-24 participating in fulltime education or training, or in fulltime work, or in both part-time education or training and part-time work

Proportion of young people aged 15-24 years receiving government income support

Proportion of young people aged 15-17 years who are considered to be independent from their parents for the purpose of Youth Allowance

Proportion of young people aged 15-24 years who experienced hardship because of a shortage of money

Housing and homelessness

Rate of young people aged 12-24 years who are currently homeless

Proportion of young people aged 12-24 years who are SAAP clients

Proportion of young people aged 12-24 years who live in overcrowded housing

Juvenile justice:

Proportion of people aged 12-16 years in custody in a juvenile justice facility

Rate of imprisonment among young people aged 18-24 years

Personal crime victimisation rate among young people aged 18-24 years

4.2.2 State of the nation's children: Ireland 2006

Socio-demographics	
Indicator	**Measure**
Child population	The number of children under 18, expressed as a proportion of the total population
Child mortality	The number of deaths among children under 18, expressed as a proportion of all children. This may be subdivided by principal cause of death.
Non-Irish national children	The number of non-Irish national children in the population, expressed as a proportion of all children
Family structure	The number of children under 18 who live in family household units with only one parent or primary caregiver resident, expressed as a proportion of all children
Parental education level	The number of children under 18 whose parents have attained (a) primary, (b) lower secondary, (c) upper secondary, and (d) third-level education, expressed as a proportion of all children
Children seeking asylum	The number of children seeking asylum, alone or as part of a family, expressed as a proportion of all children
Traveller children	The number of Traveller children, expressed as a proportion of all children
Relationships	
Parental relationships	
Relationship with mothers	The proportion of children aged 10-17 who report that they find it easy or very easy to talk with their mother when something is really bothering them
Relationship with fathers	The proportion of children aged 10-17 who report that they find it easy or very easy to talk with their father when something is really bothering them
Talking to parents	The proportion of children aged 15 who report that their parents spend time just talking with them more than once a week
Parental involvement in schooling	The proportion of children aged 15 who report that their parents discuss with them how well they are doing at school more than once a week
Eating a main meal together	The proportion of children aged 15 who report that their parents eat a main meal with them around a table more than once a week
Peer relationships	
Friendships	The proportion of children aged 10-17 who report to have three or more friends of the same gender
Bullying	The proportion of children aged 10-17 who report to have been bullied at school
Children's outcomes: education	
Enrolment in early childhood care and education	The number of children under 13 in various early childhood care and education arrangements, expressed as a proportion of all children in the same group. This can be subdivided into (a) pre-school, (b) compulsory school, (c) centre-based care outside school hours, (d) crèche or day-care, (e) professional childminder, and (f) family relative
Attendance at school	The number of children who are absent from school for 20 days or more in the school year, expressed as a proportion of all children
Transfer to second level education	The percentage of children leaving national school by destination

Reading literacy	The mean scores for 15-year old children based on the international reading literacy scales, set by the PISA Survey
Mathematics	The mean scores for 15-year old children based on the international mathematics literacy scales, set by the PISA Survey
Science	The mean scores for 15-year old children based on the international scientific literacy scales, set by the PISA Survey
Children's outcomes: health	
Low birth weight	The number of babies born weighing less than 2,500 grams, expressed as a proportion of all registered live and stillbirths
Breastfeeding practice	The number of newborn babies who are (a) exclusively breastfed and (b) partially breastfed throughout the first 48 hours of life, expressed as a proportion of all newborn babies
Chronic health and hospitalisation	The 10 most frequent conditions resulting in hospitalisation among children
Disability	
Intellectual disability	The number of children under 18 registered as having an intellectual disability, expressed as a proportion of all children. This can be subdivided by grade of disability: (a) mild, (b) moderate, (c) severe, and d) profound
Physical and sensory disability	The number of children under 18 registered as having a physical or sensory disability, expressed as a proportion of all children
Abuse and maltreatment	
Assessments for child welfare and protection concerns	The number of children assessed through the Child Protection Notification System, expressed as a proportion of all children
Confirmed cases of child abuse and neglect	The number of children subject to substantiated notification, expressed as a proportion of all children
Children's outcomes: social, emotional and behavioural	
Participation in making the school rules	The proportion of children aged 10-17 who report that students at their school participate in making the school rules
Reading as a leisure activity	The proportion of children aged 15 who report that reading is one of their favourite hobbies
Daily smoking	The proportion of children aged 10-17 who report smoking cigarettes every day
Weekly smoking	The proportion of children aged 10-17 who report smoking cigarettes every week
Binge drinking	The proportion of children aged 15 who report to have had five or more alcoholic drinks in a row at least once in the last 30 days
Any illicit drug use	The proportion of children aged 15 who report having used any illicit drugs in their lifetime
Illicit drug use other than marijuana	The proportion of children aged 15 who report to have used any illicit drugs other than marijuana in their lifetime
Sexual health and behaviour	The number of births to girls aged 10-17 and in total, expressed as a proportion of all girls in the same age group
Self-esteem	The proportion of children aged 8-17 who report feeling happy with the way they are
Self-reported happiness	The proportion of children aged 10-17 who report being happy with their life at present
Youth suicide	The number of suicides among children aged 10-17, expressed as a proportion of all children in the same age group
Physical activity	The proportion of children aged 10-17 who report being physically active for at least 60 minutes per day on at least two days per week
Physical activity	The proportion of children aged 10-17 who report being physically active for at least 60 minutes per day on at least four days per week
Nutritional habits	The proportion of children aged 10-17 who report eating breakfast on five or more days per week
Youth homelessness	The number of homeless children, expressed as a proportion of all children

Formal and informal supports	
Public expenditure on education for children and young people	Public expenditure on education, expressed as a percentage of GDP and GNI
Economic security	
Relative poverty	The number of children living in households with a household income below the national 60% median, equivalised using the national equivalence scale, expressed as a proportion of all children
Consistent poverty	The number of children living in households with a household income below the national 60% median, equivalised using the national equivalence scale, and experiencing basic deprivation, expressed as a proportion of all children
Availability of housing for families with children	The number of children in families on a local authority housing waiting list, expressed as a proportion of all children
Perceived safety in the community	The proportion of children aged 10-17 who report feeling safe in the area where they live
Environment and places	The proportion of children aged 10-17 who report there are good places in their area to spend their free time
Referrals to the Garda Juvenile Diversion Programme	The number of children referred to the Garda Juvenile Diversion Programme, expressed as a proportion of all children
Antenatal care	The distribution of timing of first antenatal visit by trimester for all women delivering live or stillborn babies
Childhood immunisation	The percentage uptake of D3/P3/T3/Hib3/Polio3 and Meningococcal C3 vaccinations at (a) 12 months and (b) 24 months. The percentage uptake of MMR1 vaccinations at 24 months
Screening for growth and development	
Public Health Nurse visit for newborns	The percentage of mothers of newborn children visited by a Public Health Nurse within 48 hours of discharge from hospital
Developmental screening	The percentage uptake of developmental screening at 7 to 9 months
Accessibility of basic health services for children and young people	The number of children on hospital waiting lists
Children and young people in care	The number of children who are in the care of the Health Service Executive (HSE), expressed as a proportion of all children. This can be subdivided by type of care arrangement: foster care – general foster care – special foster care – relatives pre-adoptive placement residential – general residential – special at home under care order other

Adapted from the summary of main findings in: Ireland, Office of the Minister for Children (2006).

4.2.3 Example of outcome indicators collected in Japan

Japan's education at a glance 2006 (Japanese Ministry of Education, Culture, Sports, Science and Technology, 2006a)

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School Education (PDF:661KB)

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1 Trends in Number of Institutions
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2-Number of Students

1 Trends in Number of Students
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2 Percentage Distribution of Upper Secondary School Students by Type of Course

3 Trends in Number of Adult Students (Graduate Schools)

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5 Percentage Distribution of Junior College Students by Major Field of Study

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The results of this systematic review are available in four formats:

SUMMARY	Explains the purpose of the review and the main messages from the research evidence
REPORT	Describes the background and the findings of the review(s) but without full technical details of the methods used
TECHNICAL REPORT	**Includes the background, main findings, and full technical details of the review**
DATABASES	Access to codings describing each research study included in the review

These can be downloaded or accessed at
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