Understanding the Social Outcomes of Learning

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Foreword

OECD has long argued that education plays a vital role in enabling economic growth and good employment. Now we extend our analysis to wider, social domains: the social outcomes of learning (SOL). This report breaks new ground. Taking as its focus the impact of education on health and civic and social engagement (CSE), it presents a number of models for going beyond correlation to explore the causal relations between education and these two social domains. But it also draws on empirical analyses from international datasets to explore these complex phenomena.

The Social Outcomes of Learning project began in 2005. It has been a collaborative effort, linking CERI and the OECD educational indicators Network B, and supported by 13 member countries. A second phase of the Social Outcomes of Learning project is now deepening the analysis of education's effect on health and civic and social engagement.

The report confirms that a general level of education is indeed important in helping people to achieve good health and to become active citizens – both major objectives of policy makers in OECD countries and beyond. But it points out that there is no easy link, so we cannot expect simply by increasing our educational investments to achieve improvements in the two domains. Issues such as inequality of access to the benefits of education are significant factors in any assessment of the social outcomes, for individuals and society more generally.

A companion report which provides more detailed analysis than could be included here is freely downloadable on *www.oecd.org/edu/socialoutcomes/symposium.*

The report was prepared by Tom Schuller, Head of CERI, and Richard Desjardins, lecturer at the Danish School of Education.

Barbara Ischinger, Director
Directorate for Education

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Tom Schuller and Richard Desjardins

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Related document on the Internet:
Measuring the Effects of Education on Health and Civic Engagement – Proceedings of the Copenhagen Symposium
www.oecd.org/dataoecd/23/61/37437718.pdf

Executive Summary

Education affects people's lives in ways that go far beyond what can be measured by labour market earnings and economic growth. Important as they are, these social outcomes of learning (SOL) – such as the impact of education on health – are neither currently well understood nor systematically measured. This "synthesis" report is a first pass at bringing together some promising developments in this area. (See Chapter 1 for a full explanation of the report's sources.) It is part of a process aiming to produce policy-relevant tools and analysis on the links between learning and well-being.

Background and rationale

Our current understanding of these links rests on a relatively weak knowledge base. If educational investment is ever to reflect the assumed importance of these linkages, we must first develop coherent models for understanding them. Such models should aim to enable governments and publics to set about answering the following questions:

- *Accountability*: what do individuals actually learn as a result of societies' investment in education and training? And what follows then, not just in terms of individuals' earnings and economic growth but in the wider context of individual and social well-being?
- *Competition for public expenditure*: what is the evidence to support the case for funding education in the face of competing demands on the public purse? For example, the ageing of societies could see education funding squeezed in favour of care for the elderly, even though learning may be important to helping people remain healthy into old age.
- *Recognising values*: what is the role of education in instilling values to do with well-being and social cohesion, as well as employment? How far is the goal of active citizenship recognised and implemented in educational practice?

- *Intersectoral linkages:* how can we promote integrated thinking and delivery across sectoral boundaries to maximise benefits? For instance, education promotes health, but the reverse is true too. How could enhanced dialogue between these sectors work to strengthen the benefits of these interactions?

Two broad domains were chosen to form the focus of the first phase of SOL work – *health* and *civic and social engagement (CSE)*. They are areas of significant current policy concern, raising a mix of social and economic issues. They allow both general overviews across the field as a whole and specific investigation of particular aspects.

Developing a framework

Learning does not occur just in school – it is both "lifewide" (*i.e.* it occurs in multiple contexts, such as work, at home and in our social lives) and "lifelong" (from cradle to grave). These different types of learning affect each other in a very wide range of ways. Their impact in terms of the outcomes of learning is equally complex – whether it is in the economic and social spheres, the individual and collective, the monetary and the non-monetary.

Further complicating the picture are substantial gaps in our knowledge base on a number of issues, including the following:

- The *cumulative* and *interactive* impacts of lifewide and lifelong learning.
- The potential impacts of *informal* learning, *later interventions* in adulthood, or even different types of formal education.
- And the impacts of *different curricula* (general, academic, vocational) and impacts of learning at different *ages and stages*.

To make sense of these relationships, it is useful to develop a framework for building models and analyses that will be applicable in a range of contexts. In addition to emphasising the importance of addressing issues in a *multi-level* way, three key elements to the framework are reviewed briefly here.

1. *The ARC set of models:* a threefold mechanism, involving *absolute*, *relative* and *cumulative* effects of education.

The *absolute model* states that education has a direct effect on the individual. The model implies that more education is better and that an overall expansion of education may lead to an overall increase in the

particular outcome to which it is being applied. The net effect of an expansion is *positive-sum* – in other words, at least some groups gain while none are worse off. However, education can also have intrinsic negative effects at the individual level, by for example injuring self-confidence.

The *relative model* stipulates that education has an effect by changing the position of the individual in the hierarchy of social relations. It is also referred to as the sorting or positional model. Education generates benefits for some but in doing so places others in a worse position. The model suggests that an expansion of education does not necessarily lead to an overall increase in net benefits, but is *zero-sum* – there are losers as well as winners.

The main premise of the *cumulative model* is that the individual's peer group matters. How the individual fares depends on the average level of education of his or her peers or surrounding groups (including spouses/partners). Certain outcomes associated with education are only likely to materialise among groups with similar levels of educational attainment, and the prevalence of the outcomes increases with the average level. This model is the most difficult to apply empirically but as a foundation for arguments sustaining education as a public good, it is potentially significant.

2. The *Self-in-Context* approach: education can matter for social outcomes through its effects on the self, particularly the capabilities of individuals and their agency – their capacity to make choices in life and follow through on them. The approach allows more in-depth accounts of how education can affect people in everyday social interactions, either in family, work, community or broader societal contexts. Education also influences the choices of contexts that people come to inhabit or their opportunities to choose among contexts.

3. The third element of the framework is the *qualitative dimension of learning experiences*. An overdependence on volume- and qualifications-based measures of educational participation neglects how effects of education depend on the nature and quality of learning provision as much as on the number of hours or years spent in schooling. To move beyond these limitations requires consideration of *educational contexts* (the level and type of education); *educational content* (the curriculum and pedagogy); and the *ethos* of educational settings. The focus of this discussion is on compulsory schooling. Further work is needed to extend these considerations to other types and levels of education.

Investigating the social outcomes of learning

This report uses these constructs to examine two aspects of the social outcomes of learning – *health* and *civic and social engagement (CSE)*. In CSE, some original data analysis which applied the ARC set of models to the European Social Survey and European Values Survey data is reviewed. In health, the self-in-context model is used as a framework for structuring an elaborate review of the evidence of the causal effect of education on health. There is scope for more in-depth application of the framework to both health and CSE but also to a range of other domains such as crime, anti-social behaviour and poverty.

Health

The health benefits of learning are potentially extremely large. With the costs of delivering healthcare services set to rise substantially for demographic and technological reasons – essentially, the ageing of most OECD populations and the development of new forms of treatment. There is a clear *cost containment* aspect here. Governments need to understand better the potential savings resulting from policy interventions that relate to investments in learning, not only for school-aged children but also for adults.

Secondly, there is the more positive aspect of the *enhancement of well-being and the quality of life*. As well as preventing illness or enabling its more efficient treatment, education may enable people to live more positively healthy lives. This aspect is harder to quantify, but arguably even more important.

However, despite the growing evidence for a causal link between education and health, it is not at all clear how great or consistent this effect is or how it can be harnessed. The report reviews a number of alternative possibilities. In summary, education can positively help people to lead healthy lives by making healthier lifestyle choices and can help to mitigate ill-health by enabling people to manage better their illnesses and prevent further ill health occurring. There are three major sets of effects:

- *Indirect* effects of education on health, such as those via income.
- *Direct* effects, such as changes in individual competencies and abilities, changes in attitudes to risk and changes in self-efficacy and self-esteem.

- *Intergenerational* effects of educated parents on the health of their children.

More years of schooling are substantially associated with better health, well-being and health behaviours. In some cases, the evidence is robust and suggests causality.

Civic and social engagement (CSE)

Education is generally positively associated with CSE, but while education levels have been rising, many countries share a concern about declining levels of voter participation and about the state of civic participation generally. Policy makers have a direct hand in designing and overseeing education systems, so it is logical to look to schools as a means to enhance the CSE of young people.

Learning experiences can foster CSE in number of ways:

- By shaping what people know – the content of education provides knowledge and experience that facilitate CSE.
- By developing competencies that help people apply, contribute and develop their knowledge in CSE.
- By cultivating values, attitudes, beliefs, and motivations that encourage CSE.
- By increasing social status – this applies to forms of CSE that are driven by the relative position of individuals in a social hierarchy.

However, it would be wrong to imply that more years in education automatically mean higher levels of CSE. The linkages are more complex than that, as can be seen when we apply the ARC set of models. For example, more competitive forms of political engagement, such as belonging to a political party, fit the relative model best, whereas less competitive forms, such as marching in demonstrations, fit the absolute model best.

Another important finding is that merely offering more schooling or more citizenship studies is a limited and partial response. More promising is to address the quality of learning experiences and approaches to learning both inside and outside formal school settings. The curriculum, school ethos, and pedagogy are key variables that shape CSE. Some forms of learning seem to work better than others in fostering CSE – learning environments that stress responsibility, open dialogue, respect and application of theory

and ideas in practical and group-orientated work seem to work better than just "civics education" on its own.

Valuing the outcomes

Putting a quantitative and then a financial value on social outcomes is a tricky business. It is generally more appropriate for health than CSE, but in any case estimates have to be treated with sensitivity and caution. A few examples of rigorous analyses exist. Using QALYS (quality of life years) a Dutch study suggests that an additional year of education improves the health state of men by 0.6% and of women by 0.3%. A more specific example is a UK simulation analysis which concluded that raising the level of adult women without qualifications to a basic qualification level would reduce the risk of depression at age 42 from 26% to 22%, saving an estimated £200 million annually.

Conclusions and agenda

There are a number of areas suggested for action as the SOL project moves to the next phase:

- *A review of the public objectives of education*: scrutinising the extent to which objectives such as improving health or encouraging civic participation are stated as explicit goals of education and, if so, the criteria and measures that are used to monitor progress.
- *Strengthening the knowledge base*: SOL is an area with a weak basis of theory and evidence. Key areas for development are the conceptual constructs for analysing social outcomes, policy indicators and other measures, and the application of cost-benefit analyses.
- *Enriching data analysis*: more work could be done with existing datasets. Further construction and application of longitudinal data, experimental designs, biographical analysis and in-depth studies of learning processes are high priorities.
- *Exploring the implications for pedagogy, assessment and qualification systems*: adult and informal learning play a big part in social outcomes, but often are unacknowledged. SOL work calls for further development of the understanding of how learning achievements of different kinds are recognised and valued.

- *Widening the range of literacy benchmarks:* extending the range of educational achievement measures to take into account aspects such as health and civic literacy.
- *Fostering intersectoral dialogue*: crossing sectoral boundaries is always desirable but rarely realised. Using SOL results to promote dialogue across these boundaries would be a useful first step.

Chapter 1
Broadening the Measurement of Educational Outcomes

In this chapter, we discuss why the links between education and personal, social and economic development need to be understood better and communicated to policy makers and the wider public. We also provide background on OECD work leading up to the Social Outcomes of Learning (SOL) project, and the rationale for measuring social outcomes.

1.1. Understanding the social outcomes of learning: background and rationale

The educational systems of OECD economies continue to grow and the total resources – money, time, effort – dedicated to formal and informal learning are reaching unprecedented levels. Is all this investment paying off? Are resources organised and used in a way that fulfils what society intends educational systems to achieve? Are the learning opportunities offered at the right time and distributed over the lifespan in the most effective way? The questions have important social and political as well as economic dimensions. Engagement with formal education is a major determinant of life opportunities and can act to reinforce or ameliorate social inequalities depending on the context in which schools and the curriculum (hidden as well as explicit) are organised (see Box 1.1).

Few will dispute that the effects of education extend beyond the economic sphere. The total benefits, to individuals and society, are greater than market measures such as the sum of what people earn as a result of their educational attainment. Besides providing the knowledge and skills necessary for economic participation the schooling system is the primary agent of socialisation in modern societies. Higher and adult education extend this process whilst pursuing the formation of people's identities as citizens and family members. Education at all ages plays an important role in sustaining social cohesion and personal well-being.

Box 1.1. Education, schooling and learning

Education, *schooling* and *learning* are closely related and sometimes used without clear demarcation or discussion of the precise differences in meaning. Here we offer some guidelines as to how these terms are viewed for the purposes of this report.

Learning refers to a broad set of potential educational experiences and interventions. These can vary in their degree of formality with respect to structure, objectives, recognition and intentionality. Three settings are commonly described as follows:

-- *Formal learning* typically takes place in an education or training institution, is structured (in terms of learning objectives, learning time or learning support) and leads to certification. It is intentional from the learner's perspective.

-- *Non-formal learning* does not take place in an education or training institution and typically does not lead to certification. It is, however, structured (in terms of learning objectives, learning time or learning support). It may be provided in the workplace and through the activities of civil society organisations and groups. It can also be provided by organisations or through services that have been set up to complement formal systems, *e.g.* arts, music and sports classes. It is intentional from the learner's perspective.

-- *Informal learning* results from daily life activities related to work, family, community or leisure. It is not structured (in terms of learning objectives, learning time or learning support) and typically does not lead to certification. It may be intentional but in most cases it is non-intentional (or "incidental"/random).

Education is not limited to initial schooling, and is consistent with a lifelong learning perspective – one that recognises that learning occurs over the lifespan and in multiple contexts (see Section 2.2 for further discussion on *lifelong-lifewide learning*). Due to data limitations however, much of the empirically related discussion in this report refers to schooling and formal levels of education that are associated with recognised qualifications.

Education and training systems refer to the organised provision of educational experiences.

But this consensus precedes theoretical development and a good information base to make sound policy decisions. OECD has long promoted the value of education as an investment. But while human capital theory links education to economic outcomes and offers a robust framework for scientific investigation and policy analysis, there is to date no widely accepted framework linking education to social outcomes. Social outcomes are acknowledged in the literature on human capital and, in some cases, are quantified. There is now an awareness that the links between education and personal, social and economic development need to be understood better and communicated to policy makers and the wider public (OECD, 2001a). We need coherent models for understanding better these relationships; for gathering and synthesising what we know and what we want to know; and for drawing out their implications for policy (Behrman and Stacey, 1997; McMahon, 1999; Wolfe and Haveman, 2001; Schuller *et al.*, 2004; Baudelot and Leclerq, 2005; Psacharopoulos, 2006).

In 2005, the OECD's Centre for Educational Research and Innovation (CERI) in cooperation with the OECD INES (International Indicators of Education Systems) Network B[1] launched a project entitled "Measuring the Social Outcomes of Learning" (SOL). The SOL project is designed to inform thinking across several sectors on the nature of the linkages between learning and well-being, broadly understood.

The project seeks to:

- develop a framework that can be used to analyse these various links;
- foster the gathering and application of evidence on SOL;
- improve the knowledge base about the full extent of benefits that accrue to individuals and society;
- contribute to more well-integrated policies across education and other policy domains by making explicit the interactions between economic and social outcomes;
- shed light on the effects of educational practices more broadly.

We call this report a synthesis because its aim is to bring together the conceptual and analytical thinking engaged in so far in the SOL project. The main sources are:

- Two major overview papers, one on each domain: on health by Leon Feinstein and colleagues from the Centre for Research on the Wider Benefits of Learning at the University of London, United Kingdom; and on civic and social engagement (CSE) by David Campbell from University of Notre Dame, United States. The original, very substantial, papers have already been published in *Measuring the Effects of Education on Health and Civic/Social Engagement* (see *www.oecd.org/edu/socialoutcomes*). They include both extensive discussion of the modelling issues and reviews of relevant literature.
- Responses to these overview papers, and other papers on specific issues or country situations, presented at a SOL symposium held in Copenhagen in March 2006.
- Discussions within the SOL Advisory Group, Network B and other bodies.
- Reading of the literature.

[1] Responsible for devising indicators on the outcomes of education.

A companion report is in preparation on the scope for indicator development on social outcomes – in other words, the options for systematic gathering of comparable statistical data dealing with the relationship between education and social outcomes. This is a complex technical area, requiring separate treatment. In addition, a series of analyses of specific country experiences are being published on the web as working papers.

The rest of this chapter provides background on OECD work leading up to the SOL project, and the rationale for measuring social outcomes. Chapter 2 provides an overview of the relationships between learning of different kinds, competencies and monetary and non-monetary outcomes, within a context of lifelong learning. It includes the relationship between human and social capital as a key relationship. Chapter 3 addresses the first major objective listed above by sketching out a framework within which the analysis of social outcomes can be conducted. It presents a number of different models, and discusses the factors which condition the provision of relevant and robust evidence.

Chapters 4 and 5 then provide an outline of the empirical application of this thinking to the two selected domains. Necessarily this is highly schematic, but the goal is to show how the framework can be empirically applied to extract results from existing data. Chapter 6 draws conclusions, for policy and for data collection.

The report aims at several audiences: policy makers, researchers from different disciplines and methodological affiliations and those interested in the effects of education on our individual and collective lives. It is only a first pass at this broad field. The next step will be to refine and develop the framework, and to extend the analysis to a wider range of learning, beyond formal school and college.

1.2. Reasons for expanding the focus to social outcomes

The expansion of focus marks a significant shift for OECD for a number of reasons. These do not all point neatly in the same direction. But in combination they provide a powerful impetus for extending the range of thinking about the results of educational investment.

1.2.1. It confirms a growing concern with the outcomes of education, rather than inputs or participation rates

Governments have traditionally been concerned with the numbers of students taking part in education at different levels, and with the resources devoted to them and to the system generally. Naturally they have also been

interested in issues such as qualifications attained at different levels, and graduation rates. But increasingly governments and the public more generally are keen to know what students have actually learned as a result of all this investment – and what then happens as a result of this learning.

Tapping into this first concern (and also magnifying it) has been one of the main reasons for the spectacular profile achieved by the OECD PISA project, which directly measures what 15-year-old students have learnt across now some 60 countries (OECD, 2004). Yet PISA deals only with one age band, and it focuses on skills and competencies, not on what happens as a consequence of the learning. The International Adult Literacy Survey (IALS) (OECD and Statistics Canada, 2000) and its successor, the Adult Literacy and Lifeskills Survey (ALL) (OECD and Statistics Canada, 2005), have widened the focus to the learning and skills of adult populations aged 16 to 65, but they have been less influential mostly because the responsibility for the provision of learning in adulthood rarely resides with one clearly identifiable authority. Other OECD analysis addresses the overall impact of rising educational levels on national GDP (OECD, 2001b) and on individuals' economic and labour market success (OECD, 2006b). The next step is therefore to extend analysis into what impact learning has on personal lives, as workers, citizens or family members. The SOL work described below addresses this directly, by assuming that education systems aim in part to enable people to lead healthy lives, and to play an active part in civic and social life.

1.2.2. It reflects an increasing pressure for accountability

In any democracy it is reasonable to assume that people wish to know how money raised by the state is spent on their behalf, and how both public and private institutions perform. It would be reassuring if confidence in this sphere grew along with the maturity of the society, but as politicians know to their cost, this is not always the case. Public expenditure is not always growing as a share of total GDP, but it represents a significant proportion, and citizens are entitled to know, as far as is possible, how effectively the money is being spent. Accountability is a key issue.

This has a number of consequences. First, it means that there is more pressure to produce public measures, of various kinds – on expenditure, efficiency, equity and effectiveness. Measurement is an essential companion to accountability. But whilst broadening the focus of educational performance can and should encourage innovation in measurement, it carries with it the risk that measures will be unduly narrow, if there is not a strong commitment to matching them to the actual objectives of the service. Secondly, there are debates to be had over what a public service such as

education is intended to achieve; logically this should be prior to, and shape, the measures to be used in assuring accountability, but this is not always the case. Thirdly, competition between public services is growing as claims on the public purse increase. An obvious example is the impact of demography; ageing populations across OECD make more demands on health care and social services, so that education faces a potential squeeze in the face of shifting political priorities.

One possible implication is that educational policy will in fact be focussed more narrowly than before, on supposedly core functions relating to labour market performance and competitiveness. However, other developments in relation to diversity and migration, global warming, health risks and opportunities as people live longer, changes in governance at the local and international level as well as greater uncertainty about the future, increase the importance of the social role of education. This SOL report is intended to help widen the focus. The assumption here is that education should indeed be accountable, but that accountability must be interpreted broadly enough to allow its various objectives to be brought into the picture.

1.2.3. It acknowledges the interdependence between different sectors of social and economic policy

On the one hand, education cannot solve social and economic problems all on its own. It is a crucial component of economic success and of social well-being, but even the best education system will not deliver prosperity and peace if the wider conditions militate strongly against these. Conversely, other policies are far more likely to succeed if they take into account the educational dimension and link appropriately to educational delivery. An obvious example is the improvement of personal health, where public understanding of what constitutes a healthy lifestyle and the development of people's competence to adjust their behaviour accordingly are important components of a successful policy. Another example relates to poverty. Social policy analysts are increasingly interested to know how far education experiences are the root of poverty in adult age, and the role of educational interventions within a more comprehensive strategy to fight poverty.[2]

This interdependence poses acute analytical problems. It makes it hard to isolate particular variables and identify specific effects attributable to individual interventions or policies. Yet as the OECD's recent Job Strategy reappraisal noted in respect of employment policy "the experience gained

[2] This is the subject of current work within the OECD Directorate for Employment, Labour and Social Affairs. A paper by Machin (2006) on social disadvantage and educational experiences was coordinated with the SOL project.

over the last decade has highlighted the existence of interactions between different structural policy areas… exploitation of these potential synergies can lead to improved employment performance" (OECD 2006b, p. 16).

This report draws attention to the complexity of interaction and how this affects our capacity to identify the outcomes of education. The analysis is often constrained by the complexity, and tentative in its conclusions. Given the highly cultural and contextual nature of learning, quantitative modes of investigation are only one approach – other forms (*e.g.*, ethnographic research) may uncover aspects and relationships that cannot be fully explored via quantitative modes only. Work in this sphere is still at an early stage. A major objective of the report is to open up the field to more extensive and systematic investigation.

1.2.4. It addresses a growing debate over social values

Individualisation and globalisation are just two broad trends which generate increasing diversity of values within many societies. Individualisation does this almost by definition, as people choose their own lifestyles and pathways – of course within sometimes very tight constraints, but nevertheless generally to a larger extent than previously. Globalisation is sometimes reckoned to have a homogenising effect, but one of its effects has been to increase migration across many parts of the world. This has meant that societies encompass populations with a great diversity of racial, ethnic and religious origins. It has led, in some cases all too evidently, to tension and debate over social values, and within that over educational goals.

A salient example of this is the debate over the place of religion in education, and the extent to which the state should endorse or discourage the expression of diverse religious positions within the public education system. But the same issue appears in less dramatic form, as it commonly has done historically, in debates which address the kinds of values and behaviours that an education system should or should not aim to develop in its students. Tolerance is one such value – a contested term itself. At a time when there is much talk over social cohesion, the part played by education in promoting – or undermining – this is potentially significant. Again, this report seeks to address this kind of issue. It brings to the surface questions about the purposes of education in contemporary democratic societies.

These factors – to very different extents in different OECD countries – combine to explain the nascent interest in the social outcomes of learning, and provide the rationale for the SOL project. Governments but also other stakeholders are aware that education has effects which cannot be measured only in terms of qualifications or income. The effects may be direct or indirect, planned or unintended. Governments and stakeholders may give

very different values to these effects. But they cannot engage in rational decisions about the impact, efficiency and effectiveness of education, and its relative claims on public expenditure, without understanding the scale of the effects and the ways they are achieved.

One further point needs to be stressed by way of introduction. The analysis presented here deals with the effects of education, and naturally we give particular emphasis to those areas where particularly strong or clear effects are found. However, the SOL project is not designed as a forensic exercise to support current educational expenditure or practices. In other words, it is not the intention that education should be shown as far as possible as successfully achieving wider social outcomes. To the contrary: one aim, with obvious policy relevance, is precisely to open up the debate on how education might be more effective, by changing its form, content, pedagogy or timing.

Similarly, it may well be that learning which is not part of the formal system will be equally or more effective. This too is part of our point of departure. Admittedly the difficulty of incorporating informal learning into the analysis means that at this early stage we present little in the way of empirical results on informal learning, for example in the workplace. But the frameworks put forward here apply equally well to other types of learning; and the data recommendations will include coverage of informal as well as formal learning.

1.3. Origins of SOL

This report builds on earlier efforts by OECD to extend the range of its conceptual and analytical tools to include a social dimension. Notably, a 2001 report on *The Well-Being of Nations* brought the notion of social capital into play as a key policy concept, complementing the more familiar, and narrower, notion of human capital. The essential argument is that without an understanding of the way norms and networks (social capital) shape people's aspirations and their capacity to acquire and apply learning, educational policies are missing a vital component (see Chapter 2 for more discussion).

One important strand in the genesis of the SOL project has been the work of the OECD INES Network B. This group seeks to improve the knowledge base for educational policy makers, focussing specifically on educational outcomes. Network B has traditionally focused on human capital and its relationship to the economic outcomes of education. Building on *The Well-Being of Nations* report, Network B has become interested in expanding its indicators to include a broader range of educational outcomes,

in order to better capture the full effects of education on individual and social well-being. This interest led the Network to formulate a proposal for carrying out further work on measuring social outcomes.

At the same time, CERI began to formulate a proposal to investigate the effects of education on social issues such as health and social capital, building on work at the Centre for Research on the Wider Benefits of Learning in London. The two proposals were brought together, and in 2004 countries were invited to join in the SOL project. Eleven countries immediately signed up, and this has since grown to thirteen.[3]

Discussions within the CERI Governing Board and a SOL Advisory Group led to a clear focus within the wide range of possible options. The project design comprised three components:

1. *Methodological component.* This includes identifying appropriate models for mapping out the links between education and specific social domains; exploring how far these links can be shown to be causal; and going beyond general associations in order to clarify what types and levels of education have what kinds of effect. There is therefore a strong emphasis on identifying models which represent these links in schematic form, whether or not empirical data exists which might yield actual results.
2. *Empirical component.* In order to go beyond abstract modelling, it was essential to begin to apply the models to specific domains where appropriate data exists. Once the key domains of health and civic and social engagement had been selected (see below) papers were commissioned to provide overviews of the current knowledge base, and within the constraints of time and resource, to produce original analysis.
3. *Indicator development.* The involvement of Network B meant that we were able to draw on considerable technical experience to review the scope for developing indicators, using both extant and future data collections. A companion publication on the scope for indicators is in preparation by the end of 2007.

The focus of the SOL project's work is on the effects of education generally, and not on the evaluation of specific educational interventions designed to improve citizenship or health.[4] Evaluating interventions would

[3] Austria, Belgium (Flemish), Canada, Japan, Luxembourg, the Netherlands, New Zealand, Norway, South Korea, Sweden, Switzerland, the United Kingdom (England and Scotland) and the United States.

[4] In the health domain, this is the subject of current work within the OECD Directorate for Employment, Labour and Social Affairs on the economics of prevention.

certainly have yielded many more identifiable outcomes, but rightly or wrongly this has not been the priority.

1.4. The key domains

This report, therefore, extends the line of work which seeks to broaden the measurement of educational outcomes. Given the breadth of potential applications, an initial task was to select the domains to be scrutinised. The two selected, *health* and *civic and social engagement (CSE)* were chosen for the following reasons. First, they are areas of significant current policy concern, raising a mix of social and economic issues. Secondly, there is already a body of knowledge which would enable us to review evidence, even if the causality involved is often elusive. Thirdly, they are broad enough to allow both general overviews across the field as a whole and specific investigation of particular aspects.

The policy relevance is twofold. First, there is what might be called the *cost containment* aspect. This applies particularly in health, as we explain below. The concern here is that the costs of delivering healthcare services are set to rise substantially, for demographic and technological reasons – essentially, the ageing of most OECD populations and the development of new forms of treatment. If education can be shown to have an effect in reducing these costs, it merits attention. The cost argument has a strong rationale in the case of health, where effects can be quantified and given monetary values, however crude. This may be less applicable to the field of CSE, but a decline in democratic participation and civic life can easily be seen to have costs, even if these are not quantifiable in cash terms. Secondly, however, there is the more positive aspect of the *enhancement of well-being and the quality of life*. As well as preventing illness or enabling its more efficient treatment, education may enable people to lead more positively healthy lives. In respect of CSE, it has both an individual and a collective aspect: it enables people to play a part in civic and social life, and it thereby contributes to a more flourishing democratic community and social cohesion. The actual extent to which education of different kinds achieves this, and the ways in which it does, are empirical questions that we seek to address.

1.4.1. Health

Health is a policy area which has always been important, and where the association between education and good health is well known at a general level. The implications of rising health expenditures, and the particular challenge of ageing populations in almost all OECD countries, give this a high current salience.

Spending on health and healthcare in most OECD countries has risen dramatically over the past five years. This has driven the share of health expenditure as a percentage of GDP up from an average 7.7% in 1997 to 9.0% in 2004 (see Table 1.1). All OECD governments are under continuous pressure to reconcile economic and health concerns because the public purse funds the bulk of health spending in most countries. The public share of health expenditure accounted for 71.6% of total spending on average across OECD countries in 2004 (OECD, 2005). It is increasingly important for government spending departments to understand better the potential savings resulting from investments in learning, not only for school aged children but also for adults across the lifespan.

Table 1.1. Total expenditure on health (public and private) as a percentage of Gross Domestic Product, OECD Countries, 1997-2004

	1997	2001	2004
Austria	9.4	9.5	9.6
Belgium	8.2	8.7	
Canada	8.9	9.4	9.9
Japan	6.9	7.8	
Korea	4.4	5.4	5.6
Luxembourg	5.6	6.4	8
Netherlands	7.8	8.3	9.2
New Zealand	7.3	7.8	8.4
Norway	8.5	8.9	9.7
Sweden	8.1	8.7	9.1
Switzerland	10.2	10.9	11.6
United Kingdom	6.8	7.5	8.1
United States	13.1	14	15.3
OECD average	7.7	8.3	9.0

Source: OECD Health Division.

The overall costs of ill health are far greater than direct spending on health expenditures. In Sweden, the total government (public) costs for ill health (including early retirements due to sickness) are estimated to be 14 billion euros, just over three times the national defence budget. Premature death (defined as death before 65) in the United Kingdom is reported to be responsible for the loss of a large number of working person-years (Acheson, 1998). Table 1.2 shows a strong association between mortality and individual levels of education. Other costs include employer costs associated with time taken off work, insurance costs and private costs

of ill health (Feinstein, 2002). According to a Swedish Labour Force Survey, the percentage of employed persons absent from work for the whole week due to illness ranged from 2.5% to nearly 5% between 1987 and 2005. The scope for the health benefits of learning is large, but despite the growing evidence indicating the causal effect of education on health, it is not at all clear how great this effect is or how it can be harnessed.

Table 1.2. Mortality rate and education

	Year	Age	Ratio	
			Men	Women
Italy	1991-96	45+	1.22	1.20
Spain	1992-96	45+	1.24	1.27
Denmark	1991-95	60-69	1.28	1.26
France	1990-94	60-69	1.31	1.14
Finland	1991-95	45+	1.33	1.24
Switzerland	1991-95	45+	1.33	1.27
Belgium	1991-95	45+	1.34	1.29
England and Wales	1991-96	45+	1.35	1.22
Norway	1990-95	45+	1.36	1.27
Austria	1991-92	45+	1.43	1.32
OECD-14			1.50	1.30
Czech Republic	end-90s	20+64	1.66	1.09
Netherlands	1991-97	25-74	1.92	1.28
Hungary	2002	45-64	1.97	1.58
Poland	1988-89	50-64	2.24	1.78

Notes: Countries are ranked in decreasing order of relative inequalities among men. Relative inequalities are measured by the ratio of the mortality rate in the less educated group as compared to the better educated ones.

Source: Mackenbach (2006).

How does, or might, education contribute to improving the health of our populations and to achieving health policy goals? Two interrelated senses in which this can happen are mentioned here (see Section 3.3.1 for a more elaborate discussion). First, education can *positively help people to lead healthy lives*, both directly by adopting healthy lifestyles, and indirectly by achieving incomes which enable them to do this. This is in line with the World Health Organisation's efforts to make health a matter of positive well-being. Secondly, education can help *mitigate ill-health*, either directly

by enabling people to manage illnesses, or indirectly by enabling them to make choices which reduce the likelihood of further ill health occurring.

The two are very much mirror images of each other. There is a third, less individualised, sense in which education contributes to society's health levels, and this is by helping to establish or maintain *health as a common social objective*. This includes maintaining social or political norms in favour of healthy environments, and conversely combating commercial or other tendencies which damage a community's good health.

The SOL project includes both physical and mental health. There is a tendency to identify health as primarily concerned with physical health, but the overall concern with well-being, and the growing awareness of the significance of positive and negative mental health, leaves no doubt that this should be an equal component (Layard, 2006).

1.4.2. Civic and social engagement (CSE)

The second domain selected for specific analysis is *civic and social engagement (CSE)*. CSE refers to a broad range of behavioural activity as well as attitudinal aspects which can influence civic and social oriented behaviours (see Section 4.2.1). This is a more diffuse field than health. Its selection reflects a number of factors. Firstly, many countries share a concern about declining levels of voter participation and other civic indicators. In almost every country the proportions of those eligible to vote who actually exercise this right are declining. Voter turnout rates for sixteen OECD member nations from the 1960s to the present have fallen by 13.2 % on average (Wattenberg, 2002, p. 28). Decreases range substantially, from 34 percentage points in Switzerland, to 12 points in Germany and 1.5 points in Sweden. This is the case even though there is a positive relationship between individual levels of education and voter turnout (as can be seen in Table 1.3). The latter provides some basis for expecting that voter turnout will increase as educational levels are rising over time, but this has not been the case. The apparent contradiction was first noted in the United States, the first among industrialised democracies to experience a decline in voter turnout. Brody (1978) referred to this phenomenon as the *paradox of participation*. Today, this is a trend that is now widely observed across many nations (Lagroye, François and Sawicki, 2002; Franklin, 2004). Even more puzzling is the fact that the decline in voter turnout, and other civic indicators, is concentrated among the youngest age cohort of the population – who generally also have the highest average level of education. Analysis carried out for the SOL project in Norway provides detailed evidence on this (Lauglo and Øia, 2006).

Table 1.3. Voter turnout and education

		Age			Educational attainment	
		Persons aged 65 and over relative to			University relative to	
		15-24	25-50	51-64	Less than secondary	Secondary
Belgium	2003	0.95	1.03	1.06	0.88	0.91
Canada	2004	0.75	0.87	0.95	0.88	0.94
Japan	2003	1.05	1.03	1.02	0.95	0.91
Korea	2004	0.61	0.81	0.98	0.95	1.04
Netherlands	2003	0.79	0.96	1.05	0.91	0.94
New Zealand	2001	0.70	0.78	0.92	0.79	0.88
Norway	2002	0.98	0.99	1.00	0.99	0.99
Sweden	2005	0.77	0.92	1.11	0.90	0.98
Switzerland	2003	0.62	0.75	0.86	0.68	0.89
United Kingdom	2002	0.82	0.92	1.04	0.89	0.88
United States	2002	0.95	0.93	0.98	0.94	0.92

Source: Module 2 of the Comparative Study of Electoral Systems (CSES).

More controversially, participation in civic institutions is also seen by some as on a similar downward trend. This finding is not common across countries in the same way as voting patterns are; and there is a sharp debate over whether there is an overall decline in civic activity or whether some more traditional forms are being replaced by newer forms which may not be adequately captured by existing data sets (Putnam, 2000; Hall, 1999). However, whether or not there is decline, the democratic functioning of our countries is a matter of public concern, and the actual or potential role of education in sustaining democratic life is consequently a topic of significant interest.

The specific components of CSE became clearer in the course of the SOL work. Chapter 4 of this report itemises them in more detail, under the following headings:

- political activities;
- civic (non-political) activities;
- social activities;
- other types of CSE related activities;
- trust;
- tolerance.

1.4.3. Cross-cutting themes: distributional issues and intergenerational effects

Two interrelated themes were also identified which cut across the two domains. Both are primarily concerned with equity issues. The first concerns the way social outcomes are distributed across different social units (class, gender, etc.) (Duru-Bellat, 2002). It is, obviously, important to know how far the benefits of education are reasonably equally spread, or whether they are concentrated amongst particular groups. Arguably this is especially important in the health domain. In health, there are pronounced inequalities on several dimensions (see Table 1.2 above on mortality). It has also been argued that inequalities mean not only that the worse off get, by definition, less benefit than the better off, but the very fact of significant inequalities accentuates health problems across the population as a whole, so that even those at the top end of highly unequal societies are less healthy than might be expected (Wilkinson, 1996). The key question is whether education mitigates such inequalities, and therefore increases not only individual but collective well-being – and if so, how it does this; or whether, by contrast, it may even accentuate these inequalities, with the reverse effect.

The second theme concerns the ways in which educational benefits are or are not transmitted from one generation to another (Bourdieu and Passeron, 1970). This has both a positive and a less positive aspect. On the one hand, a proven link between education and health suggests that investing in a parent's education will not only help them but their children also (see *e.g.* Duckworth and Sabates, 2005). On the other hand the dynamics of intergenerational transmission mean that inequalities will tend to be accentuated over time, as a consequence of the unequal pattern of educational achievement. Unpacking these multiple and sometimes conflicting effects is an important task with potential strong policy relevance.

1.4.4. Negative effects

The point made immediately above, on inequalities, suggests correctly that not all the outcomes of education are beneficial, at least not for everyone. In particular, education can serve to generate or reinforce inequalities, so that its benefits for some are counterbalanced or even outweighed by the fact that others are placed in a worse position. (The discussion of the relative model in Chapter 3 explains this in greater detail.) The relationship between inequality and educational effect is indeed a close one. It is almost built into conventional analysis of rates of return: since calculations on how much a university degree, for example, is worth are made on the basis of comparing the incomes of those with degrees to those

with the next level of education downwards, the higher the level of earnings inequality, the greater the returns to education. At all events, there can be no assumption that education's overall effect is one of greater equity.

More directly, however, it can also be the case that education has intrinsic negative effects even at the individual level. Let us take two examples, one from each of our selected domains. In health, education can impair mental well-being by causing stress (not only at examination time). In CSE, some forms of education can increase cynicism about the political process. Neither of these adds to individual or social well-being.

1.5. Conclusion

This opening chapter has laid out the rationale for the SOL work, in terms of greater pressure for accountability and measured outcomes, a growing awareness of the importance of life outcomes beyond economic and labour market outcomes, and an appreciation of the interaction between policy sectors. Identifying causal relationships is crucial for effective policy-making, but it is rare that this can be done with certainty. What can be done is to raise the issues and identify promising pathways. Although we have described the work as exploratory and in its infancy, this is not to ignore the very substantial amount of thorough work already done on specific aspects, only a small part of which is referenced here. More detail is given in the companion volume available on the web as the proceedings of the Copenhagen symposium (*www.oecd.org/edu/socialoutcomes/symposium*).

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Chapter 2
Sketching the Relationships: Capitals, Competencies and Outcomes

The links between education and training systems and various outcomes are complex and often not well supported by a rigorous knowledge base, nor well understood. In this chapter, we look at ways of understanding, conceptualising and measuring the outcomes of learning and also how they link to each other.

2.1. Introduction

OECD countries now expect that education and training systems should play a strategic role in promoting well-being, including fostering competitive and dynamic knowledge-based economies, as well as social cohesion and active citizenship. Whatever the stated objectives are, many of the outcomes are intended, but there are also many which are not. The outcomes associated with learning can be conceptualised and approached in various ways. Outcomes range from those affecting the individual learner, the family, firms, communities, and more broadly the economy and society. They can be direct or indirect, and as stated intended or unintended. The links between education and training systems and various outcomes are complex and often not well supported by a rigorous knowledge base, nor well understood. This chapter provides an overview of ways of understanding, conceptualising and measuring the outcomes of learning and also how they link to each other.

We begin with a diagram which in outline form depicts the processes which are involved in this analysis. Figure 2.1 presents the lifelong and lifewide learning framework used to frame the issue (Colletta, 1996; Longworth and Davies, 1996; OECD, 1996). Outcomes result from learners encountering multiple contexts, and not just a single context such as

schooling or job-related training.[1] Conceptually distinguishing among learning which occurs in schools, at home, at work and in the community, highlights the interrelations between these, as well as the potential significance of each in relation to different outcomes. Learning translates into competencies, broadly understood. These in turn are linked to a variety of outcomes, which can be classified along a number of dimensions: economic and social, individual and collective, monetary and non-monetary.

2.2. Learning in multiple contexts over the lifespan: "lifelong-lifewide learning"

This framework considers learning as broadly as possible, as a set of potential educational experiences and interventions, which can occur in multiple contexts over the lifespan (see Box 1.1). Learning experiences can be certified in the form of qualifications or non-certified, intended or unintended, and occur at any age. Qualifications can be vocationally or academically oriented, and so on. Distinguishing these different modes and levels of education is essential in order to give the analysis a strong policy link, and specifically to open up debate on alternative patterns of investment.

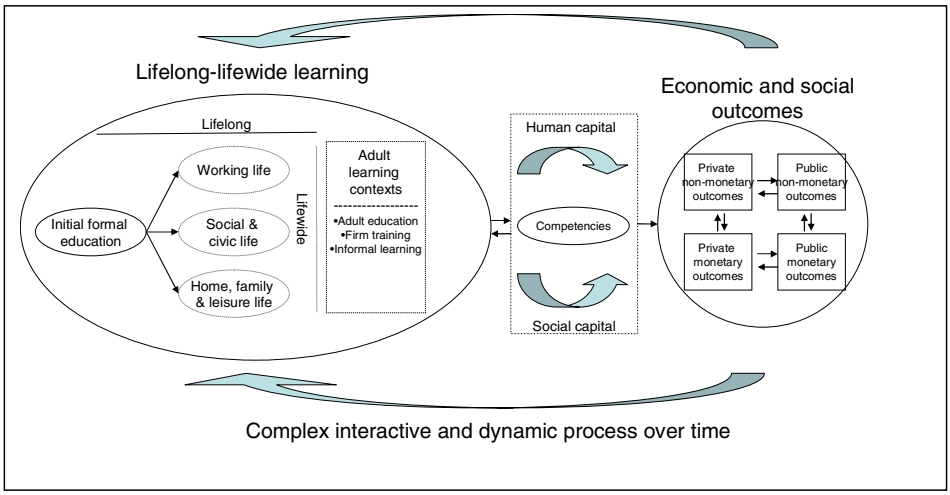
For various reasons, however, it is difficult to distinguish social outcomes exactly by type and level of learning interventions. Firstly, the research literature that differentiates the effects of education is thin. This is partly due to the dearth of availability of good data that differentiates education by type, and at the same time includes measures relevant to the study of social outcomes. Secondly, there is very little work done on assessing the potential impact of later interventions in adulthood (but see Feinstein and Hammond, 2004). What is available is preliminary and primarily qualitative in nature, but this work suggests that the benefits of learning later in life may be substantial (Schuller *et al.*, 2004). It complements other CERI work on the links between neuroscience and education, which demonstrates the plasticity of the brain in later life and reinforces the case for lifelong learning opportunities (OECD, 2007a). Thirdly, learning interventions can maintain, improve, modify prior learning or be remedial, and it is not always easy to identify the prevailing role. Fourthly, outcomes of learning are not immediate. The effects of learning can vary over

[1] Most empirical applications of the human capital paradigm only focus on the impact of schooling or job-related training on earnings. These are areas where most resources are spent, where policy has most reach and where learning efforts are most focused and extensive, but the imperfect correlation between education and skills (OECD and HRDC, 1997) is evidence of the substantial gap between the knowledge and skills acquired from formal schooling, and the knowledge and skills embodied in individuals.

the lifespan and interact with a number of personal factors and with the characteristics of the context in which they outcomes may materialise.

The diagram presented in Figure 2.1 follows a conventional linear pattern: different forms of learning lead to proximate outcomes (specified here as competencies) and then on to various types of outcomes, within which are the ones which form the focus of the report (also see Schuller *et al.*, 2001; Desjardins, 2004). However as the diagram shows, these outcomes in turn influence further learning. So, for example, education endows individuals with qualifications which influence the type and level of occupation they find, and this in turn influences both their learning opportunities, at work and elsewhere. The relationships among learning, competence formation, and the impact of learning that are depicted are not static. Over time, variables are reciprocally determined, and this introduces an interactive and dynamic aspect into the scheme. Empirically, little is known about the cumulative and interactive impacts of learning that occur in multiple contexts (lifewide learning) over the lifespan (lifelong learning). While people can maintain and develop what they have learned in traditional schooling contexts, they can also lose skill, especially if they do not use them (OECD and HRDC, 1997). Increasingly, policy makers as well as analysts have to come to terms with complexity systems approaches which take into account interactions and feedback loops (*e.g.*, see Sanders and McCabe, 2003; Baudelot *et al.*, 2005).

Figure 2.1. The key relationships among learning, competence and capital formation, and the impact of learning on economy and society



Source: Authors.

2.3. Human and social capital

In Figure 2.1, human and social capitals appear as overall contextual variables. The OECD report on *The Well-Being of Nations* brought together the notions of human and social capital. It defined the former as:

> *The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being. (OECD, 2001a, p. 18);*

and the latter as,

> *Networks together with shared norms, values and understanding that facilitate co-operation within or among groups (OECD, 2001a, p. 41).*

Human capital is very familiar as a tool of analysis and policy. Social capital is less so: it combines a structural component which refers to social networks and civic participation, and a normative component which refers to trust, reciprocity, tolerance, understanding and respect for others (Norris, 2000; see also Putnam, 2000; Baron, Field and Schuller, 2000; Halpern; 2005). The interrelationships between human and social capital in their various guises enable the process which leads from learning to outcomes, but they are themselves part of the outcomes. Learning plays an important role in developing and fostering both human and social capital. Reciprocally, human and social capitals are not only outcomes of learning but also key inputs into the learning process (OECD, 1998; 2001a).

The Well-being of Nations explores the close interrelationship between these two forms of capital in some detail. Table 2.1 provides a simplified framework for considering the differences between human and social capital.

Table 2.1. Differences between human and social capital

	Human capital	**Social capital**
Focus	Individual agent	Relationships
Measures	Duration of schooling Qualifications Skills	Attitudes/values Membership/participation Trust levels
Model	Linear	Interactive/circular

Source: Schuller (2001).

A key distinction between human and social capital is that the former focuses on individual agents, and the latter on relationships between them and the networks they form. The inclusion of social capital draws attention to the obvious but often under regarded fact that individuals and their human capital are not discrete entities that exist separately from the rest of the organisation in which they work, or from other social units. The acquisition, deployment and effectiveness of skills and competences depend crucially on the social and normative contexts within which they operate.

Secondly, human capital is measured primarily by levels of qualification achieved. The inadequacy of this is often acknowledged (see *e.g.*, Behrman and Stacey, 1997), but the availability of large data sets allowing easy measurement ensures that it continues to dominate. Skills assessment studies such as IALS (International Adult Literacy Survey) and ALL (Adult Literacy and Lifeskills survey) help to provide more precise measures of the stock of human capital but there are limitations such as high costs, low coverage of countries, and lack of repeated measures over time. Social capital is far more diffuse. It is measured broadly, and often simplistically, in terms of attitudes or values, or by levels of active participation in civic life or in other networks. In its application to education it gives greater weight to informal modes of learning, and the skills acquired through learning-by-doing.

Thirdly, the application of human capital theory often suggests a direct linear model: investment is made, in time or money, and economic or other returns follow. This enables analysts to deploy existing tools to estimate the returns to investment, and politicians to justify expenditure on human capital formation. Social capital has a much less linear approach, and its returns are less easily definable. For example, social capital is both a consequence of, and a producer of, social cohesion.

However the key point here is not the differences between the two capitals but their interaction and potential complementarities. The two complement each other especially as policy concepts and instruments. Social capital complements and even underpins the more dominant and well established concept of human capital. It deals with the infrastructure that can enable policies aimed at fostering human capital to be more effective. Although powerful in its own terms and widely recognised as an essential feature of prosperity, human capital cannot be taken out of its context of social relationships. Human capital has the advantage of being intuitive and parsimonious but reliance on a single policy instrument is too narrow to deal effectively with the complexities and interrelatedness of the modern world. The diagram suggests that learning outcomes of all kinds will be a function of the interactions between human and social capital, so modelling and analysis will have to try to take these dynamics into account.

2.4. Competencies

The narrow perspective of competencies embedded in most interpretations of human capital, have led to a growing dissatisfaction, primarily because so much of what people need to do to succeed in work and life goes beyond this interpretation. The definition of competence put forth by the OECD project on *Defining and Selecting Key Competencies* (DeSeCo) goes beyond the notion of knowledge and skills (Rychen and Salganik, 2003):

> *The ability to successfully meet complex demands in a particular context through the mobilization of psychological prerequisites including both cognitive and non-cognitive aspects (p. 43).*

Competencies include the ability to apply knowledge and skills in specific contexts in such a way as to respond to the demands placed by a given situation. Examples of competencies include the ability to: read, perform calculations, communicate effectively, work well in groups, relate well to others, and work with computers.

Consistent with the increasing focus on outcomes of education and accountability, there has been a growing emphasis on defining and selecting relevant competencies that are seen as economically, socially and politically important. Systematically evaluating educational systems on this basis is appealing (see below), but there are important limitations. It is not feasible, at least at this stage, to assess all relevant competencies, and the focus of what educational systems should do may be limited to a narrow set of measurable competencies. Identifying the determinants of competence formation, especially those relevant to education and amenable to change through improved policy and practice remains an important challenge for educational research.

Large-scale comparative and representative surveys that aim to directly measure and take stock of competencies are important tools for obtaining the data needed to address these broad policy and research questions. Although the data needs to be supplemented with extensive and diverse analyses, it helps to build up a comparative picture across national systems, and provides reliable information that can be used in the comparative evaluation of educational and lifelong learning policies. The OECD's Programme for International Student Assessment (PISA, see Box 2.1) directly measures certain competencies and has had a huge impact on policy evaluation and formulation. Plans to pursue these themes in adult learning are well underway via the Programme for International Assessment of Adult Competencies (PIAAC, see Box 2.2).

Box 2.1. Programme for International Student Assessment (PISA)

The Programme for International Student Assessment (PISA) is an internationally standardised assessment that was jointly developed by participating countries and administered to 15-year-olds in schools. The survey was implemented in 43 countries in the first assessment in 2000 (OECD, 2001b), in 41 countries in the second assessment in 2003 (OECD, 2004), in 57 countries in the third assessment in 2006 (to be published by end of 2007) and 62 countries have signed up to participate in the fourth assessment in 2009. Tests are typically administered to between 4 500 and 10 000 students in each country.

PISA assesses how far students near the end of compulsory education have acquired some of the knowledge and skills that are essential for full participation in society. In all cycles, the domains of reading, mathematical and scientific literacy are covered not merely in terms of mastery of the school curriculum, but in terms of important knowledge and skills needed in adult life. In the PISA 2003 cycle, an additional domain of problem-solving was introduced to continue the examination of cross-curriculum competencies.

Pencil-and-paper tests are used, with assessments lasting a total of two hours for each student. Test items are a mixture of multiple-choice items and questions requiring students to construct their own responses. The items are organised in groups based on a passage setting out a real-life situation. A total of about seven hours of test items is covered, with different students taking different combinations of test items. Students answer a background questionnaire, which takes 20-30 minutes to complete, providing information about themselves and their homes. School principals are given a 20-minute questionnaire about their schools.

Box 2.2. Programme for International Assessment of Adult Competencies (PIAAC)

The Programme for the International Assessment for Adult Competencies (PIAAC) aims at developing a strategy to address the supply and demand of competencies that would:

-- identify and measure differences between individuals and countries in competencies believed to underlie both personal and societal success;

-- assess the impact of these competencies on social and economic outcomes at individual and aggregate levels;

-- gauge the performance of education and training systems in generating required competencies; and

-- help to clarify the policy levers that could contribute to enhancing competencies.

Under the current proposal, PIAAC would be a multi-cycle programme of assessment covering, over time, a range of policy concerns articulated by OECD member countries. The first cycle of data collection is envisaged in 2009/10.

The measurement of competencies is a step forward in the study of learning outcomes because it provides a more direct measure (than qualifications) of what students actually learn. The inclusion of "competencies and attributes" in

the definition given above of human capital broadens it to include motivation, attitude, and beliefs about control and efficacy. Other related notions appear in different strands of the literature which are important in understanding the formation of human and social capital, such as *capabilities* (Sen, 1992), *resources and internal resilience* (Masten, 2004; Rutter, 1990), and other capitals such as *identity capital* (Côté and Levine, 2002). The challenge still remains of adequately operationalising the concepts of human and social capital and of competence, and applying them in empirical analysis. This will depend on the capacity of the research community to develop and deploy combinations of research methods that can empirically capture a variety of competencies and relate these back to systems and conditions for learning.

2.5. Outcomes and impacts: personal, social and economic well-being

At a very general level, one reason for developing and maintaining competencies is to generate well-being, ranging across economic, social and personal (both physical and psychological) well-being (OECD, 2001a; Helliwell, 2001). Human and social capital become means to realising well-being, not ends in themselves. Well-being is a complex concept and has no set definition, but it is generally viewed as encompassing a range of economic and social conditions – notions of prosperity, health and happiness generally figure in most dictionary definitions. Common sets of values that are jointly stated such as the United Nations Declaration of Human Rights provide important reference points. Gilomen (2003) identified a number of dimensions of well-being that are relevant – these are summarised in Table 2.2. The broad set of individual and societal outcomes that are listed serve as a useful guide to what constitutes economic, social and personal well-being, and hence for anchoring the objectives of educational systems in modern societies.

Table 2.2. Various dimensions of well-being which are relevant in modern societies

What is a successful life?	What is a well functioning society?
Dimensions of a successful life that were identified include: • economic positions and resources; • political rights and power; • intellectual resources; • housing and infrastructure; • personal health and security; • social networks (social capital); • leisure and cultural activities; and, • personal satisfaction and autonomy in value orientation	Dimensions of a well-functioning society that were identified include: • economic productivity; • democratic processes; • solidarity and social cohesion; • human rights and peace; • equity, equality and the absence of discrimination; and, • ecological sustainability

Source: Gilomen (2003) (DeSeCo project).

Economic and social outcomes of learning are closely intertwined, but given the broadness of the terms we need to make some distinction between them. Here we broadly follow, with some adaptation, the distinction proposed by McMahon (1997) between *monetary* and *non-monetary* outcomes, as well as between *private* and *public* outcomes. This leads to four distinct types of outcomes (see Table 2.3):

- private monetary outcomes;
- private non-monetary outcomes;
- public monetary outcomes;
- public non-monetary outcomes.

Table 2.3. Possible economic and social outcomes of learning

	(A) Private	(B) Public
(1) Monetary	Earnings, income, wealth Productivity	Tax revenues Social transfer costs Health care costs
(2) Non-monetary	Health status Life satisfaction	Social cohesion Trust Well-functioning democracy Political stability

The categories of outcomes depicted in Table 2.3 are not independent of each other. Each type of outcome can in turn have a substantial impact on other types. For example, education can reduce poverty (a private monetary benefit but with major social implications). The stress of poverty has been linked to increased illness, disease, and unhealthy behaviours (Feinstein *et al.*, 2006). From this perspective, a private monetary return can in turn lead to the private non-monetary return of improved health status – which in turn can lead to the public monetary return of reduced public expenditures on health care. As another example, the private non-monetary return of social engagement can lead to the public non-monetary returns of social trust and social cohesion. Private outcomes, both monetary and non-monetary, can thus be the route through which public outcomes are achieved. While they accrue to individuals, they can reflect social conditions and can affect other people's living conditions. These are the sort of potential links for which the SOL project seeks to develop a knowledge base including their possible implications for public as well as private policy.

Moreover, individual level outcomes are often the route through which public outcomes are measured. Many public non-monetary outcomes are assessed through individual outcomes such as voting rates, crime rates, and

ratings of trust in others; these individual outcomes can be viewed as proxy measures of public outcomes that are difficult to measure in the aggregate, such as democratic functioning, social cohesion, and social trust.

Special emphasis is drawn, where appropriate, to the public monetary implications, as is the case with the impact of education on health outcomes. Some non-monetary health benefits of learning that may accrue to the public can be quantified, and an economic value placed on them. Examples are: fewer accidents, less violence and abuse, fewer diseases and better overall public health. There may be substantial savings on public health care costs resulting from education. Other economic benefits of good health include the possibility for higher productivity, fewer work days lost due to illness or premature death, and lower individual health care costs. Feinstein *et al.* (2006) list several examples in which the value of benefits is estimated to be substantial (see Section 5.5).

Examples of other non-monetary benefits of learning that may accrue to the public are political stability, social cohesion, less crime, less injustice and less anti-social behaviour. For example, political stability is related to a country's level of education and economic functioning (*i.e.* reduced political risk associated with investment). There is also a plausible link between education, trust and economic activity (Helliwell and Huang, 2005). The calculation of monetary benefits is less appropriate for these cases, but education's positive impact on democratic life helps provide an environment conducive to economic activity, growth, prosperity and improvement in material standards of living. Research suggests that these can also be associated with public savings on law enforcement, security and judicial systems. Internationally, well functioning educational systems have been linked to better institutions and better social functioning and hence better environment for economic activity (McMahon, 1999).

In our usage the term ***social outcome*** covers primarily the non-monetary sphere, private and public but the distinctions are not neat since economic and social outcomes are closely intertwined, and both can be related to social issues. The main intention is to expand the perspective beyond narrow economic outcomes like labour market earnings and GDP growth, and cover a range of social issues at both the individual and societal levels. Approaching the study of outcomes from a broad perspective requires that monetary outcomes are also taken into account, both as potential factors enabling non-monetary outcomes, and as a consequence of non-monetary outcomes. An extensive list of potential non-monetary outcomes associated

with education is provided by McMahon (see Table 2.4).[2] Almost all of these effects could legitimately be covered under the SOL heading, though some are more concerned with the process than the outcomes of education.

Table 2.4. The potential private and public non-monetary benefits of education

Private non-monetary benefits	Public non-monetary benefits
Health effects Reduced infant mortality Lower illness rates Greater longevity Human capital produced in the home Children's education enhanced More efficient household management Higher returns on financial assets More efficient household purchasing Labour-force participation rates Higher female labour-force participation rates Reduced unemployment rates More part-time employment after retirement Lifelong adaptation and continued learning Use of new technologies within the household Obsolescence: human capital replacement investment Curiosity and educational reading; educational TV/radio Utilisation of adult education programmes Motivational attributes Productivity of non-cognitive skills Selecting mating effects Divorce and remarriage (potentially negative returns) Non-monetary job satisfactions Pure current consumption effects Enjoyment of classroom experiences Leisure time enjoyments while in school Child care benefits to the parents Hot lunch and school-community activities	Population and health effects (controlling for income) Lower fertility rates (developing countries) Lower net population growth rates Public health Democratisation (controlling for income effects) Human rights Political stability Poverty reduction and crime (controlling for income) Poverty reduction Lower homicide rates Lower property crime rates Environmental effects (controlling for income) Less deforestation Less water and air pollution Later retirement More work after retirement Community service effects of education (controlling for income) Time volunteered to community serviced within income strata Generous financial giving within income strata Knowledge dissemination through articles, books, television, radio, computer software and informally

Source: Adapted from McMahon (1998).

[2] Note that McMahon (1998) uses the term *social benefit* instead of *public benefits*. We made the adaptation, to avoid confusion with our usage of the term social outcome, which emphasises social issues at both the private and public levels.

2.6. Summary

This chapter has sketched out an overall schema for differentiating the processes which lead to a broad range of learning outcomes. This schema includes learning at different stages of the life course (initial and continuing education) and in different contexts, within and beyond the formal education system. These diverse forms of learning are related to the concepts of human and social capital, with the interactions between these two forms of capital seen as crucial contextual information. The notion of competencies is used to extend the framework beyond narrow interpretations of human capital, so that attitudes and abilities are included in addition to qualifications and skills. Finally, we differentiate between several types of outcomes, using the dimensions of private/public and monetary/non-monetary. As Psacharopoulos (2006) observes: "The hardest to document benefits are… the social benefits that are not directly observed or measured in monetary terms" (pp. 120-121); it is precisely these that this report addresses.

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Chapter 3
Key Elements for a Framework to Understand and Conceptualise the Social Outcomes of Learning

In this chapter, we outline some of the key elements for a framework which can guide further efforts to understand and measure better the social outcomes of learning. The focus is on what we should *measure rather than what we* can *measure.*

3.1. Introduction

A major objective of the SOL project is to develop our understanding of how education and learning can influence societies' and individuals' well-being. In mapping the web of causal mechanisms that link learning and well-being, interactive, dynamic and cumulative effects at all levels should be taken into account. The persistence of effects, their timing and sequencing as well as distributional effects are also relevant. These take us well beyond what can be concluded from available data. But the empirical assessment of the existence and magnitude of causal effects should not be a limiting factor in the conceptual mapping. Outcomes and relationships should be considered even if they cannot be measured at this stage. The focus is on what we *should* measure rather than what we *can* measure. That is a critical feature of the conceptual mapping exercise.

There are specific channels which link learning to various social outcomes, and specific mechanisms which explain more precisely the process of how these outcomes are generated. Such channels and mechanisms are complex, embedded in a wider web of relations that play out over time, in different historical, social and cultural contexts, and subjected to various interactive, dynamic and cumulative effects.

This chapter outlines some of the key elements for a framework which can guide further efforts to understand and measure better the social outcomes of learning. There are a large number of alternative explanations

that link education to economic and social outcomes, involving basic questions of epistemology and methodology. Rather than embark on a review of all possible measurement approaches, we confine ourselves to the models deployed in the analyses commissioned of the two major domains (see Section 1.4). First we set out a threefold mechanism, involving absolute, relative and cumulative effects of education, which we christen the *ARC set of models*. This set of models was applied by David Campbell to data on various aspects of civic and social engagement, but has potentially a more general application. Secondly, we describe the *self-in-context* approach applied by Leon Feinstein and colleagues to the health field. This includes several separate models; again, each of these can be scrutinised for the extent to which they might apply more generally, rather than to health alone. The importance of addressing issues in a *multi-level* way is stressed. We then turn to educational dimensions of the framework. Included here is what we term the *educational context* (the level and type of education); the *educational content* (the curriculum and pedagogy); and the *ethos* of the educational setting.

These elements make up a framework which might be applied generally to the analysis of educational outcomes. By "framework" we do not mean a readymade model which can be directly applied to data. Rather we mean a set of constructs which are available for the development of analyses which have some degree of comparability, including the building of models of many kinds, with different degrees of sophistication or policy relevance. There is no claim for primacy of any particular model. This is intended as a way of beginning to build up a portfolio of models, which will be applicable in different contexts for different purposes.

3.2. The ARC model set: absolute, relative, cumulative

We begin by describing three distinct models referred to as the *absolute*, *relative*, and *cumulative* models (Campbell, 2006). The three models are useful among other reasons because they help to link different levels of analysis in empirical applications. Here we describe the models, and add summary accounts of the conclusions which resulted from their application in the CSE domain.

3.2.1. The absolute model

The main premise of the *absolute model* is that an individual's own level of education is the driving mechanism in explaining an observed relationship between education and a specific social outcome. Using data from the European Values Survey and European Social Survey, Campbell

(2006) finds that certain measures of social outcomes fit this model best, such as participating in voluntary associations, likelihood of voting, practising expressive forms of political engagement, and institutional trust. The analysis and results are discussed in further detail in Chapter 4. The findings suggest that an overall expansion of education leads to an overall increase in these particular social outcomes. The net effect of an expansion would be *positive-sum*, so that at least some groups stand to gain while no others are made worse off. Although the findings do to some extent reinforce the case for public spending on education, the level of generality of the analysis does not indicate exactly how it is that education leads to a higher prevalence of select outcomes, nor of what type of education would secure this effect.

3.2.2. The relative model

The main premise of the *relative model* is that an individual's level of education relative to others around him/her explains an observed relationship between education and a specific social outcome. It is also referred to as the *sorting* or *positional model*. It implies that education has an effect, not by directly changing or developing the self, but rather by changing the position of the individual in the hierarchy of social relations.

There is a parallel here to a more familiar application, namely signalling theories (Stigler, 1961; Spence, 1973; Arrow, 1973). The main premise of signalling theories is that education is linked to individuals who are more productive and hence earn more, not because education has a direct effect but rather because it provides a signal to others. In this scenario, the main function of education is to serve the structural needs of social systems by signalling information to others about the abilities of an individual that are otherwise difficult to observe.

The implications relate primarily to distributional issues such as inequality of access to educational opportunities. Access to (higher) education opportunities is linked to the preservation of relative positions on a hierarchy that enables dominant groups' access to wealth, prestige and power (Bourdieu and Passeron, 1977). If this is the case, then increasing levels of education, preserving overall inequality in educational attainment, may do little to address the public costs associated with social disadvantage. Moreover, an overall expansion of education would not necessarily lead to an overall increase in particular social outcomes, if some groups benefit from the expansion while others lose. The net effect of an expansion would be *zero-sum*.

From the distributional point of view, however, the effect may be positive, even if it is zero-sum overall. That is to say, the effect may be to

rearrange the pecking order – but that might be regarded as a positive outcome, if those who gained were drawn from disadvantaged groups, so there was a net equity gain.

According to Campbell's (2006) analysis, specific social outcomes that fit this model best include participating in politics: belonging to a party, or seeking to influence politics via lobbying. The relative model also weakly fits participating in voluntary associations, likelihood of voting, and practicing expressive forms of political engagement. Any positive overall impact of an expansion on these outcomes is attenuated to the extent that the relative model applies.

3.2.3. The cumulative model

The main premise of the *cumulative model* is that the individual's peer group matters. The individual's own education can effect a change in the self, but the outcome is also conditional on the average level of education of the individuals' peers and/or surrounding groups (including spouses/partners). This means that certain outcomes associated with education are only likely to materialise among groups with similar levels of educational attainment, but especially that the prevalence of the outcomes will increase with the average level. By implication, it is not only the presence of a high average level of attainment among one's peers and/or surrounding groups that can influence the outcome, but also a low level of inequality in attainment.

Again, to draw a parallel to an economic application of this model, the cumulative effects can be regarded as *externalities* associated with education, or alternatively as *side effects*. This refers to effects that not only accrue to individuals who choose to invest more in education but also unintentionally to others. An important question that arises is whether cumulative effects can increase the pay off to education.

Applied to CSE, this model best fits the outcome of inter-personal trust. Having more education does not imply that individuals are necessarily more trusting of others. Rather the level of trust appears to depend on the extent to which others also have more education. The implications relate primarily to the levels of inequality in educational attainment that prevail among different groups in society. At an aggregate level, such findings imply that the more inequality in attainment there is, the less trust there will be among members of a community; accordingly, there would be less social cohesion. In several countries, there is a significant negative correlation between educational inequality and the level of general trust: the higher the level of educational inequalities, the lower the level of general trust (Green, Preston and Malmberg, 2004). Empirical findings are preliminary but they suggest

that it would be valuable to explore the dynamic implications of inequalities in attainment on trust among groups or communities. Research questions that are closely related are whether diversity and social stratification impact on individual and group levels of trust.

The cumulative model is the most difficult to apply. However as a foundation for arguments sustaining education as a public good it is potentially extremely significant. Whatever the lack of datasets to which it can be applied, it opens up major lines of argument and policy thinking for further development.

3.3. The effect on the self versus the effects on contexts

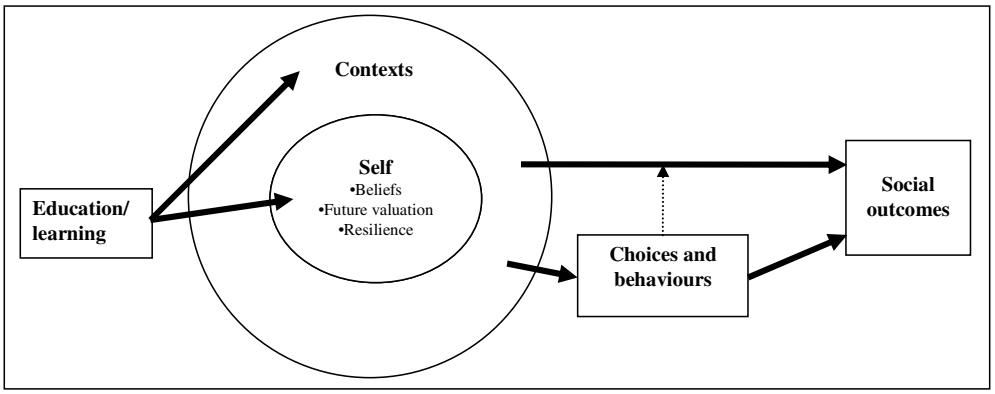
3.3.1. The self-in-context model

Education does not act on social outcomes in isolation. Nor does the fact that an observed effect of education occurs in one case necessarily imply that it would lead to a similar outcome in another case. Specific historical, social and cultural contexts will affect individual behaviour and hence moderate the effects of education on outcomes. Given this complexity we need comprehensive yet simple conceptual models, and one such is presented by Feinstein *et al.* (2006) in relation to our second main domain, health. The model highlights the essential channels which link education and health outcomes, while at the same time allowing us to grasp the complexity of various underlying phenomena. It offers a simple way of sorting through and clarifying some of the general influences on any given social outcome. The model is reproduced in Figure 3.1, with some generalisation to reflect its potential value as a tool for use in the study of other social outcomes.

The "*self-in-context*" model has its foundations in Bronfenbrenner's ecological approach (1979; 1986). The central notion is that individuals exist in multiple, multi-layered and interacting contexts (*i.e.* home, school, work, community). The social relations in each context include elements of structure: the constraints that individuals face in acting independently and making their own free choices. Used as a starting point, this model facilitates at least a partial mapping of the direct and indirect channels that link education and various outcomes.

The model is fairly static in that it holds constant many important dynamic and life course processes but this is necessary for isolating the essential channels of the effects of education. Some of the effects may take a very long time to emerge. There are also important reverse effects of behaviours/outcomes on self/contexts to be included.

Figure 3.1. Basic conceptual model of the influences on social outcomes



Source: Adapted from Feinstein *et al.* (2006).

The *self* (or the individual) has a degree of agency, so cognitions, beliefs and psycho-social capabilities are key features of the self. Emotions, feelings, attachment and identity are also important in shaping learning behaviours and associated outcomes. Biological factors such as innate abilities are important but the concern here is with the role of education; thus the focus is on the features of the self that are amenable to influence through organised and intentional learning. Taken together, the above concepts move far beyond the notion that accounting for knowledge and skills is sufficient for the study of educational outcomes. In Figure 3.2, we use the terms competencies, human capital and other attributes to encapsulate features of the self.

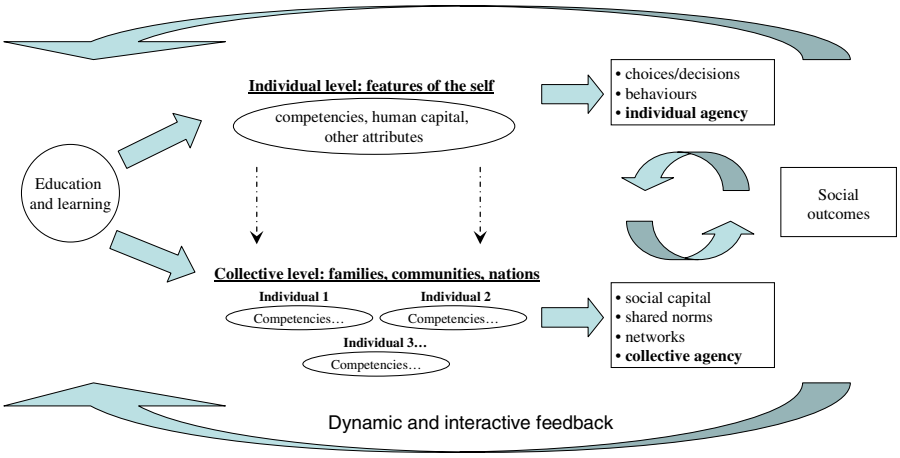
In their review of the evidence of the effects of education on health, Feinstein *et al.* (2006) focus on three particular features of the self: *beliefs*, *valuation of future*, and *resilience*. They emphasise the importance of psychological and psycho-social factors as important mediators of the effects of education on health outcomes, but the nature of these factors has wider applicability to the study of other social outcomes.

Beliefs include general beliefs about the self (self-concepts) such as self-efficacy and self-esteem. These are important features of the self that influence agency, capability and action. Also considered is the *valuation of future* which refers to patience and intertemporal choices, the act of making decisions that involve trade-offs among costs and benefits occurring at different points in time (Frederick, Lowenstein and O'Donoghue, 2002). Education can promote an awareness of the value of investing in the future as well as an awareness of risks, hence influencing a range of choices and

behaviours relevant to various social outcomes (Feinstein *et al.*, 2006). Finally we include the psycho-social capability of *resilience*, a term used to refer to positive adaptation in the face of adversity (Schoon and Bynner, 2003). The development of resilience has been empirically linked to a set of internal attributes (*i.e.*, autonomy, problem-solving skills, a sense of purpose and future, and social competence), all of which are plausibly affected by education and potential sources of influence on various outcomes (Howard, Dryden and Johnson, 1999).

Figure 3.2 depicts the potential impact of education and learning on individual and collective agency via its effects on features of the self. The latter are of value because they enhance the capability of individuals to manage interactions with the contexts in which they lead their lives (Schuller, Bynner and Feinstein, 2004). To the extent that education positively influences various features of the self, it enables and empowers individuals to manage better these interactions. But this potential of education is not always realised and may also include negative effects, particularly where access to education is unequal and where provision is injurious to self-concepts, learning and development.

Figure 3.2. The potential impact of learning experiences on social outcomes via their effects on features of the self and individual/collective agency

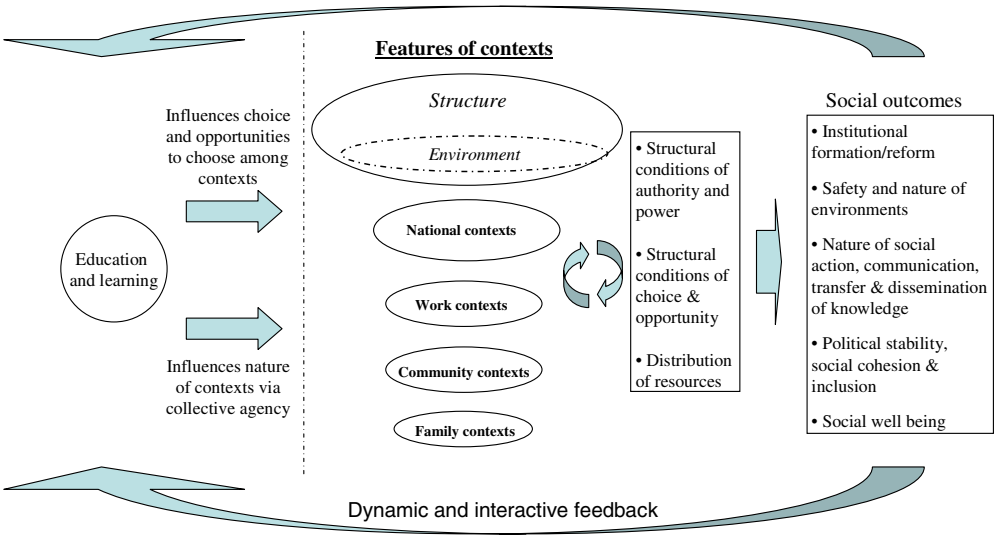


Source: Authors.

3.3.2. Contexts, environments and structure

The various features of context are theorised differently in different strands of literature. One relevant typology covers the terms *context*, *environment*, and *structure*. *Context* is a general term for referring to domains of interaction for individuals with others such as families, neighbourhoods, communities, workplaces, regions, or nations. *Environment* is used to refer to the physical/material context within which people live and work. When social interaction occurs in specific physical locations such as in housing structures or workplaces, the environment can be a specific source of influence that mediates social interaction and hence social outcomes.

Figure 3.3. The potential impact of learning experiences on social outcomes via their effects on features of contexts



Source: Authors.

Social relations include aspects of authority, power and access to resources, commonly termed *structure* (Bourdieu, 1990; Turner, 1991). Figure 3.3 shows that at each level of the framework, the individual experiences and engages in social relations over which the individual has varying but always limited or bounded agency. Peers and social networks are very important elements of the contexts within which people live and work. Hierarchy is implicit in social relations, is conditioned by authority

and power, and has implications for access to and the distribution of resources. Other important aspects are the degree of support provided by peer groups, as well as their influence on the development of cultural values and norms.

Our models are becoming visibly more complex, and difficult to apply as well as to depict in graphical format. However they remain primarily linear, and it is certainly the case that further models need to incorporate non-recursiveness and feedback mechanisms if they are to encompass the complexity referred to above.

3.3.3. Summary: the role of education via the self in context

To summarise, education matters for social outcomes: firstly, through its effects on the self, particularly the agency and capabilities of individuals; and, secondly because it impacts on the choices of contexts that people come to inhabit or on their opportunities to choose among contexts. Furthermore, through effects on multiple individuals, and on social relations as well as wider socialisation and civic related processes, education has the potential to impact on the nature of contexts themselves, by forming and mobilising collective agency, which can lead to changes in workplaces, homes, communities and wider society.

History reminds us that these potential effects are not necessarily positive. First, the potential of education to empower individuals may not always be realised, particularly where provision is injurious to self-concepts, learning and development. The wider context of values, norms and quality of learning matter, especially with regard to how they link to morality, compassion, tolerance and inclusion. Second, unequal access to educational opportunities and quality provision can serve to reinforce and even exacerbate existing inequalities of access to resources, of opportunities and of living conditions.

Although education has these potentials, little is known in robust quantitative terms about the precise nature, range and magnitude of such effects. Nonetheless, we summarise what is known about these potential effects in Chapters 4 and 5 for civic and social engagement outcomes and for health outcomes, respectively.

3.4. Multi-level perspectives

As introduced in the above framework, individuals interact via *contexts* with higher levels of social aggregation such as families (households), communities (neighbourhoods), labour markets (firms), regions (larger

geographical areas), or nations (countries). Factoring in multi-level perspectives allows for a more complete picture of the potential effects of learning.

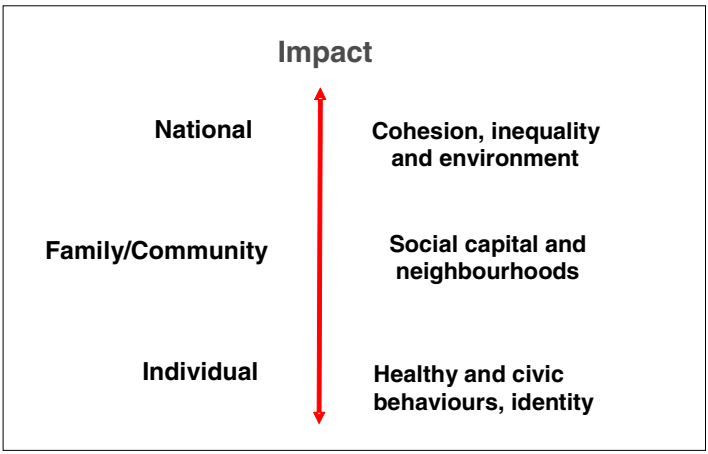
It is important to make distinctions among various groups at different levels because one entity's benefit may be another's cost or harm. Benefits or harms that accrue to private entities (*i.e.*, individuals, households, and firms with private property rights) are amenable to actions/responses (including decisions and choices) by insiders in a manner aimed at serving their private interests. In contrast, benefits or harms that accrue to collective or aggregated social groups are often treated as being relevant to the *public domain*, and hence amenable to individual and collective actions which serve public interests. Benefits and harms are culturally and often legally bound, hence based on the collective values of certain groups, so it is important to carefully distinguish between various groups or entities when studying social outcomes.

Inequality and distributional effects imply interaction between effects at different levels. From Figure 3.4, it can be seen that social relationships at a macro level can affect individual outcomes, while at the same time reverse dynamics occur so that individual and collective action may have an impact on such national level factors. National levels of disparity in social and economic status (defined in terms of income, education or social class) have been shown to influence individual identity and well-being, with implications for individual health and healthy behaviours (Wilkinson, 1996).[1] Similarly, social cohesion as a social level outcome is the result in part of the multitude of individual behaviours, attitudes and decisions that comprise social action.

Individual and social factors are constantly in dynamic interaction, with smaller community-level organisation and agencies affected from above and below by this dynamic flux as well as acting as an additional level of agency and structure in this multi-level system, all with implications for health and CSE outcomes. Public institutions and other societal structures can play a key role in mediating, mobilising or blocking the potential impact of education. For example, experience shows that unstable macro-economic environments, and poorly functioning institutions and markets can act as constraints to human capital.

[1] Educational attainments are significantly correlated to social outcomes such as general trust, crime, and feeling of community safety (Green, Preston and Malmberg, 2004).

Figure 3.4. Two-way multi-level impacts



Source: Adapted from Feinstein *et al.* (2006).

3.5. Type and timing of learning interventions

So far the discussion has been limited to a generic use of the terms *education* or *learning*. But what kind of learning leads to what kind of social outcomes? In order to move forward on this question, it is necessary to carefully distinguish between various types of learning interventions as well as when they occur over the lifespan. A high priority for policy makers is to understand better the potential effects of education by type and level; and further to differentiate the effects by so called lifelong learning pathways. Thus we know much less than is required for an informed policy debate about the impacts of different curricula (general, academic, vocational) or about the impacts of learning at different ages and stages.

A systematic approach to these issues would ideally benefit from a longitudinal research design to capture the impact of alternative learning pathways, including learning that occurs later in adulthood. Longitudinal research involves collecting data from the same individuals at multiple points in time, which allows for the possibility to capture before and after measures, which in turn allows for a more rigorous assessment of whether particular outcomes can be attributed to particular learning interventions.

3.5.1. The narrowness of quantity and qualifications-based measures of education

The narrowness of the measures of education typically used in quantitative research implies a substantial limitation. An over-dependence on quantity and qualifications-based measures of educational participation neglects qualitative evidence, and theoretical perspectives. The effects of education depend on the nature and quality of learning provision as well as on the number of hours or years spent in schooling.

To move beyond the limitations of measures that are typically used (*i.e.*, years of schooling or highest level of educational attainment), it is necessary to look more carefully at the qualitative dimensions of learning and in particular at what happens during learning experiences. This is not to say that the qualitative dimensions are not measurable but rather that the range of measures should be expanded so as to allow for the possibility to identify good policies and practices. This requires consideration of educational content, pedagogical method, and other features of learning contexts. Existing research does not offer a strong knowledge base for identifying which features should be measured and how, although there are now good data sources like PISA, IALS and ALL which can provide some insights. The following discussion focuses on what happens in compulsory schooling. Further work is needed to extend these considerations to other types and levels of education, but insight gained here may offer some possible directions for doing this.

3.5.2. Educational content/curricula

Specific curricula are often designed to meet specific objectives. Civic and health related courses often feature as part of the curriculum[2] in compulsory schools. Although their content and objectives will vary substantially, a typical feature is to inform students about political processes and consequences, as well as their civic roles, duties and responsibilities. But is it specific curricula that matter, or is it the broader curriculum?

Civic skills are not only developed through specific civic education classes. Campbell (2006) maintains that cognitive capacity and other civic related competencies, relevant for civic and social engagement (CSE), are developed through a wide range of curricula. Extra-curricular activities such as participating in student government, joining teams, clubs, and associations, and volunteering in the community are perhaps more important

[2] By curriculum we mean a set of courses and their contents offered by an institution such as a school or university.

for influencing CSE than civic education classes (these factors are discussed in further detail in Chapter 4). Learning outside of the school such as home experiences, including political conversations with parents and keeping up with news and current affairs, as well as TV watching, are also strongly linked to CSE (Lauglo and Øia, 2006).

An important dimension is the extent to which learning experiences that occur outside the classroom either by way of extra-curricular activities, or by experiences at home and in other contexts, are linked to what is taught, and what happens in schools and classrooms. There are important interactive and cumulative effects associated with learning in multiple contexts; so harnessing these dynamics by building links to what happens in the classroom, for example by sharing experiences and promoting reflection, may increase the effectiveness of schooling. This is consistent with the lifelong learning approach, which recognises the significance of learning in multiple contexts. What happens in schools more generally, and in particular how this is linked to what is taught in the classroom, are key aspects to consider.

3.5.3. Pedagogical method

Beyond what is taught, *how it is taught* also has an impact on outcomes. Teaching strategies are key for facilitating learning and reaching the intended objectives of education. Necessarily, the extent to which a strategy will be effective depends on a variety of factors including the nature and purpose of learning in any given context.

A consistent conclusion in the research literature on curriculum is that the most effective civic instruction involves the free and open discussion of current political events within the classroom, or what is called an open classroom climate (Campbell, 2006). This suggests that social interaction and group learning may have a greater impact on CSE as compared to individual learning of specific curricula. This is not surprising since CSE implies processes in which social groups will often work together in searching for understanding, meaning or solutions or in creating a product. This involves skill and knowledge sharing, both key features of effective teamwork. Developing competencies for effective social interaction including the ability to discuss and debate is essential in contemporary democratic societies (see also Glaser, Ponzetto and Shleifer, 2006). Considering the effectiveness of different teaching strategies in developing the self and reaching other objectives is therefore an important aspect of studying the social outcomes of learning.

3.5.4. The broader learning environment

The classroom climate and the broader school environment often referred to as *school ethos*, can have a substantial impact on individual learning and in turn social outcomes. It is now widely recognised that schools do more than simply transmit knowledge, as laid down in the official curricula. Education is understood as a wider socialisation process. In schools, students are picking up an approach to living and an attitude to learning, which is not explicitly taught by any teacher or by the school. Students are affected by a number of class and school level factors, simply through their experience of attending; resulting influences are not necessarily stated as educational objectives of such institutions.

School ethos matters because schools are communities in which norms are taught and enforced. A school's level of social capital – especially the norms shared – has academic as well as social implications. Examples of specific factors that are relevant on CSE side are the classroom climate, student's confidence in school participation, whether student feels their voice matters, and the citizenship norms promoted by the school. On the health side, this can include school policy toward snack machines and the quality of the cafeteria food.

Other schooling factors that are important to consider at the structural and organisational level are the handling of minority or non-official languages, mixing of ethnic and socioeconomic groups, and mixing of students with different abilities. These should be considered both within and among schools.

3.6. Conclusion

In sum, there is a wide range of models and mechanisms which could potentially be used to construct a framework for analysing the social outcomes of learning. This chapter has presented not an overview of all applicable models and mechanisms but a small selection, which may nevertheless have wider application and which can serve as a basis for more elaborate and complex structures. The empirical applications have focussed on the evidence from schools; but even if the data is less abundant, similar issues are relevant, and ripe for investigation, in higher and further education, and in lifelong learning generally.

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Chapter 4
Civic and Social Engagement Outcomes of Learning

Schools are by no means the only organisations in which social capital accrues, but they are certainly an important source of the norms and networks that constitute social capital. In this chapter, we analyse the relationship between education and Civic and Social Engagement (CSE) in detail, and explore the potential role of education as a policy lever to influence CSE.

4.1. Introduction

This chapter considers the relationship between education and Civic and Social Engagement (CSE) in further detail. There is a growing interest in the relationship between education and CSE because of an apparent paradox observed across a growing number of OECD countries. Education is generally positively associated with CSE, but while education levels have been rising, many countries share a concern about declining levels of voter participation and about the state of civic participation generally. The relationship between education and CSE is not easily untangled. However if the rhetoric about education supporting vibrant democratic systems is to be substantiated, we need to understand the patterns more clearly.

Interest in studying the CSE effects of education has been helped by the emergence of the social capital literature, which has given impetus to the study of how norms are transmitted across generations. Putnam (2000) for example, highlighted a variation in social capital among generational cohorts within the United States. A leading explanation for that variation is the changing nature of collective socialisation experiences over time, possibly related to different schooling experiences. Schools are by no means the only organisations in which social capital accrues, but they are certainly an important source of the norms and networks that constitute social capital (Coleman and Hoffer, 1987; Coleman, 1988, 1990).

The following chapter addresses the issue of health. However, health and CSE cannot be tightly separated. To take just one example: membership of social networks emerges as a key factor in shaping health outcomes (Kawachi and Berkman, 2000); so people who are engaged in civic activity and therefore participate in the associated networks are also improving their chances of good health. Conversely, ill health can prevent civic participation, to the detriment of the individual and the wider community. The existence of interactive effects is clear, even if its direction and magnitude may not be.

4.2. How are the multiple forms of CSE related outcomes conceptualised and measured?

4.2.1. What do we mean by CSE?

Engagement implies action or readiness to act, and the term *civic* relates to the domain of action, which is outside the market and beyond the private affairs of citizens and their families. The primary concern of the civic domain is the welfare of others. The existence and functioning of *civic society*[1] presumes that the political order has legitimacy, and this legitimacy is based on political democracy. Consequently, civic engagement and political engagement are closely related and the two are not easily distinguished.

For the purposes of the discussion in this chapter, *civic engagement* is viewed as a broader domain of activity that subsumes *political engagement*. Civic engagement includes political activity that seeks to access or directly influence public policy or societal structures. But it also encompasses the many activities of various civic groups (*e.g.*, voluntary organisations) which are not necessarily politically motivated. Many groups have other declared aims, such as simply providing intrinsic value to their members (*e.g.*, religious bodies, sports clubs). Whether politically motivated or not, the experiences gained in civic groups will often equip officials and other group members with skills for collective action and thus indirectly serve as a foundation for democracy (see Erlach, 2006).[2]

[1] The terms civic domain, civic society and civil society are used synonymously.

[2] There is some controversy as to whether it is what is learned in associations that contributes to a higher observed rate of political participation among members of non-political associations, or whether it is early political socialisation and/or education that lead to a higher likelihood of participating in both non-political and political civic activity (see Erlach, 2006).

Social engagement is more diverse and includes activities that are market oriented or relate to the private domain of citizens. Examples of market-related social engagement could include corporate social responsibility. In this regard, *civic engagement* and *social engagement* are distinct but they are also closely related and overlap since social activity is embedded within most forms of civic activity. Social engagement outside the realm of the civic domain is of interest because social networks along with the norms that govern them operate across civic and private domains. Further, social interactions within the private domain and the social capital that is accumulated as a consequence are potentially important for equipping individuals with capabilities for collective action in the civic domain. From this perspective, similar underlying interests drive the search for understanding the relationship between *education and civic engagement* as well as *education and social engagement*.

4.2.2. What are the multiple forms of civic and social engagement outcomes?

Understanding the relationship between education and CSE requires delineating multiple dimensions of engagement. We distinguish:

- *Political activities* which include voting, political involvement/action, volunteering in politically oriented activities, and donations to political causes.
- *Civic (non-political) activities* which include community and other civically oriented associational activities such as community involvement/action, membership in community oriented groups, volunteering, and charity, parental and community involvement in schools.
- *Social activities* which include other social activity which is not necessarily civic oriented; wider social networks; other membership in groups, organisations or associations; and interactions with family, friends, and work colleagues.
- *Other types of CSE related activities* which include following and critically interpreting media and other information on current affairs; making contributions to media, publishing and Internet; and using Internet and other information communication technologies for CSE purposes.

CSE refers to participation, involvement or some sort of action. The above activities (excluding *other types*) are closely related to the *structural component* of social capital (see Section 2.3) but there is also a *normative*

component, which can be seen as an important precursor to CSE. It includes values, beliefs and attitudes and hence refers more explicitly to the interests and orientations of individuals, and their disposition for action related to civic and social activity. Chief among these are trust and tolerance:

- *Trust*, includes general trust, inter-personal trust (relates to within group social engagement), inter-group trust (relates to between group social engagement), and institutional trust.
- *Tolerance*, includes acceptance of other groups, customs or behaviours even though one may not like or agree with them; understanding and respect for other values, attitudes, beliefs.

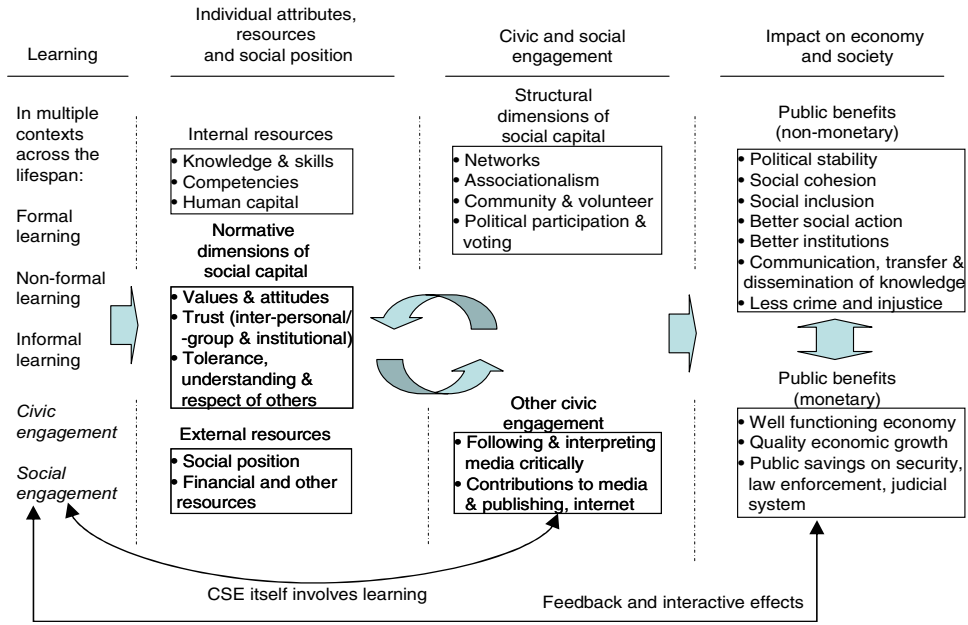
A common assumption is that the core beliefs, attitudes and values that individuals hold underpin the opinions and stands they adopt about particular issues and events (see Heath, Evans and Martin, 1993). We recognise that not all forms of CSE are socially desirable. Some forms of association and networking can lead to tension and conflict, especially when groups are inward looking, self-interested or intolerant of other groups.

4.3. What are the causal mechanisms that *can* link learning experiences and CSE?

Education is widely recognised as having a strong correlation with multiple forms of CSE (Almond and Verba, 1963; Emler and Frazer, 1999; Putnam, 2000; Lauglo and Øia, 2006; Rosenberger and Walter, 2006). In spite of – or perhaps because of – the widespread consensus on the universal, strong, and positive relationship between education and CSE, there is a paucity of theory to guide further research and inform policy-making (Cook, 1985). Part of the reason why the knowledge base is weak is because of the sheer empirical challenge inherent in studying the complex processes by which people are socialised and learn to be engaged in a democratic society.[3] Figure 4.1 displays some of the major components of these processes and how they can relate to each other.

[3] A further gap lies in the area of post-compulsory education, including higher education and adult learning, where research on the impact of teaching and learning on civic engagement is less well documented and concentrated (but see Bynner and Egerton, 2001; Bynner *et al.*, 2003; Bynner and Hammond, 2004; Feinstein and Hammond, 2004). Relatively little is known about the civic impact of learning in these environments. It is also conceivable that various forms of workplace training and on-the-job experience foster greater civic awareness and engagement. Some enterprises, for example, encourage staff to give time to communities or various social projects inside or outside formal working time.

Figure 4.1. Major components that link learning and CSE



Source: Authors.

Education has been empirically linked to the *structural* components of social capital, namely the breadth and depth of networks, the extent of associationalism as well as other forms of community and political involvement (see Putnam, 2000; Baron, Field and Schuller, 2000; Halpern, 2005). Conceptually, education is suggested to influence participation in groups and organisations as well as the size and maintenance of social networks in different ways. Learning contexts themselves can be sites for network building, via informal face to face relations with others (Emler and McNamara, 1996). Indirectly, education can facilitate access to civic and social groups by helping to generate resources such as financial resources and free time, as well as other social and cultural resources. Beyond helping to provide access, education can help to position individuals within more formal or impersonal networks of social and political actors (Nie, Junn and Stehlik-Barry, 1996).

Less has been said about the effects of education on the intents and purposes or other qualitative aspects of different groups or networks (Emler and Frazer, 1999). Education may not only lead to an expansion of social networks, but can also cause their relocation and dissolution, albeit in such a

way as to maintain improvements in well-being. Preston (2004) showed that this was the case for some adults in the United Kingdom. He linked adult learning to increases in self confidence and self worth, which helps to motivate individuals in removing themselves from unhealthy or even dangerous relationships.

What are the mechanisms that underpin the observed association between education and most forms of CSE? The *normative* components of social capital such as trust, tolerance, and other characteristics that help to bind social units together are important features of the self which link education and CSE. Norms and attitudes affect whether CSE occurs but also they can affect the nature and quality of the CSE outcomes. Trust and tolerance are among the more critical aspects that drive the nature of CSE, both of which can be affected by the extent and nature of educational experiences (Bell, 1990; Wagner and Zick, 1995).[4] Learning experiences are potentially important for promoting tolerance of, and respect for, other groups (Turner, 1991),[5] and hence for promoting social cohesion. Certain aspects of educational systems have been said to affect trust and tolerance levels between different social groups, such as the mixing or segregation of students based on distinct ethnic, religious, or socio-economic backgrounds, but these links are not straightforward (Emler and Frazer, 1999, p. 267). Identifying the causal effects of education on normative aspects is difficult because CSE itself involves situations where learning occurs and values are formed and altered in a dynamic way.

Knowledge and skills provide another important link between education and CSE, namely as mediating factors fostering engagement. Schooling develops cognitive sophistication which has been linked to democratic enlightenment and tolerance (Nie, Junn and Stehlik-Barry, 1996; Snidernan, Brody and Tetlock, 1991). It also helps to develop a range of civic skills such as running meetings, giving speeches and writing letters. For example, *bureaucratic competence* can be imparted simply because schools themselves feature bureaucratic elements (Wolfinger and Rosenstone, 1980, p. 79). What is learned in schools can facilitate interaction with government,

[4] Bell (1990) found a relationship between school type and support for sectarian parties. In their analysis of Euro-Barometer data, Wagner and Zick (1995) found a negative correlation between the racial attitudes of British, French, West German and Dutch adults and years of formal schooling.

[5] Turner (1991) suggests that persons with a higher sense of accomplishment (*i.e.*, academic accomplishment) feel a reduced need to emphasise a negative distinctiveness toward outgroups (a social group towards which an individual feels contempt, opposition, or a desire to compete) and a positive distinctiveness toward ingroups (people tend to privilege ingroup members over outgroup members in many situations).

whether voter registration or other, including more intensive ways of expressing preferences to political leaders. Further, much of the skills learned in schools are used to support and enrich civic and social contexts over the lifespan (Starkey, 1999).

Beyond schooling, adult learning is instrumental for many in providing aptitudes that are useful for civic living and contribution. Civic skills acquired through non-political channels, including on the job and in voluntary associations, are an important predictor of whether someone is politically engaged (Verba, Schlozman, and Brady, 1995). Having skills motivates people by instilling a sense of agency – skills make people feel like they have something to offer. Many learning experiences make people aware of others around them and the complex processes involved in society (Pring, 1999), creating an interest to take part in the processes of social change.

Certain forms of CSE are facilitated by a greater capacity to absorb and organise information – which often requires a mixture of knowledge about government, history, geography, law, economics and even science. Having well informed citizens is important for well-functioning democratic societies. People obtain and process civic and politically relevant information over the entire lifespan, for example by interacting with media such as TV, newspapers, and increasingly from the Internet and other media sources (see Milner, 2002). Education can shape people's taste for media consumption and for acquiring accurate information that concerns current affairs. It can also play a role in determining access to information, and in developing the competencies necessary for analytically and critically interpreting media and other mass communications. Finally, people can actively contribute to media and publishing. The formation of civic identities as well as civic contribution via the Internet is growing; and education is a potentially important factor conditioning these developments.

The above explanations share the assumption that education has a direct impact on CSE by way of directly affecting features of the self (see Section 3.3.1). However, a distinctly different mechanism suggests that education's impact can be indirect so that it is mediated by social status (Verba, Nie and Kim, 1978). The main premise is that some forms of CSE are driven by the relative position of individuals in a social hierarchy, and that social positions are largely a function of education (higher levels of education → higher social position → higher level of CSE) – with some circularity so that higher social position leads to higher levels of education. Some voices may have more sway, and this authority or power may be a crucial element affecting individual or collective agency and hence motivation for CSE. This explanation is appealing because it partly addresses the *paradox of participation* observed in many OECD countries

(see Section 1.4.2), namely that while levels of education have risen, many forms of CSE have not actually risen (in fact, they have fallen in many countries). According to the logic of this explanation, some forms of CSE may not be expected to climb in a period of increasing education levels, because an across-the-board increase in education attainment leaves intact the social stratification by education level.

In summary, learning experiences can foster CSE by:

- Shaping what people know. The content of education provides knowledge and experience that facilitate CSE.
- Developing competencies, which help people apply, contribute and develop their knowledge in CSE.
- Cultivating values, attitudes, beliefs, and motivations that encourage CSE.
- Increasing social status. This applies to forms of CSE that are driven by the relative position of individuals in a social hierarchy.

4.4. What are other factors that can influence CSE?

Can the positive relationship between education and CSE be considered causal in nature? The paradox of participation – increasing education levels in the face of decreasing CSE – gives some grounds to think that the relationship is not causal. Perhaps it is not education that increases CSE, but rather a common motivation that spurs both CSE and educational attainment. The extent and nature of education and CSE are both simultaneously influenced by a wide variety of characteristics that are specific to individuals and the families and communities in which they live. For example, people who grow up in families and communities that stress civic responsibility are also perhaps more likely to attain higher levels of education. The extent to which other common factors can explain the association challenges the notion that a nation's education system can be changed so as to influence CSE. There is also a wide range of alternative and independent factors that can have impact on CSE (*e.g.* see van Deth, Montero and Westholm, 2006).

Schooling is not a panacea. But while numerous factors are likely to be responsible for downward trends in CSE, schools are a promising lever to reverse the decline and spur greater engagement among young people. Policy makers have a direct hand in the design and implementation of a nation's system of education, and so it is logical to look to schools as a means to enhance the CSE of young people.

It is worth also pointing out that the effects of education may not always point in a positive direction. For example, it can help people to promote with greater efficiency their own sectional interests to the detriment of the wider good. This may take extreme forms, where fascist or anti-democratic groups use their education for evil purposes; but there are of course milder but still significant forms where the outcome is socially negative. As the Chinese scholar Wu Ting-Fang put it: "Education is like a double-edged sword. It may be turned to dangerous uses if it is not properly handled."

4.5. What do we actually *know* about the impact of educational attainment on CSE?

In the absence of controlled experiments, it is very difficult to identify causation with certainty. Although it is not common practice, it is conceivable to think of experimental interventions that would be feasible such as randomising the adoption of particular curricula, pedagogical methods, or school-based voluntarism. An alternative is to exploit the occurrence of so-called natural experiments which may allow for rigorous tests of whether education and CSE share a causal connection (see Cook and Gorard, 2007). Using analytical strategies consistent with this approach, Dee (2004) finds that entrance to higher education in the American context, increases the probability of registering to vote by 22 percentage points and actually turning out to vote by 17 percentage points. He does not however, find an effect on community volunteering. A similar analysis by Dee of other data finds that one more year of secondary schooling boosts voter turnout by about 7 percentage points and increases the tolerance of non-tolerant groups by about 8 to 12.5 percentage points. Other analyses with the same level of rigour, report similar results for voter turnout in the United States, and find that more years of schooling boost voter turnout in the United Kingdom, but not as strongly as in the United States (Milligan, Moretti and Oreopolous, 2003).

Further analysis on the nature of the causal mechanisms is necessary. The ARC set of models summarised in Table 4.1 (see also Section 3.2 for a detailed discussion) are useful for guiding such analyses, but this is only way of approaching this broad field. To reiterate the main premises of each, the absolute model maintains that the education effect occurs by directly affecting features of the self such as knowledge and skills, or attitudinal aspects such as trust and tolerance. By contrast, the relative model maintains that the education effect occurs indirectly via its impact on social status or the relative positioning of individuals in a social hierarchy. The cumulative model is in between, where the effect of education occurs directly via its affect on individual features but that the behavioural outcome is conditional on the average and distribution of educational attainment among one's peers.

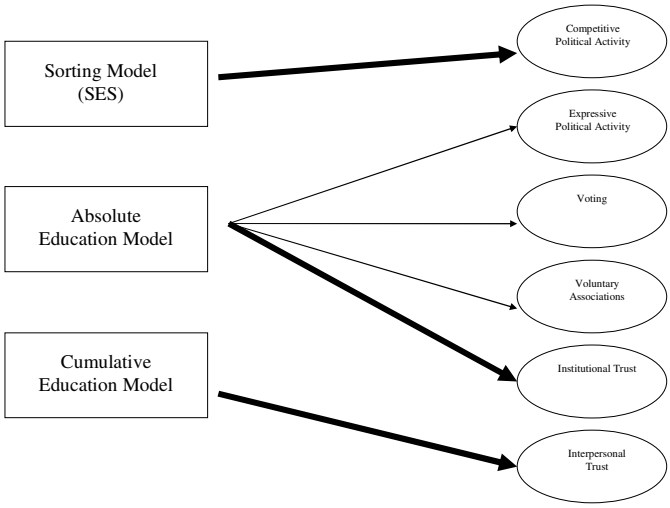
Table 4.1. Three causal mechanisms linking education and CSE

What leads to more CSE?	
Absolute model	The more education you have
Relative model	The more education you have vs the average education your peers have
Cumulative model	The more education your peers have

Source: Campbell (2006a).

Campbell (2006a) puts the ARC set of models to test using data from European Social Survey (ESS) and European Values Survey (EVS). The following draws on his analysis and briefly outlines what is known empirically about the significance of each mechanism in relation to a set of specific CSE outcome measures: competitive political engagement; expressive political engagement; voting; engagement in voluntary associations; institutional and inter-personal trust. Figure 4.2 summarises the main findings.

Figure 4.2. Summary of three models for education's impact on engagement



Source: Campbell (2006a).

4.5.1. Evidence of impacts on competitive political engagement

The more a form of engagement is constrained by its competitive, finite nature, the more likely it is to be explained by the relative model. Many forms of political engagement, which have the explicit objective of influencing public policy, are inherently competitive. For example, the number of government officials is finite, so the more voices with differing demands that speak to government, the less sway each individual voice or cause carries. Elected representatives can vote only one way on a proposed piece of legislation, and bureaucrats cannot regulate to everyone's satisfaction. The inherent competition means some will succeed, while others will not. Those most likely to succeed in contacting and convincing political leaders are the people with the most means and resources to make their voices heard. This is the sort of activity where there is the strongest expectation for the relative model, since education is strongly associated with higher social status and other resources which can make peoples' voices hold more sway. With regard to principles of equity, this may be interpreted as a negative effect.[6]

***Competitive political engagement**: strong evidence for relative model*

Using data from the European Social Survey (ESS), Campbell (2006a) finds strong evidence to suggest that competitive forms of political engagement best fit the relative model,[7] implying that the observed association is best explained by the social status effect of education. This confirms a similar finding by Nie, Junn and Stehlik-Berry (1996) for the United States, and suggests the explanation many hold in many OECD countries.

[6] Strong vs weak evidence is based on a decision rule outlined in Campbell (2006a) as follows: a) A positive, significant coefficient for education level and a non-significant coefficient for educational environment is strong evidence for the absolute model. B) A negative coefficient for educational environment is evidence for the sorting model. If it is greater in magnitude than education level, that is strong evidence favouring the sorting model. If it is smaller in magnitude, then the evidence can only be characterised as weak, and the absolute model can also be said to have received support. c) A positive coefficient for educational environment is evidence for the cumulative model. As with the evaluation of the sorting model, a coefficient greater than education level is strong evidence and one smaller than education level is weak evidence.

[7] Engagement in a number of political activities included in the European Social Survey was divided into two major types of activities which are most likely to be competitive in nature, namely contacting political leaders and working for a political party or action group.

4.5.2. Evidence of impacts on expressive political engagement

Expressive forms of political engagement are also associated with the explicit objective of influencing public policy, and while these forms can also be competitive in nature, at least among larger aggregated groups, the number of concerted voices and hence the co-operative behaviour exhibited is a more important feature. Expressive and competitive forms of political engagement are closely related, but the effectiveness of the former rests on mass involvement – the more, the better: the primary resource is the number of people that stand together on a particular issue. In this scenario, power is driven by the number of voices rather than by status and other resources. Expressive forms include activities such as boycotting consumer products, marching in demonstrations, and signing petitions. In these cases, the expectation is that the evidence will favour the absolute model, since education can directly develop interest in such issues as well as instil a sense of agency for collective action.

***Expressive political engagement**: weak evidence for relative model, strong evidence for absolute model*

Not all forms of political engagement are subject to the same degree of competitiveness, so Campbell differentiates his analysis by the degree of individual level competition associated with different forms of political engagement. He finds strong evidence to suggest that expressive forms of political engagement (those mentioned directly above) fit the absolute model best, but also weak evidence to suggest that the relative model plays a role as well. Overall, the findings support the notion that political activities which are subject to an inherently lower degree of competition are not affected by social status (or relative education levels) as much as Nie, Junn and Stehlik-Barry's (1996) findings suggested.

A more nuanced analysis by Rosenberger and Walter (2006) suggests that in Austria, most of the observed effect of education on the extent of political activity develops as a result of intermediate variables concerning social capital factors (especially affiliation with non-political organisations), civic orientations (political interest as well as internal and external efficacy) and individual (post-material) values. A direct effect of education due to cognitive mobilisation or an indirect effect via occupational status or job level is found to be insignificant. As an alternative to the distinction between competitive and expressive forms of political engagement, they define elite directed forms of participation vs elite challenging forms of participation. They find that elite-directed activity is mainly influenced by organisational affiliation, as well as internal and external efficacy. Organisational affiliation also plays a role in explaining elite-challenging participation.

Additionally more interpersonal trust, post-material values and higher political interest combined with a certain degree of scepticism against political institutions foster elite-challenging activity.

4.5.3. Evidence of impacts on voting

Although it relates to political engagement, we place voting into a category of its own. In many countries, voting does not just have a political significance, it also has civic meaning. Voting is not driven entirely by the advancement of one's self-interested political objectives. Most people vote, at least in part, because they also receive civic gratification from doing so. To the extent that voting is driven by political motivations, the expectation is that the relative model fits, but to the extent that it is driven by civic duty norms, the expectation is that the absolute model fits. It is also conceivable that the cumulative model applies, as the civic duty aspects of voting may be greater in environments where people have a higher level of education and thus an even stronger sense that voting is a civic obligation or duty.

***Voting**: weak to strong evidence for relative model, strong evidence for absolute model*

Campbell (2006a) reports mixed evidence for voting. The evidence for the relative model straddles weak and strong, while at the same time he finds evidence to suggest that the absolute model also plays a strong role. It should be noted that his analysis is based on an internationally pooled dataset, which ignores national idiosyncrasies. In Austria, Rosenberger and Walter (2006) found that education has a negative direct (cognitive) effect on voting. More extensive analyses are needed to interpret results vis-à-vis national contexts since the political and social climate of nations are important conditioning factors. For example, the potential impact of civic duty norms instilled by education may be of little relevance in contexts where conflict and risk of instability is high, or where power is not subjected to law or democratic principles.

4.5.4. Evidence of impacts on engagement in voluntary associations

Unlike political engagement, people do not only get involved in voluntary organisations in order to advance or protect their interests, at least in an explicit political sense. Most people will also have an intrinsic interest in the activities of the group, and enjoy the camaraderie of their fellow group-members. If this is an accurate characterisation of associationalism, then there is no reason to expect the relative model to explain why people get involved in groups, clubs and associations. The expectation is that the

absolute model fits, on the grounds that education can orient people toward an understanding and appreciation of the value of joining groups. The relative model can also play a role in so far as membership in organisations requires access to resources including time, effort and often, money. Nie, Junn and Stehlik-Barry (1996) in fact find empirical evidence that it is the relative model that best explains organisational involvement. But Helliwell and Putnam (1999) were critical of this conclusion because of how they operationalised the measures of educational environment.

Voluntary associations: *weak evidence for relative model, strong evidence for absolute model*

Improving the measures, Campbell finds weak evidence to suggest that involvement in voluntary associations is driven by the relative model, and finds strong evidence to suggest that the absolute model also plays a role. His analysis was applied to data from both the European Social Survey and European Values Survey, which provided complementary evidence. Even though the two data sources cover different nations and use different measures of organisational involvement, the results were consistent. Status and other resources gained from education do seem to play a role at least partly in spurring organisational involvement, but education also seems to play a role in instilling a habit of associational involvement.

4.5.5. Evidence of impacts on institutional and inter-personal trust

Thus far, the forms of CSE that have been considered consist of activities or things one *does*. Trust, however, consists of an attitude or a mindset – what one *thinks* – albeit with likely behavioural consequences. Trusting people are more engaged in a whole host of activities than their less-trusting counterparts. Although the behavioural implications of trust in government institutions are not clear-cut, this form of trust has long been theorised to be an important ingredient for political stability (Easton, 1965; Hetherington, 2005). Taking the wider context into account, too *low* trust may make political activity seem pointless, while too *high* may make it seem unnecessary. This may explain why youth in Nordic countries do not report particularly high levels of expected participation in terms of voting, joining political parties, and standing for office or in demonstrating, at least compared to youth in Southern European countries. According to results from the IEA Civic Study, the latter had less trust in public institutions but expected more frequently to be involved in various forms of political activity between elections (Amnå, 2001).

There are competing expectations regarding the relationship of education to trust, both institutional and interpersonal. One perspective is

that trust has largely social origins, and is thus driven by socioeconomic status. If so, the relative model would apply. The nearer you are to the top of the social hierarchy, the more reason you have to be trusting. Conversely, if trust is primarily a psychological predisposition immune to one's position on the social ladder, then it is the absolute model that is most likely to apply.

Institutional trust: *strong evidence for absolute model*

Analysis by Campbell (2006a) using European Social Survey data, finds strong evidence to suggest that institutional trust[8] is driven primarily by the absolute model. One interpretation is that the more one knows about the complex processes of what is happening around them the more likely they are to be trusting. The relationship between institutional trust and political participation however is not straightforward (Lauglo and Øia, 2006). Despite the increasing trend in educational attainment, Amnå (2001) suggests that in Sweden a high degree of political consensus combined with high trust, may reflect a declining trend in voter turnout among first time voters as well as in joining political parties.

Interpersonal trust: *strong evidence for cumulative model*

By contrast, there is strong evidence to suggest that interpersonal trust is driven by the cumulative model. The higher the average level of education in one's environment, the higher is that individual's trust in others.[9] This implies that interpersonal trust is driven by both individual attainment and the educational environment and, by implication, has both sociological and psychological roots. Unlike the relative model, the environment affects trust through a cumulative mechanism – trust begets trust, a sort of "contagion effect". Trust becomes more likely as the average level of education among surrounding peers increases. Thus higher levels of education within the environment may trigger a positive feedback process, leading to higher overall levels of trust. Further, this finding is significant because it implies that higher levels of inequality in educational attainment may have a negative impact on the overall social cohesiveness of a society.

[8] The index of institutional trust includes seven institutions: your country's Parliament, the legal system, the police, politicians, political parties, the European Parliament, and the United Nations. For both interpersonal and institutional trust, an index has been constructed by simply adding the individual responses together.

[9] The European Social Survey measures interpersonal trust with three related questions: whether most people can be trusted, whether most people would try to take advantage of you, and whether most of the time people try to be helpful.

4.6. What do we know about the impact of different educational experiences on CSE?

As summarised above, there is evidence to suggest that educational attainment has an impact on some forms of CSE, and in some cases, there is evidence to support that this is because education affects certain features of the self. But exactly what is it about education that can effectively develop these features? What do we know about the varying impact of different educational experiences on CSE? *What* and *how* is it that people actually learn, that matters for different forms of engagement? Quantitative and qualification based measures of education conceal much of what is important about the educational process for CSE.

Other detailed measures of educational experiences are necessary, such as the type of educational institution attended, course or programme of study taken, and other qualitative measures of educational experiences that are relevant for CSE. Existing research provides little guidance on what these measures ought to be. Even though it is widely held that schools are a primary agent of socialisation, there are large gaps in the knowledge base regarding the processes by which young people become civically and socially engaged, or not, and the role that specific educational experiences play within these processes. This does not allow for formulating strong theoretical expectations regarding what it is about schools that matters most for CSE.

Even though theoretical expectations are not strong, there are a number of possible explanations for how schools can serve as a source of influence on CSE. Campbell (2006a) distils a series of explanations for why the content of education – what actually happens in school – might affect engagement, and puts some of them to the test using data from the IEA Civic Education Study (CIVED). He considers the curriculum, pedagogical method, involvement in student government and school ethos. This analysis is limited to data collected at one point in time, specifically among 14-year-olds, and thus says little about the effect of civic education on adult behaviour.

4.6.1. Curriculum

Schools can be an ideal setting to acquire civic knowledge and skills, either directly, through classroom instruction that has the specific objective of preparing students for active citizenship, or indirectly as a by-product of instruction in other subjects, as when students give an oral report in a literature class. Available evidence on the effectiveness of instruction which is specifically aimed at bolstering active citizenship suggests that there is an

impact but that it is not large in magnitude.[10] Aside from the possibility that the observed effectiveness is low because of low quality, if every student receives the same civics instruction then it is not surprising that it would lead to small observed differences in CSE. A constant cannot explain a variable.

A more substantive explanation is that civics is not confined to a single course of study, nor is it confined to school. Students absorb a lot of civic and politically related information from their surroundings including the home, media and other channels in society. Thus for many students, civics classes are a repeat of what they learn around them, but this is not the case when the curriculum is distinctly different than what goes on in the home or in wider society. For example, Langton and Jennings (1968, p. 866) report that for many black students in the United States in mid-1960s, a then segregated nation, exposure to civics at school did not simply repeat what they were learning at home. An experimental study by Morduchowicz *et al.* (1996) conducted in Argentina, a less established democracy, shows that civics courses did have a significant impact. These findings suggest that civics courses can compensate for the absence of democratic education at home or through other channels in society.

4.6.2. Pedagogical method

However, the best available evidence indicates that civic educators should worry more about *how* the content is taught. A consistent conclusion is that the most effective civics instruction involves the free and open discussion of current political events within the classroom, or what is often called an open classroom climate. Several studies report that open classroom climate fosters democratic debate and discussion which leads to better performance on a civics evaluation,[11] and an open classroom climate fosters CSE more broadly. A rationale for this is that young people need to experience the open discussion of political issues to prepare them for engagement in a pluralistic, participatory democracy (Gutmann, 1999, p. 51). Underpinning this reasoning is the assumption that as a pedagogical technique, students who experience open classroom discourse learn more about politics than their peers in classrooms without the same level of discussion, and are thus better primed for engagement in the public sphere.

[10] For each country see: Argentina (Morduchowicz *et al.*, 1996), Sweden (Westholm, Lindquist and Niemi, 1990), the United Kingdom (Denver and Hands, 1990; John and Morris 2004), and the United States (Niemi and Junn, 1998).

[11] For example, Torney-Purta, 2001-2002, 2002; Torney-Purta and Richardson, 2005; Morduchowicz *et al.*, 1996; Niemi and Junn, 1998.

In a robust causal analysis, Campbell (2006c) finds that in the United States, an open classroom climate leads to a notable increase in "civic proficiency", especially among students who experience little political discussion at home, and it has a positive impact on whether American adolescents report that they anticipate being informed voters, as well as their anticipated level of civic and political engagement. Furthermore, it has a negative impact on whether they envision themselves participating in illegal protest activities like spray-painting slogans, blocking traffic, and occupying buildings in protest. He explains the negative relationship by suggesting that political discussion teaches young people that conflicts can be resolved in ways other than illegal protest activities.

4.6.3. Other school and extra-curricular experiences

The experiences that motivate CSE may not come through formal classroom activities at all, but rather through extra-curricular activities. US evidence from longitudinal data consistently shows that people who belong to groups and clubs as adolescents are more civically and politically engaged as adults (Jennings and Stoker, 2004; Smith, 1999; Youniss, McLellan and Yates, 1997; Hanks, 1981). Based on the Youth Parent Socialisation Study in the United States, Beck and Jennings (1982) conclude that group involvement in adolescents is a pathway to CSE in adulthood. Participating in groups at an early age may instil a habit of associational involvement, which is imprinted in adolescents and manifest itself over a lifetime. Social capital theory would suggest that adolescents have a norm of associational involvement inculcated in them. But available evidence does not exclude the possibility that there are inherent unobserved characteristics that make people inclined to be joiners as adolescents as well as in adulthood, which education may have little impact on. Table 4.2 displays results of a pooled cross-national analysis of the IEA civic data. Results confirm the link between group membership and civic/political engagement. Involvement in student parliament and other meetings also displays significant impacts of various dimensions of CSE.

Table 4.2. The impact of education factors on dimensions of CSE (mixed-effects maximum likelihood regression)

	Knowledge	Skills	Voting (anticipated)	Civic engagement (anticipated)	Political engagement (anticipated)	Institutional trust	Tolerance
School experiences							
Number of group memberships	↓	↓	--	↑	↑	--	--
Student parliament	↑	↑	↑	↓	↑	↓	↑
Frequency of meetings	↑	↑	↑	↑	↑	↑	--
School ethos							
Classroom climate: aggregate	↑	↑	↑	↑	↑	↑	↑
Confidence in school participation: aggregate	↑	↑	↑	↓	↓	--	↑
Conventional citizenship norms: aggregate	↓	↓	↑	↑	↑	↑	↓
Social movement norms: aggregate	--	↑	↑	↑	--	--	--

↑Statistically significant, positive relationship.

↓ Statistically significant, negative relationship.

-- No statistically significant relationship

Source: Campbell (2006a) Data from IEA Civic Education study.

4.6.4. School ethos

Norms are central to understanding individuals' motivations for CSE. From this perspective, schools are particularly important because it is a period in which young people undergo socialisation, and become imprinted with norms that have the potential to guide their behaviour throughout their

lives.[12] Embedded with overlapping networks of students, parents, teachers and members of the community, the climate of a school reflects various norms. Some of these may be wittingly enforced in varying degrees, especially those that are widely shared. Norms can be aimed at fostering academic achievement, a strong sense of community and group solidarity, and among others at developing a strong sense of civic duty. While this is an under researched area, there is some evidence to suggest that the normative climate (or ethos) of educational institutions, plays an important role in shaping the CSE of its students, both in adolescence and in adulthood. Using panel data, Campbell (2005, 2006b) found that the normative climate of a school has long term impact on voter turnout and volunteering. Results from a pooled cross-national analysis of the IEA civic data that are presented in Table 4.2, suggest links between various measures of school ethos and CSE.

4.7. Cost-benefit estimates

Putting a monetary value on the kinds of CSE outcome analysed here is hardly plausible – certainly not at any aggregate level. How would one credibly put a price on a rise in voting levels or a decline in tolerance? However some effects of education on community life can be given a value, notably where they demonstrably impact on anti-social behaviour. The well-known High/Scope Perry Preschool Study estimated a return of USD 258 888 per participant over 40 years, or one of USD 17.07 for each dollar invested, with 88% of that coming from savings on crime (Schweinhart, 2004). An evaluation of the outcomes of the Manukau Family Literacy Programme in New Zealand estimated an overall return of NZD 9.36 per dollar over 30 years. Most of this was in the form of anticipated increased earnings and reduced welfare costs, but community effects such as reducing the public and private costs of crime formed a significant proportion (PriceWaterhouseCoopers 2006, drawing on Benseman and Sutton 2005).

[12] Norms imply the things that people feel they ought to do or not do. As used here, the term ***norm*** is defined as a regularity such that members of a population expect that nonconformity will with positive probability be punished with negative sanctions (Voss, 2001, p. 109). Conformity is shaped by individuals' desires to avoid sanction, even if expressed only subtly by friends, neighbours, and acquaintances. Norms are reinforced through social interactions, especially the social networks in which people are enmeshed (Coleman, 1990). Not everyone endorses the same norms, nor to the same degree. Many norms are internalised through habituation and the term socialisation refers to the process by which a norm is internalised – one learns what is socially desirable. The internalisation of a norm means that individuals come to have an internal sanctioning system which provides guilt when they carry out an action prescribed by the norm or fails to carry out an action prescribed by the norm (Coleman, 1990, p. 293).

4.8. Conclusion

Education is widely recognised as having a strong correlation with multiple forms of CSE. In spite of – or perhaps because of – the widespread consensus on the universal, strong, and positive relationship between education and CSE, the causal mechanism(s) underlying the relationship have been subjected to relatively scant scrutiny. A discussion of the CSE effects of learning is useful in recognising the multiple roles that formal education plays from economic to social, cultural and personal. In general, other things equal, higher levels of education are strongly associated with higher and better levels of CSE. A variety of theories and some empirical evidence suggest that at least some of this association is causal.

Three distinct mechanisms can explain the association between education and most forms of CSE:

- First, education can directly affect individuals by way of developing civic related knowledge and skills, or by way of directly influencing attitudinal and other normative aspects such as trust and tolerance, which in turn influence civic related behaviours and outcomes (absolute model).
- Second, education can indirectly influence civic related attitudes and behaviours by its effect on the social position of individuals. The main premise is that some forms of CSE are driven more by the relative position of individuals in a social hierarchy, and that positions are largely a function of education (relative model).
- Third, the direct effect of education on individuals' civic related attitudes and behaviours is conditional on the average level and distribution of educational attainment within and among different social groups in society (cumulative model).

Understanding the relationship between education and CSE requires delineating multiple dimensions of engagement, namely: political engagement, civic engagement, and voting, as well as key mediating factors fostering those behaviours such as trust, tolerance, and knowledge and skills. Empirical analysis suggests that different forms of CSE and its key precursors are subject to different mechanisms in varying degrees:

- More competitive forms of political engagement fit the relative model best, whereas less competitive forms such as expressive political engagement fit the absolute model best.
- Voting fits the absolute model best but the relative model also plays a moderate role.

- Participation in associations fits the absolute model best but the relative model also plays a moderate role.
- Institutional trust fits the absolute model best.
- Interpersonal trust fits the cumulative model best.

Education interacts with other factors such as social class – understanding of these inter-relationships is still very limited, primarily because data that exists is not well suited for disentangling the various interactions. Even so, socio-economic status is not the only determinant of civic outcomes – looking at civic engagement within and across various social groups shows that education can have a direct impact. Still, a closer look at the effect sizes of education as compared to other factors is needed to understand better the relative impact of education from a broad perspective. The main purpose of this chapter was to explore the education-CSE relationship in-depth so as to understand better the empirical observations, and also to explore the potential role of education as a policy lever to influence CSE.

The analysis suggests that more schooling or more citizenship studies offer a limited and partial response. Instead, addressing the quality of learning experiences and approaches to learning both inside and outside formal school settings appears to be a more promising way forward. The curriculum, school ethos, and pedagogy are key variables that shape CSE. Some forms of learning seem to work better than others in fostering CSE – learning environments that stress responsibility, open dialogue, respect and application of theory and ideas in practical and group-orientated work seem to work better than just "civics education" on its own. Many other factors impact on CSE as well as schooling – schooling is not a panacea; and not all forms of CSE are socially desirable.

Unlike the treatment of health in the following chapter, we have not included any cost-benefit analyses. The "cost containment" rationale presented in Chapter 1 is relevant to CSE, but in a way which is not susceptible to placing any realistic monetary values on it. In other words, we can argue that education prevents damage to the fabric of civic society, in the face of factors in modern society which would otherwise erode that fabric, just as we can argue for the preventive effect of education. But it does not make sense to make estimations of what that represents as a return on educational investment.

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Chapter 5
Health Outcomes of Learning

We need to gain a deeper understanding of the nature and extent of the impact of education on health, and the channels by which health is affected by learning experiences In this chapter, we analyse the relationship between education and health in detail, and explore the role of education on cost containment and on individual and collective well-being.

5.1. Introduction

As with CSE, research suggests that the relationship between learning experiences and health outcomes is pervasive but the policy context is somewhat different. Spending on health and healthcare in most OECD countries has risen dramatically over the past five years. All OECD governments are under continuous pressure to reconcile economic and health concerns because the public purse funds the bulk of health spending in most countries. On the cost containment line of argument (see Chapter 1) it is increasingly important for government spending departments to understand better the potential savings resulting from policy interventions that relate to investments in learning. But increasing well-being through developing positive health is equally significant as a direct or indirect objective for education.

Further, understanding equity in access and use of health care is a key health policy issue. Income-related inequalities in the use of health care are well documented (OECD, 2004). But education has an important impact on economic factors such as income and employment, which in turn affect health outcomes. Empirically, research suggests that the role of education is more pervasive than this. It identifies two other possible channels that link education and health outcomes, namely the impact of education on health-related behaviours and psycho-social factors such as self-esteem and empowerment. Additionally, intergenerational factors link parental levels of

education and their children's health, independent of income-related effects. We need to gain a deeper understanding of the nature and extent of the impact of education on health and the channels by which health is affected by learning experiences.

5.2. How are the multiple forms of health related outcomes conceptualised and measured?

5.2.1. What do we mean by health?

The conceptualisation of health has changed in recent years. During the 20th century, the focus shifted from acute contagious diseases to chronic illness and disability. Traditional understandings of health, which have dominated the study of disease and the administration of health care for most the 19th and 20th centuries and in many regards continue to do so, are based on a biomedical model of health. This model is primarily concerned with curing acute ill-health and focuses on the absence of disease. The main premise is to improve health by changing the physical state of the body through, for example, the use of surgery or drugs to treat disease, alleviate symptoms and maintain functioning. From this perspective, the body is a machine and the doctor or surgeon is the mechanic who fixes its malfunctions (Crossley, 2000).

Marking a shift toward a more positive conceptualisation of health, the WHO constitution in 1946 defined health as a "state of complete physical and social well-being and not merely the absence of disease or infirmity" (WHO, 1946). A biopsychosocial model of health was introduced, which emphasised the reciprocal and dynamic interactions between different levels of human and social systems, from the biochemical to the sociocultural (Engel, 1977). Beliefs about health, coping strategies, and risky behaviours were identified as important to the promotion of health. Such psychological and behavioural factors are influenced by social and demographic factors such as social class, employment status, work environment, education, social support, urbanisation, age, sex, and ethnicity.

This latter conceptualisation of health is the basis for the *WHO Health for All Strategy*, which introduced the aim of maximising economic and social life as a means to improving overall health (Blane, White and Morris, 1996; WHO, 1999). This understanding of health concerns individuals' capacity to fulfil their aspirations within their social environment. It raises two important issues. First, individual aspirations for health vary, and so to some extent health becomes a relative rather than an absolute concept. Second, the ability to fulfil individual aspirations and so maximise health is

constrained by the social environment and one's ability to navigate it. The social environment and individuals' capabilities are therefore now considered as important determinants of health.

The key outcome is the actual physical and mental health of an individual but this can also be used as a reference point for conceptualising many other health-related outcomes. Individual health has several implications for the self and others around them as well as society more generally – these implications can also be viewed as health outcomes. One's own health has implications for morbidity, mortality, longevity and life expectancy. It has economic implications, both private and public, such as on the productivity of workers, work days lost due to illness or premature death, and health costs. It has social implications such as: the number of accidents; the extent of violence and abuse in society; the control and prevention of diseases; and overall public health.

5.2.2. Lifestyle behaviours and service use: key mediators that impact on individual health

With individual health as a reference point, there are various health related behaviours and choices known to be important precursors that affect health. Biology plays an important role in determining health, but often behaviours and choices place biological health at risk. Certain *lifestyle behaviours and choices* are thus central to the mechanisms by which individual health is determined. Such factors are viewed as key mediators of health outcomes.

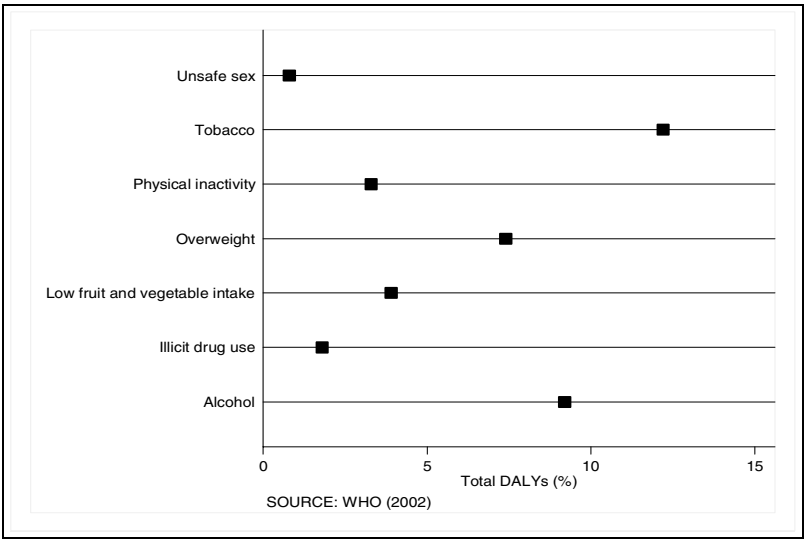
A report by the World Health Organisation (WHO, 2002) identified the top ten risk factors in terms of attributable Disability Adjusted Life Years (DALYs).[1] These are the leading causes of death and disability for all developed member states. Three of these differ from the other seven in being immediate markers of biological health rather than health behaviours (*i.e.*, blood pressure, cholesterol and iron deficiency). These three markers however, are linked in important ways to health behaviours. For example, high blood pressure is caused by salt intake in diet, low levels of exercise, obesity, and excessive alcohol intake. It results in structural changes in the walls of arteries that can lead to stroke, ischemic heart disease, hypertension and other cardiac diseases. Globally, high blood pressure is responsible for about 13% of deaths and 4.4% of attributable DALYs. Although education may have important benefits through impacts on the way individuals manage these biological risk factors, the remaining focus is on the seven

[1] The sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability.

behavioural risks as key factors which mediate the effects of education on health.

The top seven health risk behaviours (in terms of attributable DALYs) are: tobacco, alcohol, overweight, low fruit and vegetable intake, physical inactivity, illicit drugs, and unsafe sex. The importance of each of these seven factors in terms of their contribution to DALYs is reported in Figure 5.1. Evidence of the impact of education on health behaviours is summarised in Table 5.1. The extent of health risk associated with these behaviours (see Box 5.1) supports the claim that the evidence on the effects of education on such behaviours also indicates that education affects individual health.

Figure 5.1. Seven leading selected risk factors in developed countries



Source: WHO (2002).

Service use is another key health related behaviour that affects individual health. Broadly defined it includes the uptake of services in terms of both the quantity of resources used and efficient use of them. Specifically it includes communications with health professionals, use of preventative treatments, compliance with advice, and access to health provision. The appropriate and effective use of services is critical for health, and therefore such factors are important indicators of health. Education has been linked to each of these (see below).

Box 5.1. Extent of health risk associated with top seven health risk behaviours

Health risk factor No. 1: Tobacco. Smoking has been common in industrialised countries for much of the past century and as a result is responsible for over 90% of lung cancer in men and 70% of lung cancer in women. Globally, tobacco, used for smoking, chewing or snuff, causes 8.8% of deaths and 4.1% of attributable DALYs. In developed countries, tobacco is responsible for 12.2% of DALYs.

Health risk factor No. 2: Alcohol. Alcohol use has direct and indirect impacts upon mortality and morbidity through intoxication, addiction and other metabolic mechanisms. Drinking patterns vary by context, but remain responsible for more than 60 diseases and injuries. For countries in the developed world, this amounts to 9.2% of DALYs. Worldwide, alcohol use is implicated in 20-30% each of oesophageal cancer, liver cancer, cirrhosis of the liver, homicide, epilepsy, and motor vehicle accidents.

Health risk factor No. 3: Overweight. Increasing Body Mass Index is positively correlated with risk of coronary heart disease, ischemic stoke and type 2 diabetes mellitus. It is also implicated in the development of cancers of the breast, colon, prostate, endometrium, kidney and gall bladder. High BMI is associated with 7.4% of DALYs in developed countries.

Health risk factor No. 4: Low fruit and vegetable intake. Worldwide, 19% of gastrointestinal cancer, 31% of ischemic heart disease and 11% of strokes are attributed to low intake of fruits and vegetables. In developed countries, this amounts to 3.9% of DALYs.

Health risk factor No. 5: Physical inactivity. Exercise protects against the risk of cardiovascular disease, cancers and diabetes. Inactivity is related to 10-16% of cases of breast cancer, colon and rectal cancers, and diabetes mellitus. It is responsible for 1.9 million deaths and 19 million DALYs globally, and 3.3% of DALYs in developed countries.

Health risk factor No. 6: Illicit drugs. The non-medical use of drugs is related to increased overall mortality though HIV/AIDS, overdose, suicide and trauma. Overall illicit drug use is implicated in 0.4% of all deaths worldwide and is most common in the industrialised countries of the Americas, Eastern Mediterranean and Europe. In developed countries, illicit drug use is responsible for 1.8% of DALYs.

Health risk factor No. 7: Unsafe sex. The overwhelming majority of DALYs attributable to unsafe sex result from the global HIV/AIDS epidemic. Although much of this occurs in countries outside of the OECD, of the HIV/AIDS related deaths that occurred outside of Africa in 2001, 25-90% were caused by unsafe sex. In developed countries, 0.8% of DALYs is attributable to unsafe sex.

There are three main elements to service use:

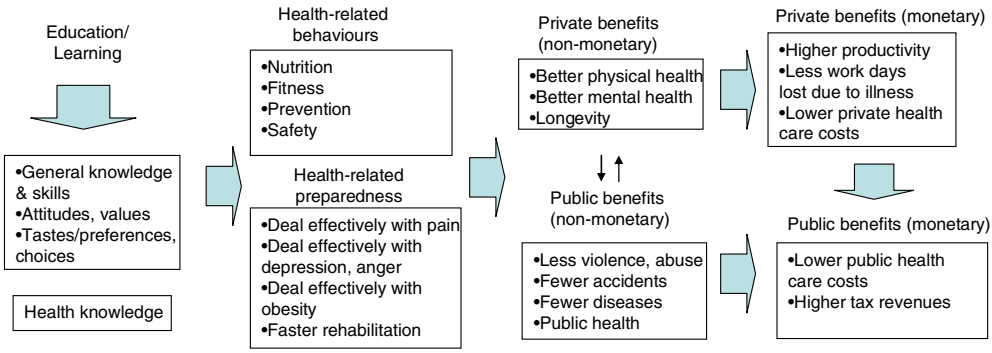
- A *preventative* element which is manifested through the use of health services for preventative reasons (*e.g.* regular check-ups) or to monitor health conditions.

- A *responsive* element characterised by individuals' use of health facilities in response to diseases, pains, accidents, or in general poor health conditions which usually limit daily activities.
- The *management* of chronic and/or disabling conditions.

5.3. What are the causal mechanisms that *can* link learning experiences and health related outcomes?

It is well known that socioeconomic status is strongly associated with the health of individuals and their demand for health services. Given that education is a major component of socioeconomic status and has a strong relation to income and occupation, many have viewed the positive relationship between education and health outcomes simply as a marker of socioeconomic status. More recently there is evidence which indicates that sizable differences in health for those with different levels of education are partly due to the effects of education and not solely to differences that precede or explain education, such as socioeconomic status. A growing number of studies are suggesting that education has effects on health at all levels of income (*e.g.* Ross and Mirowsky, 1999). The best available evidence indicates that the effect of education on health is at least as great as the effect of income (Spasojevic, 2003).

Figure 5.2. Major components that link learning and health



Source: Authors.

The links between education and health outcomes are complex with a large number of intervening and mediating factors (Hammond, 2003). A

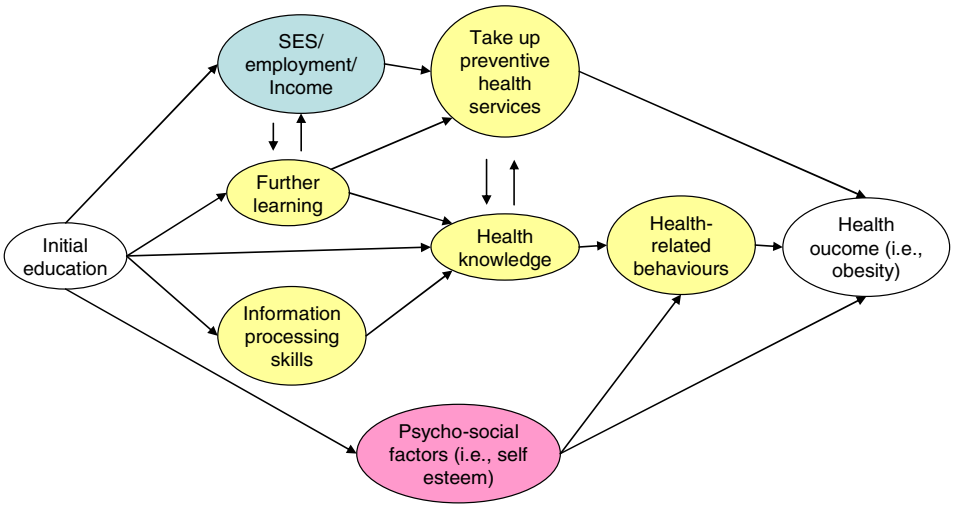
wide range of models that propose links among such factors have been put forth in an attempt to explain why and how education and other learning interventions can have an effect on health. Some of the reasons are related to direct effects, through changes in behaviour or preferences; others are indirect, through resulting changes in opportunities, particularly through income. Figure 5.2 displays some of the major components that are relevant in linking learning and health outcomes, and how these can relate to each other.

Among the different approaches to modelling the impacts, health economists suggest that the link between education and health outcomes is supported by the notion that more educated persons are more efficient producers of health. Grossman and Kaestner (1997) posit that this may occur in two ways, by having an effect on allocative efficiency and/or on productive efficiency. The former implies that education may affect health by allowing individuals to choose a better mix of inputs to produce better health. Alternatively stated, it suggests that education may have an impact on preferences and hence lifestyle behaviours and choices. For example, people may choose healthier lifestyles if they have improved knowledge of the consequences of risky health related behaviours. Productive efficiency on the other hand suggests that education may have an impact on individuals' abilities to cope with the situation they find themselves in. The skills imparted by education can increase one's efficiency in gathering and interpreting health related information and solving problems. Education provides training and practice in approaching problems and developing strategies to cope with life situations including ill health (Bradley and Corwyn, 2002). It also develops self confidence and communication skills which can affect one's ability to reach out to others and obtain social support. Having the ability and confidence to search for health related information and seeking social support, including communications with the health community, can inform healthier behaviours and healthier responses to illness (Ross and Wu, 1995). Social support has been linked to decreased anxiety and depression and increases in the likelihood of engaging in healthy behaviours.

A wider reading of the empirical literature suggests three distinct channels for effects of education on health (Feinstein, 2002): economic factors, *i.e.* income and/or employment; health-related behaviours; and, psycho-social factors. Figure 5.3 displays the potential interplay between these sets of factors. A direct link is made between initial formal education and the formation of health related knowledge on the one hand, and an indirect link is made between the formation of skills that help in the gathering of additional health knowledge via continued learning on the other. The access to and take up of health services is an important factor –

research has suggested that education may improve the ways in which individuals understand information regarding periodical tests, communicate with the health practitioners, interpret results and elicit their help (Sabates and Feinstein, 2006). Other key factors that can interact are income by providing improved access to education and health services, and psycho-social factors that can directly affect one's well-being and ability to cope with adverse life conditions.

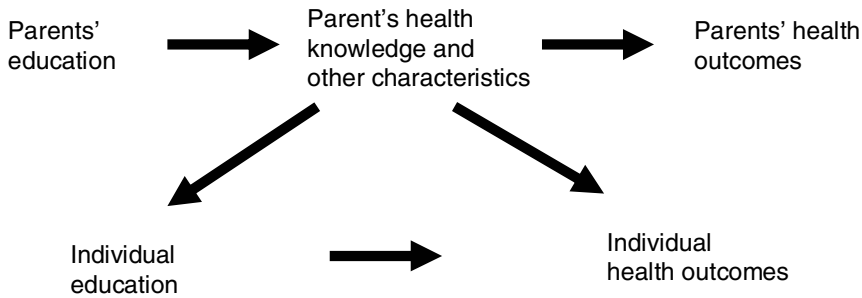
Figure 5.3. Channels for the effects of education on health



Source: Authors.

In addition, intergenerational factors link parental levels of education and their children's health. Parents' education is a particularly important intervening factor because there may be cumulative effects of education across generations. Research suggests that parents' education can have a substantial impact on the health of their children as well as their educational attainment (*e.g.*, Currie and Moretti, 2002; Haveman and Wolfe, 1995). Figure 5.4 summarises the multiple intergenerational effects of education on health outcomes. This is an important aspect that merits further consideration because it deals with the potentially very long term effect of education that is amplified over time.

Figure 5.4. The multiple intergenerational effects of education on health outcomes



Source: Authors.

There are substantial challenges to identifying the mechanisms that link learning experiences with health outcomes. Many different channels are operating and little is known about which ones are the most important. To gain a deeper understanding of the nature and extent of the impact of education on health and the channels by which health is affected by learning experiences we need to gather a portfolio of complementary models (such as the one presented in Figure 5.3), giving different perspectives.

Feinstein *et al.* (2006) developed an advanced framework which is useful for bringing together a variety of perspectives and for grasping the inherent complexity of the relationships (see the self-in-context approach in Section 3.3). Their framework provides a comprehensive basis for conceptualising the effects of education on health, and thus clarifying the key causal pathways, and for structuring an elaborate review of the evidence. To the list of intervening and mediating factors, they add: health literacy and health related competencies; beliefs about the self; beliefs about health; patience – valuation of the future; resilience. They also cover key contextual factors which through an interaction with individuals can lead to important impacts on health: the family and the household; work and occupational health risk; neighbourhoods and communities; and the macro level context including inequality and social cohesion. The central hypothesis of their work is that education impacts on health because:

- Education has effects on key features of the self that are important for the formation of health outcomes.
- There is a broad range of contextual factors operating at different levels which impact on the formation of health outcomes, and education has effects on a number of these factors in each context at each level.

5.4. What are other factors that can influence health outcomes?

Observed relationships between education and health could be the result of other variables operating on both, such as family income, genetic endowment, or social environment. A simple correlation between education and health may mask a number of possible effects that may not be due to education. While observed associations may be causal, they can also be the result of a common relationship to third, "latent" variables. A particularly important variable that may operate on both is the extent to which individuals value the future vs present (see Grossman and Kaestner, 1997). This will affect their choice to invest in their education and in their health. People who are more future oriented are more likely to attend school for longer periods of time as well as make larger investments in their health.

In this scenario however, education may also cause the rate of time preference for the future to increase (see Section 3.3.1 for further discussion). This is because education can inform and prepare individuals about their future and the associated uncertainties (Feinstein *et al.*, 2006). Moreover, through their own education, parents may influence their children to be more forward looking and hence persuade their children to invest in education and health themselves over the course of their lives, and in turn pass on this trait to future generations.

Still, care is needed in attributing causality; it may run in other direction. That is, better health can lead to more education and continued learning into adulthood. Past health including endowed health is perhaps one of the most important factors determining current health status (Hay, 2006). In reality, the relationships are likely to include both interactive and dynamic effects with causality in both directions.

Whatever the mechanism that can explain the observed relationships between education health outcomes, education is one means by which policy makers can improve health outcomes. A key question remains: Which factors associated with education may have the greatest impacts on health?

5.5. What do we actually *know* about the impact of education on health related outcomes?

5.5.1. Evidence of the direct and indirect effects of education on health

An elaborate review of the evidence on the direct effects of education concluded that those with more years of schooling are substantially

associated with better health, well-being and health behaviours (see Feinstein *et al.*, 2006). In some cases, the evidence is robust and suggests causality. Table 5.1 summarises the evidence for a range of health related outcomes.[2] The strength of the effect in terms of the statistical robustness used to identify causality is reported. The effects are particularly robust for the outcomes of adult depression, adult mortality, child mortality, child anthropometric measures at birth, self-assessed health, physical health, smoking (prevalence and cessation), hospitalisations and use of social health care. Some studies have expressed causal effects in monetary terms or in terms of quantifiable indicators such as life expectancy or Quality of Life Years (QALYs). The findings from these studies are summarised below.

It should be noted that evidence on the effects of different stages and types of schooling, or different curricula and pedagogical approaches is sparse. Most studies focus on the number of years of schooling as an indicator of education (see Section 3.5.1 for a discussion on the limitations this implies). Thus it is difficult to ascertain whether there are differential effects of different types of schooling at similar levels of attainment (Fuchs, 2004). This raises a number of questions: Is it the case that university graduates in arts and humanities have lower health benefits than graduates from science and engineering? Are graduates who majored in biology healthier than French literature majors? To what extent does the content of schooling matter for health outcomes? What are the different pedagogical approaches and curricula that have the most important effect on health?

Separately, while few studies have examined the non-linearity of the relationship between education and health outcomes, available evidence suggests that:

- Educational effects on reducing the risk of depression are highest at the secondary level of education (United Kingdom).

[2] Results based on Instrumental Variable (IV) estimation techniques are larger than results estimated by ordinary least squares (OLS) estimation. IV techniques are more robust for identifying causality. This may be explained by the fact that the instruments utilised are often based on policy interventions, such as school reforms to increase participation or changes in compulsory school leaving age laws, which affect the educational choices of individuals at the margin, generally those with lower levels of education (Card, 1999; Angrist, Imbens and Rubin, 1996). This implies that the observed results are not universal, nor that there would necessarily be returns on the same scale if a general expansion of education were implemented. It may also be that education is commonly measured with error, which may bias OLS estimates downwards but not IV estimates (see Card, 1999).

Table 5.1. Assessment of the evidence base for education effects on health and well-being outcomes and behaviours

Outcome	Strength of effects	Evidence
Adult health		
Mortality	Substantial	Reasonably strong evidence of large effects of years of schooling.
Physical health conditions	Substantial	Overall, robust effects of years of schooling on different domains of physical health.
Functional ability during adulthood	Contradictory	Robust evidence but mixed results.
Adult depression	Substantial	Reasonably good evidence of the effects of achieving Level 2 or equivalent qualifications.
Life satisfaction and happiness	Small	There is no robust evidence on the causal effect of education.
Self-rated health	Substantial	Robust evidence on the causal effect of years of schooling.
Child health		
Child mortality	Substantial	Robust evidence of effects of parental years of schooling.
Child anthropometric measures at birth	Substantial	Robust evidence of effects of parental years of schooling.
Health behaviours		
Smoking	Substantial	Good evidence for effects of education at the level of university or college.
Alcohol consumption	Uncertain	The causality of this relationship has yet to be robustly tested.
Obesity	Substantial	Robust evidence of causal effects of years of education.
Fruit and vegetable intake	Uncertain	Positive education gradient, but lack of data availability constraints the estimation of causality.
Physical activity	Substantial	Clear associational evidence, but causality not confirmed.
Use of illicit drugs	Uncertain	Strength and nature of educational effects on illegal drug use remain uncertain.
Teenage parenthood	Contradictory	It remains a challenge to identify causality.
Service use		
Use of primary health care	Contradictory	Associational evidence is contradictory and there is a shortage of studies investigating causality.
Use of specialist care	Substantial	Clear associational evidence of higher service use by those with more education.
Hospitalisations	Substantial	Robust evidence suggests that years of schooling reduce hospitalisations.
Use of emergency services	Small	Poor evidence of education effects.
Use of social health care	Substantial	Robust evidence of causal effects of years of schooling.
Managing chronic health conditions	Substantial	Clear associational evidence, but causality not confirmed.

Source: Feinstein *et al.* (2006).

- Educational effects on life satisfaction and on self-rated health reach a maximum at intermediate levels of education (Netherlands).
- Individuals with primary schooling and intermediate secondary education are 2.6 and 2.8 time more likely to initiate excessive alcohol consumption compared to individuals with higher education. There is no difference between individuals with higher secondary education and higher education (Netherlands).
- Evidence shows an inverse, non-linear relationship between education and obesity, with greater impacts at higher education (United States).
- The relationship between education and self-rated health is positive with decreasing returns (Sweden).
- Educational effects on uptake of cervical screening are highest at the secondary level of education (United Kingdom).

5.5.2. Evidence of indirect effect via a variety of causal mechanisms

A review of the evidence on the effects of education on health via different mechanisms concluded that effects occur through a variety of channels, contexts, and levels of social aggregation, from the household to the macro-level context (see Feinstein *et al.*, 2006). Table 5.2 summarises what is known for a wide range of possible mechanisms.

The evidence suggests that education has direct influences on features of the self which in turn have direct benefits for health as well as supporting individuals in moderating the impacts of the contexts they inhabit. For example, there is good evidence that beliefs about health and health care, shaped and influenced by socio-demographic factors including education, determine health behaviours. Randomised controlled trials testing the efficacy of interventions has demonstrated that education has the potential to change health beliefs and behaviours if designed and delivered to appropriately address particular notions about health and illness (*e.g.*, Wardle *et al.*, 2003).

Self-concepts are associated with learning across the lifespan, though a causal link has not been determined through rigorous testing. There is also some evidence that self-concept and self-esteem provide protection against some adverse health outcomes through fostering resilience. This finding has not been consistent (see Feinstein *et al.*, 2006).

Findings suggest that there are important channels for effects of education on health in all of the contexts considered, at every level of social aggregation from the household to the nation. Education can affect the physical and

chemical environments that people come to inhabit, which can mediate the education-health relationship. Similarly, the health effect of education can be mediated by the social and economic relations that people experience in various contexts. For example in relation to the workplace, education reduces the likelihood that individuals will work in the most hazardous jobs (Kemna, 1987). Education also affects social and economic relations in the workplace by giving individuals access to jobs with autonomy and authority, which in turn reduces stress and improves health status (see Feinstein *et al.*, 2006). There may also be an aggregate effect by which increasing average levels of education may improve the overall balance of risk through these channels.

Table 5.2. Assessment of the evidence base for factors that mediate education effects on health and well-being outcomes and behaviours

		Strength of mechanism for education effects
The self	Self-concepts	Self-concepts are associated with learning across the lifespan, though a causal link has not been determined through rigorous testing. There is also some evidence that self-concept and self-esteem provide protection against some adverse health outcomes through fostering resilience. This finding has not been consistent.
	Beliefs about health	There is good evidence that beliefs about health and health care, shaped and influenced by socio-demographic factors including education, determine health behaviours. Randomised controlled trials testing the efficacy of interventions have demonstrated that education has the potential to change health beliefs and behaviours if designed and delivered to appropriately address particular notions about health and illness.
	Patience	Patience may be an important channel for education effects if it is an outcome of education but patience may also precede education. The evidence is unclear and although there are grounds for believing that the channel may be very important we cannot be sure about its strength.
	Resilience	Though important, the connection between education and resilience is not clear from large sample empirical analysis. Associations suggest a link and an impact upon health, but more precise modelling and tests for causation are required.
Family	Income	The income returns to education are well theorised and supported by robust causal empirical evidence. The size of the effect of income on health varies depending on the country's provision of health care. Income is an important channel for education effects but not as large as the simple associations suggest.
Workplace	Environmental health risks	The evidence is not clear cut. Our tentative conclusion is that education appears to have some effect, in that individuals with a high school diploma select themselves out of the most hazardous jobs. However, once these individuals are in their respective types of jobs, education is not very protective of health.
	Social and economic relations	Social and economic relations in the workplace appear to mediate some of the effects of education on health such that this appears to be a strong channel for educational effects on health.

Table 5.2. Assessment of the evidence base for factors that mediate education effects on health and well-being outcomes and behaviours *(continued)*

Neighbourhoods and communities	Environmental health risks	There is evidence that education, mainly through its effect on income, mediates the relationship between physical and environmental risk factors and health, such that higher SES (socioeconomic status) individuals appear to select themselves into safer and cleaner areas. There is also some evidence that education has an independent effect on health such that higher SES individuals respond to information about health hazards by modifying their behaviour accordingly, more readily than do low SES individuals. Overall, the findings suggest that this is a relatively weak channel for educational effects on health.
	Crime, unemployment and deprivation	Although the theoretical grounds for an effect of income and education (parents' and own) on neighbourhood choice are strong, we find no evidence that empirically establishes a causal role. Hence, we cannot specify the extent to which that education causes residential sorting. In terms of the relationship between neighbourhood attributes and health we find that although neighbourhood effects remain after controlling for individual and household characteristics, the magnitude of these effects is small. This suggests that this is at most a weak channel for educational effects on health.
	Bridging and bonding community capital	There is a great deal of associational evidence that various forms of social support are correlated with a variety of health outcomes. There is evidence of a causal relationship between education and civic participation. Robust evidence from a randomised clinical trial also points to the causal effect of social support on improvements in depression and social functioning.
Macro-level	Inequality	Many studies point to a very strong association between educational/income inequality and health. The most persistent association has been income inequality and infant mortality. However, to our knowledge, there is little or no causal evidence linking inequality per se to health.
	Social cohesion	There is associational evidence of a relationship between education and social cohesion and social cohesion and health. This relationship does not appear to be purely causal. Social cohesion appears to moderate the relationship between social and economic relations and health at the community level. Individual level factors have a greater impact on health than does social cohesion. Nonetheless, in particular settings and where there is a large community element to the desired outcome, this pathway may be very important in achieving positive health outcomes.

Source: Feinstein *et al.* (2006).

Although there is firm theoretical and qualitative foundations for the view that education affects health through a range of mechanisms, in different contexts and at different levels of social organisation it is difficult to draw firm conclusions about the relative importance of each of these mechanisms. For example, evidence on the psycho-social mechanisms is important but the robustness in term of identifying causality is weak.

Most of the evidence is from within-country analysis in which aspects of national level policy, culture and society are held constant. There can be substantial differences between OECD nations in terms of educational provision and the nature of their health systems. These features are partly the result of policy provision (supply) but also the result of social and cultural differences in the take-up of services and public expectations, requirements and needs. Differences also exist in terms of the distribution of access to resources of health, education and to wealth generally. These may have important impacts on the effectiveness of education provision, on public health and on the relationship between the two.

5.5.3. Evidence of absolute versus relative effects

Available evidence suggests that the impact of education on health is substantial. But it is important to stress the positional aspect to the benefits of education. There is an apparent tension between: a) education as investment in competencies (including health competencies) and self efficacy; and b) education as a sorting system which perpetuates or even reinforces socio-economic inequities which are bad for health. There are important implications concerning the extent to which each mechanism operates. Firstly, in policy terms, to the extent that education effects on health are causal and absolute, caused for example by benefits of good learning for neurological development or cognitive functioning, one may assume that expanding participation would result in improvements to population health. However, to the extent that benefits are due to relative gains one cannot generalise from an estimated causal effect of education to what would happen under a system of wider participation in education. If benefits are positional and relative, changes in the distribution of participation are likely to have unintended consequences that may or may not lead to improvements in overall public health but may merely change the distribution of health amongst the population. Policy decisions need information not just on causality but also on process and contexts that explain the causation. Secondly, if education is slanted towards those in search of positional advantage, then educational opportunities will be allocated to those with a distinctly different set of characteristics. Characteristics which may also be related to better health, well-being and associated behaviours, making the association between education and health less likely to be causal in nature.

There are strong theoretical grounds to suggest that both absolute and relative impacts are operating. Self-concepts provide an example of a mechanism that is a complex combination of absolute and relative effects. Self-concepts are to a substantive extent formed by an individual's perceptions of his/her relative achievement, status and/or ability. How these

judgements and perceptions are managed in learning environments is very important in the development of personal efficacy and continued learning engagement, all good for health. Therefore, the impact of learning on self-concepts depends on an interaction between actual performance and relative position, moderated by the nature of educational experiences. Good classroom management and teaching can achieve an absolute effect to the extent that potential damage to self-esteem can be lessened. However, one key source of the effect is the differences between learners in their observed capabilities. It would be a mistake to ignore these signals completely as they are important in the process by which learners choose specialisations and manage their pathways through learning.

To the extent that the mechanisms are due to positional gains, then the level of educational disparity or inequality between those with the highest and lowest educational achievement exacerbates the impact of the relative effects where they exist, and may produce negative consequences for average health as well as worse health for those at the worse end of the distribution. There may be overall health gains, therefore, to a reduction of educational disparities.

A key question arises: what would be the extent of health returns to further increases in general education directed mainly at the least education members of the populations? Research suggests that past extensions of compulsory schooling have led to positive returns. Such extensions will have affected mainly children who would otherwise have dropped out of education. Did the extension of schooling have an effect on health because they increased competencies or because they reduced inequalities or both?

The evidence does not come to a clear conclusion about the relative importance of positional benefits of education as compared to absolute effects. Thus the precise effects of broadened participation in education are difficult to predict. Improvements to the quality of education, in its appropriateness to the lives of individuals and communities and in its persistence and accessibility through the life course may be as or more important for health outcomes than a simple expansion of the quantity and breadth of participation at a particular stage such as at tertiary level.

In summary, increased educational participation may bring social benefits via absolute effects on individuals, and reductions in educational inequality may have the capability to change positional effects in ways that improve overall population health. However, this depends to a great extent on the nature of that participation and not just on the quantity.

5.6. Cost-benefit estimates

What do these effects mean in terms of monetary savings or other health policy measures? Here we simply list some of the more rigorous examples of estimates made which put a cash figure on the effects, recognising that these are often highly sensitive to assumptions made about the changes involved.

Chevalier and Feinstein (2006) did a simple calculation that shows the potential monetary benefits associated with the effect of education on (reduced) depression. By simulating the effects of taking women without qualifications to Level 2 in the United Kingdom, could lead to a reduction in their risk of adult depression at age 42 from 26% to 22%, which is a reduction of 15%; this population represents 17% of depressed persons in the United Kingdom. Assuming that this reduction is constant throughout the working life, and with an estimated cost of depression of GBP 9 billion a year (Thomas and Morris, 2003), the benefit of education would be to reduce the total cost of depression for this particular group by GBP 200 million a year.[3]

Groot and Maassen van den Brink (2006) analysed the links between education and self-reported health using a large cross-sectional survey for the Netherlands. Education is measured as years of schooling. The equation for self-rated health controls for family background, such as parental education, and for reverse causality by including prevalence of diseases and handicaps. The findings indicate that as education increases the likelihood of reporting bad health decreases. In terms of Quality of Life Years (QALYs), a year of education improves the health state of men by 0.6% and for women 0.3%. Calculated at the average value of GDP per capita, the health return on education is about 2.5 to 5.8% for men and between 1.3 to 2.8% for women. These results are robust.

Lleras-Muney (2005) showed that there is a large causal effect of education on mortality. Using different estimation techniques, she finds that in the United States an additional year of education lowers the probability of dying in the next 10 years by approximately 1.3 to 3.6 percentage points. To better understand the impact of education, she calculates how this effect translates into life expectancy gains. Her findings indicate that for people born in 1960, one more year of education increased life expectancy at age 35 by as much as 1.7 years.

[3] These estimates are based on instrument variable estimation techniques and matching methods, making them relatively robust in terms identifying causality (*i.e.*, controlling for reverse causality and selection bias).

Sabates and Feinstein (2006) estimated the effects of adult learning on cervical cancer prevention using the estimated effect on cervical screening. They simulate the impact of whether 100 000 women were enrolled in adult learning. The marginal effect ranges from 1.9 to 2.3 %, so we would expect between 1 900 and 2 200 new screenings. From all adequate smear tests analysed in 2002 in the United Kingdom, 92.4% were negative, 3.9% showed borderline changes, 2.2% showed mild dyskaryosis (dyskaryosis is an abnormality of nuclei seen in cells from the uterine cervix), 0.8% moderate dyskaryosis, 0.6% severe dyskaryosis and 0.1% glandular neoplasia (cellular changes that may develop into cancer). Using these statistics, they estimated that a minimum of 1 756 of the new smears for adult learners will be negative, 76 will show borderline changes, 42 mild dyskaryosis, 15 moderate dyskaryosis, 11 severe dyskaryosis and two may show glandular neoplasia. Finally, according to the NHS Cancer Screening Programme (2003) cervical screening can prevent 80 to 90% of cancer cases in women who attend regularly. Assuming the lower bound percentage for prevention, 80%, then they expect between 116 to 134 cancers prevented for every 100 000 women in adult learning.

Currie and Moretti (2002) use coefficients derived from their analysis to estimate the impact of schooling on health outcomes. First, the increase in maternal education between the cohort of women who went to college in the 1940s and the 1950s and the cohort of women who went to college in the 1980s is about 1.6 years. During these two periods, the probability of low birth weight and pre-term birth decreased by 6 percentage points and 3 percentage points, respectively. Their estimated effect suggests that 12% of the decrease in the probability of low birth weight and 20% of the decrease in the probability of pre-term birth can be attributed to increased maternal education. Moreover, the increase in education induced by college openings is estimated to have reduced the incidence of low birth weight and preterm delivery by closer to 2% and 1%, respectively. While these may seem like small improvements, the costs of low birth weight and prematurity are large. For example, it is estimated that between birth and age 15, low birth weight children incur an additional USD 5.5 to USD 6 billion more in health, education, and other costs than children of normal birth weight (March of Dimes, 2002, pp. 34-35).

Not all effects of education on health costs are positive. Education can increase uptake of preventative care which may lead to long-run savings but short term increases in health care costs. Evidence indicates that those with more education are more likely to take advantage of health care provision (see Table 5.1).

5.7. Conclusion

Evidence suggests that the relationship between learning experiences and health outcomes is pervasive. Overall, international evidence shows very strong links between education and determinants of health such as health behaviours and preventative service use. Many of these links are causal, *i.e.*, even with rigorous controls the effects go beyond the associational. Those with more years of schooling tend to have better health and healthier behaviours.

Education is an important mechanism for enhancing the health and well-being of individuals because it reduces the need for health care, the associated costs of dependence, lost earnings and human suffering. It also helps promote and sustain healthy lifestyles and positive choices, supporting and nurturing human development, human relationships and personal, family and community well-being. In other words, education clearly has effects both on cost containment and on individual and collective well-being.

The evidence on the mechanisms for effects of education on health does not suggest that there is one single, simple mechanism. Rather there is evidence in support of a range of hypothesised mechanisms that operate at different levels of society, from effects on the individual, through effects on household and work contexts, effects at the community level and also national level effects.

The benefits of education to health go beyond that of schooling. Learning in later life can have substantial effects on health. Although preliminary investigations suggest that the health benefits of learning later in life may be substantial, few studies have investigated lifelong learning effects beyond the stage of higher education.

A weakness of the evidence to date is that much of the assessment of the effects of education has measured education in terms of years of schooling. This has commonly been investigated as a simple linear effect, without distinguishing the relative benefit of educational participation at different stages. Despite the gaps in the evidence base, the health productivity of learning requires considerably more attention from policy makers. More emphasis should be placed on qualitative evidence which can illuminate how education benefits health, so that policy conclusions can be drawn in relation to curricula and pedagogy at different ages and stages.

Not all learning is good for health. At a collective level education can increase inequalities, with negative health consequences; and can raise stress levels. Further, not all effects of education on health costs are positive. Education can increase uptake of preventative care which may lead to long-run savings but short term increases in health care costs.

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Chapter 6
Conclusion and Implications: A Policy/research Agenda for SOL

In conclusion, we point to a number of further steps or challenges which have presented themselves in the course of the first phase of the SOL project. The challenges are partly in the research field, both methodological and empirical, and partly in the policy field, for education but also other sectors.

6.1. A reminder of the SOL goals

The overall purpose of the SOL project is to generate policy-relevant tools and analysis on the links between learning and well-being. The project also seeks to help policy makers adopt a more holistic view of social outcomes, and hence contribute to the development of more well-integrated policies across education and other policy domains. Understanding if, how and to what extent education leads to specific social outcomes is critical not only to provide a more rational basis for educational expenditures, but also to better understand how education policies and practices can be used to alleviate social and economic inequities. The project seeks to inform the debate surrounding two major concerns of education policy: to make the best use of investment in education, with appropriate balance of costs and benefits, and taking externalities into account; and to distribute in appropriate fashion education and learning opportunities, with their associated outcomes, according to our concern for human welfare and goals such as the attainment of equity and social cohesion.

The rationale for this work presented in Chapter 1 specified a number of dimensions: a concern for accountability, with an increasing focus on the actual outcomes of education rather than participation rates or qualifications; a recognition that the effectiveness of policies depends in large measure on their interdependence on developments in other sectors, so that education

cannot be adequately understood independently of broader social contexts; and a more fundamental concern to do with the value dimension of education as a basic component of contemporary democratic life. The SOL project addresses issues about the articulation of basic social values, as well as about the means used to realise those values.

This report, concluding the first phase of the SOL project, has put only the initial building blocks in place. It introduces different approaches to addressing complex questions of causality, or how we understand the effects which education has on people's social and economic lives. It puts forward a limited range of models, and explores how these might be applied empirically. In doing so it meets a growing concern in OECD member countries as to the place of evidence in policy-making (see OECD, 2007). At the heart of this is the tension between the need on the one hand to make decisions which cannot wait until a "perfect" knowledge base exists to supply clearcut answers; and on the other hand a recognition that simplistic or partial answers to complex questions may accentuate rather than resolve problems.

6.2. Demonstrating benefits?

The basic assumption behind this work is that education is a positive force for social progress as well as economic development. The empirical results presented focus on the whole on ways in which education improves health, individually and in the aggregate, and promotes civic and social engagement. However there is no assumption that education systems as they currently stand operate unambiguously in these favourable directions. In the first place, they may do so inefficiently, *i.e.*, they do not have as much effect as they might do if differently arranged. There may be more efficient ways of achieving the desired outcomes, including possibly a shift of resources to learning opportunities outside the formal education sector. Secondly, they may even work in the opposite direction, for instance to increase inequalities and therefore impair health or discourage civic participation. In both of these cases, analysis of the kind contained in these pages should encourage a rethink of how educational resources are allocated. In particular, it raises questions about the level of resources devoted to different types and levels of education: the fundamental importance of basic literacy for children and adults may assume a greater priority in comparison with other levels such as expanding tertiary education, if social outcomes are included in policy assessment – and the same might also be true for economic outcomes. (These are only hypotheticals.)

Even where there does appear to be a strong link between education and an outcome such as good health, there is no guarantee that the causal

relationship runs from the former to the latter. Reverse causality – the fact that health may influence education as much as or more than education influences health is a real possibility, and serves to underline the importance of an intersectoral approach as identified above. The diagrams presented in Chapters 2 to 5 address interrelationships of several kinds. They are therefore often quite complex, but they still are far from capturing the full dynamics of the interdependencies between different sectors.

But for all these reservations, the evidence presented makes a strong case for the positive role of education. In some aspects, the evidence is strong enough for a causal relationship to be accepted on any reasonable standard. Education affects people's lives, directly and indirectly. Overall, more education is likely to *improve their physical and mental health*, and their *capacity and motivation to participate in civic and social life*. It contributes effectively to *cost containment* in public services – in other words, as an investment it saves money, enabling people to look after themselves better and to make more effective use of public services. More positively, it *generates or maintains well-being*, *contributes to the quality of life* and *strengthens democracy*. These are hardly negligible effects. Education helps some individuals and some groups more than others, and in so doing may make those others worse off, as the presentation of the relative model shows. But overall this is a very positive balance sheet, if not always easy to read.

6.3. Steps ahead

In conclusion we point to a number of further steps or challenges which have presented themselves in the course of this phase. The challenges are partly in the research field, both methodological and empirical, and partly in the policy field, for education but also other sectors.

6.3.1. Review the public objectives of education

Countries vary in the extent to which they make an explicit declaration of the goals of their education system. Where this occurs, it is necessarily at a fairly high level of generality. It would be unfair to make too much of this, and there is a danger of encouraging statements which contain more rhetoric than anything else. Nevertheless a pertinent question for policy makers is the extent to which broad social objectives such as the improvement of national health levels are articulated as part of these goals.

One important aspect of such an articulation is the balance between initial education and lifelong learning. National policy statements on

lifelong learning abound. Yet it is a fair bet that most overall statements of educational goals still focus almost exclusively on the preparation of young people for adult life. If social outcomes are included in educational objectives, this would be a further reinforcement of the case for lifelong learning as an overarching principle at the level of overall systems.

Bringing together different articulations of educational objectives from the range of jurisdictions in OECD countries would be a major step forward.[1] These might take the form of brief "mission statements" or be highly elaborated strategic documents. Reviewing systematically how far administrations, in producing these statements, commit themselves to social outcomes (not necessarily the two domains of health and CSE dealt with in this report) could be a revealing and helpful exercise. It would enable both policy makers and those responsible for the delivery of education to understand more clearly what is expected of them, and to raise aspirations. This could be extended to include the kinds of criteria, measures and instruments used to establish how well these objectives are being met, at system or institutional level.

A concrete first step would therefore be a straightforward review of *general system objectives, focussing whether social outcomes such as health and citizenship are included in these*. A second step would be to extract and *compare procedures for reviewing progress*. This report has stressed the difficulty of measuring social outcomes, so there is no suggestion that robust measures are readily to hand. But if any of the social outcomes are accepted as goals to which education should contribute, there should be some political commitment to understanding what kinds of progress are being made towards these goals, however approximate. This is an area where the sharing of expertise and experience through international comparison is highly relevant.

6.3.2. Strengthen the knowledge base

"More research" is always needed. But in the case of SOL the knowledge base is particularly weak for such a significant area of public policy. There are several steps which could be taken to remedy this.

[1] The objectives could go beyond national jurisdictions – see for example the Lisbon objectives for the EU, given the general description of "to create the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion".

Extend, consolidate and refine the framework informing the policy debate on the social outcomes of learning

First, this would involve the further development of a generalised conceptual mapping of the impact of learning on social outcomes, and how this links to economic outcomes. Chapter 2 presented a number of approaches, with diagrammatic representation. It outlined the links between different forms of learning – including but going beyond formal education – and competencies, mediated by notions of human and social capital. These competencies lead on to social outcomes, though rarely in any direct linear fashion. Subsequent chapters presented the "ARC" models – dealing with absolute, relative and cumulative effects of education – as a set of models with empirical application to these links. The "self-in-context" model approached the issue from a different angle. These models need to be debated and tested further. But we emphasise that no single model will suffice to capture the range of outcomes and relationships involved. A *coherent portfolio of testable models* would be an important step forward, offering a range of options for policy makers and researchers committed to exploring the issues.

Second, the two main domains – *health and civic and social engagement (CSE)* – were selected because they present significant current policy challenges. They have high economic cost implications (in the case of health, because of demographic and medical technological trends) or reflect a more generalised concern with the quality of democratic life, as with CSE. More detailed conceptual mappings of each domain still remain to be done, presenting in accessible form the nature of the links between education and the specific domain. But other domains are also ripe for this. A priority already identified is *crime and anti-social behaviour*, where there is expectation that education could play a significant role in addressing problems with major economic and social costs, but an inadequate understanding of how it might do so systematically. A different area, obviously increasingly rapidly in political profile, is that of *sustainable development*; as with the others, the task here would be to map out the various ways in which education might be predicted to affect the behaviour of individuals and organisations in the face of extremely alarming environmental trends. In all of these areas we need approaches which encompass the interactive, dynamic and cumulative effects of learning over individual lifespans.

The list of potential domains could be added to, clearly. The argument here is that measuring the social outcomes of learning is a field which still has to establish a sound theoretical base, a common terminology and a reasonably agreed set of analytical tools. The framework presented in this

report, and the approaches used in a small set of related analyses (*e.g.*, Berhman and Stacey, 1997; McMahon, 2002; Schuller *et al.*, 2004) need further refinement.

Propose and develop policy indicators from existing data sources, and create a framework of reference for further indicator development

Alongside this conceptual mapping work is the need for a framework for systematic data gathering, including on a comparative basis. The OECD INES Network B participation in the SOL work will result in proposals for such a framework (OECD, forthcoming) – a challenging task, since indicator development is difficult under any circumstances but much more so when the indicators are of relationships rather than absolutes, as in this case (*e.g.* the relationship between education and health, rather than the proportions of a population that participate in a certain level of education or are at a certain level of health). This would involve identifying the feasibility of using existing data sources and their limitations as well as ways to improve these data to meet the requirements of a good policy indicator. The indicator framework should take account of the feasibility and limitations of measurement, and facilitate the development of appropriate survey instruments to collect the information necessary to create policy indicators identified as high priority. Cooperation on indicator development between OECD and the EU Centre for Research on Education and Lifelong Learning is well under way.

Combining these two elements should lead to a fuller framework, to act as a guide for future efforts which seek to rigorously assess the wider impact of education.

Assess the strengths and weaknesses of cost/benefit approaches to different forms of social outcomes

Where the analysis was sufficiently rigorous we have included available quantitative estimates of a cost/benefit kind. Normally such analyses can only be applied to specific interventions rather than to entire education policies or systems, but in some cases it has been possible to offer reasonably evidence-based estimates. It is common knowledge that analyses phrased in these terms, with a precisely quantified final figure, have a disproportionate effect on policy funding, usually beyond the robustness of the work. This implies several areas for policy action:

- To extend this work and make it more nuanced, notably by including sensitivity analyses to allow people to judge the stability of the conclusions.

- To promote discussion on the potential implications amongst different stakeholders, *e.g.* policy makers from different sectors, with finance officials.
- To assess how far the results of such analyses can appropriately be monetarised, *i.e.*, have a financial figure placed upon them.

6.3.3. Enrich data collection and analysis

The next step is to take forward the application of the frameworks to empirical data. This is not the place to explore the relative merits of different methodologies generally in educational research or policy. It is clear, however, that there are a number of methods which would be particularly valuable in answering some of the problems confronting analysis of complex effects which are spread over long time periods. The work in the first phase of SOL identified a number of approaches to this which it is particularly important to take forward.

- *Longitudinal/panel data* is essential for the tracking of effects over time. The kinds of analysis presented in Chapter 5, and given in more detail in the SOL web publication (*www.oecd.org/edu/socialoutcomes/symposium*) depend on the accumulation of data over long periods. Uncovering the effects of education, at different points in the lifecycle, on people's health levels or civic motivation depends on being able to track changes in their outlook and behaviour over many years. As a general point, the effects of education are arguably underestimated because these longer-term benefits are not easily visible. Longitudinal datasets are ones which individual researchers or even institutions can easily assemble; there is therefore an issue of national and international significance.
- *Experimental designs.* This methodology is arguably underutilised in educational research (see Cook and Gorard, 2007), especially where causality is an issue. There are natural limitations on its applicability. However tracking social outcomes offers potentially exciting areas for such approaches. Some natural experiments exist even at national level, for example through the raising of the school leaving age, but more could be designed to explore just how education has an effect. This is easier in relation to specific interventions (*e.g.*, health education programmes) but wider applications are also feasible.
- *Qualitative biographical research.* In-depth understanding of processes requires investigations which can pick up contextual detail and multiple interactions over the lifecourse. Biographical

research can do this, tracing out the periods of individual development and the various, and often unpredicted, factors which influence the extent of education's influence (Alheit *et al.*, 1995; West *et al.*, 2007). This complements in particular the longitudinal research opportunities; a particularly valuable source of understanding is where individuals can be selected from large cohort studies and their paths examined qualitatively.

- *In-depth study of educational processes.* Our understanding of the ways in which different teaching and learning processes affect the effectiveness of education is still quite rudimentary. In-depth exploration of "what works" is crucial, but unlikely to be suited to experimental design.

Of course these suggestions are not in any way exclusive of other methods. Chapters 4 and 5 above have shown how the exploitation of cross-sectional surveys and other datasets can yield valuable results. We are suggesting that these methods may be particularly underutilised and particularly fruitful.

Applying these research approaches and strengthening the knowledge base more generally opens up a very big research agenda. This has implications for research capability in this field. The argument from complexity suggests that particular emphasis should be given to multi-disciplinary and mixed-methods approaches which combine a range of skills, concepts and methodologies to provide a rounded picture, capable of encompassing interactions over time.

6.3.4. Assess the implications for pedagogy, assessment and qualification systems

The report stresses that in this first phase the analysis draws almost exclusively on formal qualifications, and largely on initial schooling. This imbalance should be redressed in further work which will need to distinguish between analyses based on qualifications and those which investigate other forms of learning. However this brings directly into play the significant policy issue of how learning achievements of different kinds are recognised and valued. Already in the labour market context more emphasis is put on "soft" skills such as creativity and empathy, which are not easily certified. This poses challenges to assessment methods, since it is not easy to identify and measure how such skills are taught or acquired. But if the objectives of education are extended to include social outcomes such as health and civic participation, the question of what is being learnt and how this should be recognised becomes even more salient. In other words, a

direct policy implication is the need to take into account the way the recognition of informal learning might enhance the benefits from learning of different kinds in different contexts: workplace, community, family.

This in turn is linked with pedagogy. The analysis in Chapter 4 shows that teaching styles are one of the strongest influences on students' acquisition of democratic skills, with an open classroom style being a major determinant of positive participation in civic life. We cannot say for sure whether the same holds true for health. This report does not deal directly with health education programmes as such, but with the effects of education generally. However it is reasonable to suppose that the qualitative experience of education will affect health outcomes. Students – adults or young people – who enjoy education are certainly more likely to show better mental health, and a positive experience of this kind can counter pressures from elsewhere in the student's life which might otherwise have produced ill-health. Highly stressful educational experiences may have the reverse effect, even if the formal outcome, *i.e.*, the gaining of a qualification, appears successful.

6.3.5. Develop literacy benchmarks

Chapter 2 set out a framework which included the notion of competencies as a central mechanism for the translation of educational investment into social and economic outcomes, with human and social capital as key components in this process. "Literacy" in the traditional sense of language, reading and numerical skills is a basic competence. It may, however, be time to extend this notion of literacy into other domains. The notion of *health literacy* is already quite well established (see Rudd, Kirsch and Yamamoto, 2004), referring to the basic skills which people need in order to give themselves a fair chance of leading healthy lives and being able to look after themselves. It is less clear that health literacy is well articulated with what goes on in education systems.

The notion of literacy could be extended, for example to the civic sphere. How citizenship should be learnt is a current topic for debate in many countries. The debate covers whether it can be taught directly, as part of the curriculum, and has a strongly cognitive aspect, or whether it is best acquired through activity and participation, as learning through experience. Defining what a citizen should know is a contentious issue, especially in a context of high migration, but one that policy makers are likely to have to address in one way or another. *Civic literacy* invites discussion of the balance between different modes of learning (inside and outside the classroom), of content, and of the outcomes aimed at. Comparative work on how these issues are addressed in different countries would be a useful

benchmarking exercise, in addition to the major surveys such as the IEA one on civic education.

6.3.6. Foster intersectoral dialogue

The whole SOL exercise is inherently intersectoral, focussing as it does on the links with outcomes beyond education. A major policy challenge is to enhance dialogue across policy fields so that the potential mutual benefits of both information/analysis and actual policy coordination are realised. If education improves health, and good health enables successful education, this provides a strong case for both sectors to look at how the positive aspects of these interactions can be strengthened (and any negatives ones mitigated). No one stands up to argue against coordination, but it often does not happen. This is for a variety of reasons, including lack of time; professional jealousies; and incentives which discourage collaboration across boundaries. But there is also the lack of a common framework within which such dialogues could happen to mutual advantage. Social outcomes could provide just such a framework and focus. A key first step could be to bring groups from different policy sectors together to consider the analysis of social outcomes in respect of their own fields, and to pool ideas on what the implications might be.

There are of course plenty of examples of intersectoral dialogue, and this is a clear area where the identification of good practice could be very useful. The challenge here is to identify the potential benefits of synergies, the barriers to them, and solutions to those barriers.

6.3.7. Next steps for OECD

1. Further work will be done on the *two selected domains of health and CSE*, drilling deeper into the issues already uncovered. We shall carry out focussed empirical assessments on a small number of specific issues within each domain. This is likely to cover obesity, smoking and depression in the case of the health domain, and civic participation and social tolerance in the case of CSE.
2. We shall look to *apply a selection of analytical models* in different country contexts, aimed at uncovering international variations and seeking explanations for these variations. This will in effect represent a testing of the ARC and self-in-context models which have formed the backbone of this report, but may not be confined to them.
3. Proposals for *indicator frameworks* via INES Network B will be further developed.

4. We will extend analyses to address the role *of adult learning and informal learning*, despite the inevitable problems in data availability. This will mean synthesising a wider range of studies, including qualitative analyses, and seeking explicitly to apply a lifelong perspective.
5. Work on SOL will feed into development work on *PIAAC,* the Programme for the International Assessment of Adult Competencies. This is a major survey currently under development within OECD. Links already made with the EU Centre for Research in Education and Lifelong Learning will also be developed.
6. We shall explore systematic application of *different cost-benefit approaches*, using common parameters and assumptions. The goal will be to refine and develop such analyses to make them more reliable as policy tools; and to compare the outcomes across different countries.

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The report focuses on two broad areas: health, and civic and social engagement. In general, better educated people are healthier, and take more part in civic activities. Why should this be so? This publication draws on findings from 13 OECD countries (Austria, Flemish Belgium, Canada, Japan, Luxembourg, the Netherlands, New Zealand, Norway, South Korea, Sweden, Switzerland, the United Kingdom [England and Scotland] and the United States) to provide new models and insights into these important contemporary issues.

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