

Scottish Education Policy: Why Surveys Matter

by Lindsay Paterson

Number 66, 2018

Statistical surveys of students' attainment and experiences are essential for making good policy. Scotland pioneered the use of surveys for this purpose. This Briefing outlines the Scottish survey tradition by showing how key moments in educational reform in the past century are illuminated by data from surveys. It also highlights the very different position now: Scotland no longer has the data with which to assess education policy following the withdrawal of government support and funding for survey series.

- Scotland pioneered statistical surveys of school pupils with surveys by the Scottish Council for Research in Education in 1932 and 1947 of every 11-year-old child.
- The longest-running surveys of this kind were the School Leavers' Surveys, starting in 1962 and running to 2005. These were funded largely by Scottish government and carried out by the Centre for Educational Sociology and subsequently by ScotCen Social Research.
- There have also been government funded, long-running, high-quality surveys of primary-school pupils.
- One example of what surveys can do is the long-term evaluation of reforms to secondary education between 1900 and the 1930s. The surveys allow us to see that these reforms widened opportunity, creating a meritocratic route into the professions.
- A second example is the evaluation of comprehensive secondary schooling from the 1960s. These reforms further widened opportunity, especially for working class girls.
- Survey data also show that the expansion of higher education since the 1980s did not end inequality of access: inequality did narrow but the new opportunities for working-class school leavers were almost entirely in the new universities and colleges rather than in the older universities.
- The final example of the value of surveys is that they have shown the decline since the 1990s in the attainment of pupils in primary school and early secondary school, with no reduction in the social inequality of attainment.
- The surveys together thus allow an account to be given of Scottish education since the middle of the twentieth century, providing evaluation of policy and affording insights into social change.
- The quality and amount of Scotland's educational surveys have weakened severely since the late-1990s after government decisions to cut funding or discontinue participation. The scope for using good-quality survey evidence to hold Scottish education policy to account is now poorer than it has been since the 1950s.

Introduction

A well-designed series of surveys can tell the story of a national education system. This is illustrated here by four themes:

- secondary education for all, and the operation of the resulting selective system;
- comprehensive secondary education;
- expansion of higher education;
- attainment in primary school.

Important survey series

These themes can be analysed using three main survey series in Scottish education, summarised in Figure 1. The first came from the Scottish Council for Research in Education (SCRE), which was founded in 1928 by the local authorities and the Educational Institute of Scotland to provide analysis of Scottish education that was independent of government. Funding for its surveys came mainly from these sources. Under the leadership of Professor Godfrey Thomson, it surveyed all 11-year-olds in 1932 and 1947, and followed up a sub-sample of the 1947 survey annually to 1963. The surveys have been further followed-up since the 1990s by Ian Deary and his colleagues (Deary et al., 2009).

The second survey series was of school leavers. It also was started by SCRE, in 1962, and was mainly developed by the Centre for Educational Sociology under the leadership of Professor Andrew McPherson and Professor David Raffe as the Scottish School Leavers' Surveys, mostly funded by the Scottish Office or, later, the Scottish Executive.

The third survey series has been of primary-school attainment, which, too, has been supported by government. The first two were in 1953 and 1963, by SCRE. There was a hiatus to 1983, after which the Assessment of Achievement Programme lasted until 2004, assessing mainly mathematics, English language and science. This was followed by the Scottish Survey of Achievement until 2009. It was replaced from 2011 to 2016 by the Scottish Survey of Literacy and Numeracy.

Figure 1: Scottish education survey series	
Scottish Mental Surveys	SCRE, 11-year-olds in 1932 and 1947 SCRE, follow up 1947-63 Deary et al., follow up since 1990s
Surveys of school leavers	SCRE, 1962 CES and ScotCen, mostly biennial 1971-2005
Surveys of primary-school pupils	SCRE, 1953 and 1963 Assessment of Achievement Programme, 1983-2004 Scottish Survey of Achievement, 2005-2009 Scottish Survey of Literacy and Numeracy, 2011-2016

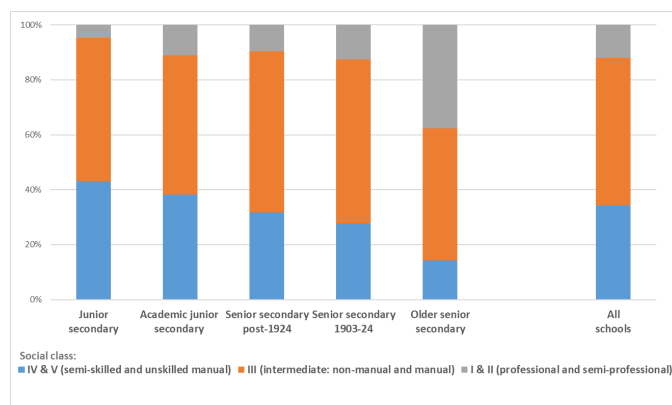
Secondary education for all

The selective system that was consolidated in the 1930s was officially in two streams: academic, leading to university or the professions, and the rest, leading to lower-status jobs or, for most women, into motherhood and housework. In Scotland, these courses were called senior secondary and junior secondary. In truth, however, the institutional structure of the selective system was not as simple as was officially recognised. The legacy of reforms between the beginning of the century and the 1930s was complex, but, in brief, they left five distinct sectors of secondary education. In ascending order of prestige, and with their sizes in 1947, these were:

- Junior secondary (41%)
- Academic junior secondary (14%)
- Senior secondary founded post-1924 (10%)
- Senior secondary founded 1903-1924 (24%)
- Older senior secondary (12%).

Re-analysis of the 1947 survey gives us an understanding of how this selective system worked. The original data have been made available by the work of Ian Deary and his colleagues, recovering the questionnaires from these surveys and converting their data into digital form. Figure 2 shows the distribution of different social classes into the different kinds of school. The oldest schools (the bar second from the right) had far fewer manual working-class pupils than the population as a whole: 14% compared to 34% (in the bar at the right). At the other end, the junior secondary schools had a higher working-class proportion (43%). But the schools in the middle here that had been created by government in the first 2-3 decades of the century much better reflected the national pattern of social class. These schools educated around one half of all pupils.

Figure 2: social-class composition of school sectors, 1947



Source: Scottish Mental Survey (1947). Table 1 in Paterson et al. (2011).

There was a new, meritocratic route into the professions from these newer schools: about two thirds

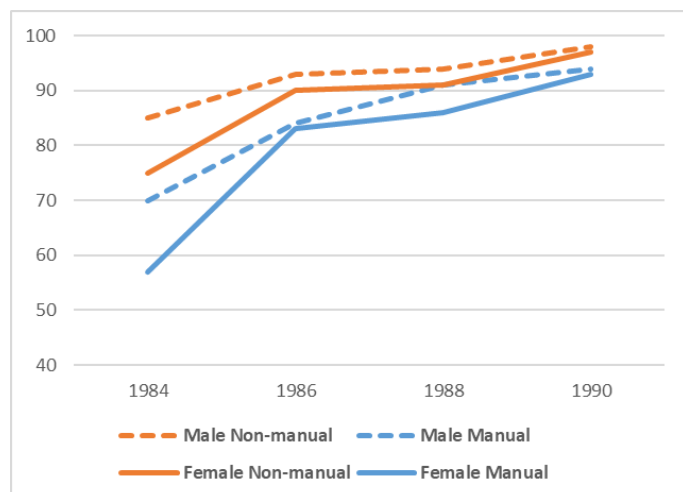
of all people who entered the professions did so through them (Table 2 in Paterson et al., 2010). An important aspect of this was opening new opportunities for Catholics for whom a new secondary sector was created for the first time after 1918. Data from the 1947 survey showed that this school system had ended invidious religious discrimination, in that the Catholic schools reflected intelligence and social class differences in the same way as the non-denominational schools (Paterson et al., 2015).

The 1947 survey thus lets us see that liberal reforms of the early twentieth century had very significantly widened opportunity, but also that it took half a century for their full effect to be seen.

Comprehensive education

The ending of selection for secondary school happened swiftly and relatively uncontroversially between 1965 and the late 1970s. This was followed by reforms in the 1980s that extended a properly planned curriculum to pupils of almost the full range of ability. The Scottish School Leavers' Survey was ideally placed to form the basis of an evaluation of the impact. One illustration is in Figure 3, which shows that the effects of the educational reforms interacted with wider social change, notably the aspirations and attainment of girls. This graph shows that the reforms were accompanied by an increase in the proportion of girls who took some science – the solid lines. The benefit was especially marked among working-class girls – the blue solid line.

Figure 3: percentage studying science in Secondary 4, by sex and social class, 1984-1990



Source: Scottish School Leavers' Surveys (1985-91). Derived from Table 4 in Croxford (1994).

Expansion of higher education

The value of a survey series is illustrated further by a third theme in recent Scottish educational history – the expansion of higher education.

The survey series showed, first, that educational expansion was self-generating. Because the parents of school leavers in the 1980s and after had been educated in the expanding system of selective schools and then the comprehensive schools, the expansion of higher education was an almost inevitable consequence of these earlier policy changes. Figure 4 shows the rising levels of parental education, and Figure 5 shows that these rising levels converted at a more or less constant rate into passing 3 or more Highers, which was taken at the time to be an indicator of the capacity to benefit from higher education. So, as parental education rose, the proportion of school leavers reaching that threshold also rose.

Figure 4: ages at which parents left school, among school leavers, 1976-2000

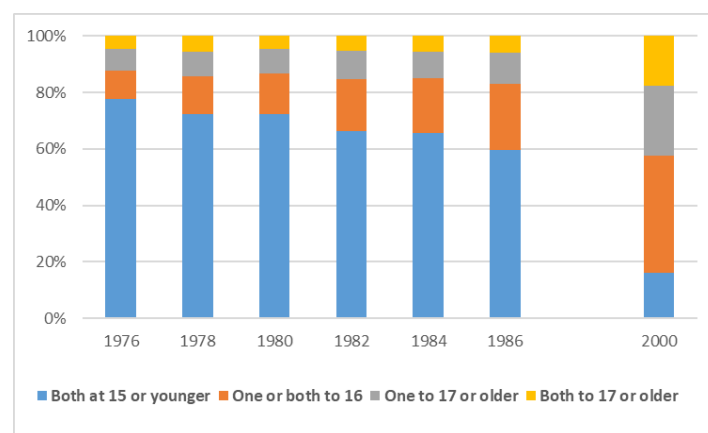
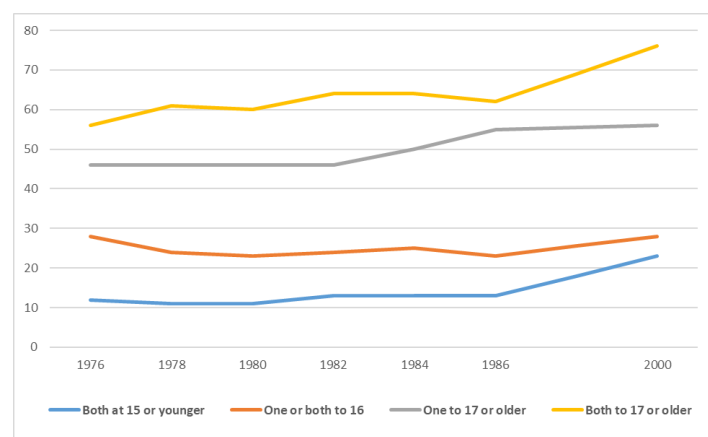


Figure 5: rate of passing 3 or more Highers, by parental education, 1976-2000

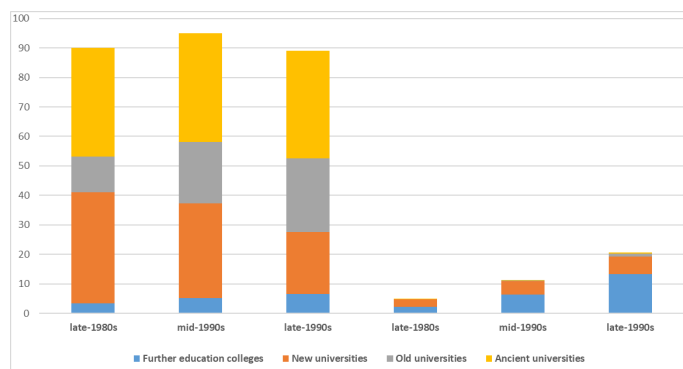


Source for Figures 4 and 5: Scottish School Leavers' Surveys (1977-87 supplemented by 2001). From Table 3.2 in Burnhill et al. (1988).

The survey series could also show that the expansion and the ending of the distinction between technological colleges and universities in 1992 did not end inequality of access. Figure 6 compares the estimated probability of entering higher education by two types of school leaver with contrasting social characteristics: one with professional parents who stayed on in school to age 17; the other with working-class parents who left school at age 15. Though inequality remained wide, it did narrow

during the period of expansion. However, the new working-class opportunities were almost entirely in the relatively low-status former technological colleges that had become the new universities of the 1990s, or the mainly non-degree courses in further-education colleges.

Figure 6: types of higher education, by social circumstances, 1987-91 to 1999-01

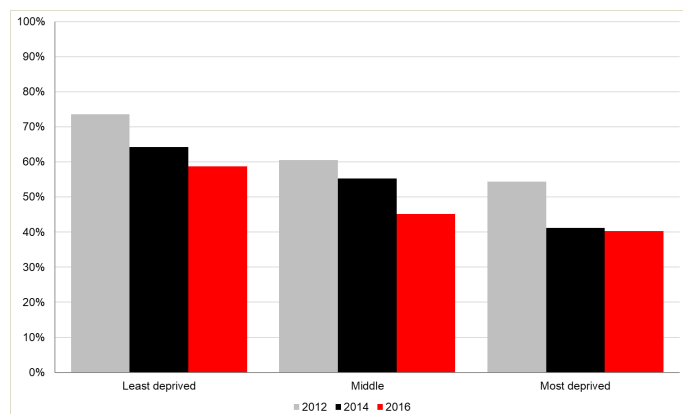


Source: Scottish School Leavers' Surveys (1987-2001). From Table 7 in Iannelli et al. (2011).

Attainment in primary and early secondary

The final illustration of the use of well-designed social surveys to contribute to our understanding of an education system relates to attainment in primary school and early secondary. The quality of primary schooling was first addressed in the SCRE surveys of 1953 and 1963. The comparison over time showed rising attainment (p. 57 in SCRE, 1968). Doubts about the technical quality of the Assessment of Achievement Programme in its first decade allowed the belief to be maintained that standards were at least stable. But then, from 2005, the more technically defensible Scottish Survey of Achievement began to show at best a stagnation of attainment, and possibly slow falls. From 2011, the Survey of Literacy and Numeracy showed a decline in attainment and no reduction in the social inequality of attainment, as illustrated in Figure 7 for the writing skills of pupils in the final year of primary school.

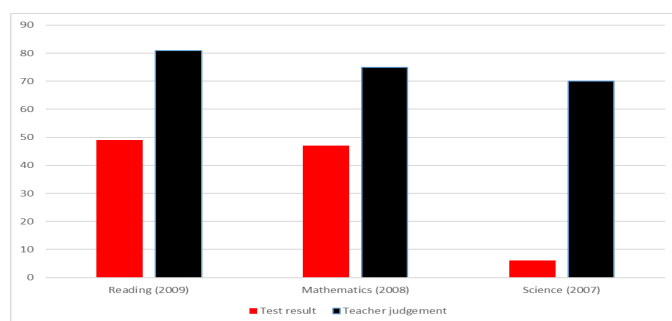
Figure 7: percentage of Primary 7 pupils performing well or better at the stipulated level in writing, by deprivation category of pupil's home neighbourhood, 2012-16



Source: Scottish Survey of Literacy and Numeracy (2012-16). From Tables 4.3 in Scottish Government (2017b).

The Scottish Government is now replacing this survey by monitoring that relies wholly on teachers' judgements. The Scottish Survey of Achievement allows an assessment of the validity of these judgements. Teachers err towards optimism, as shown in Figure 8. It shows, in the red bars, the proportion of Primary 7 pupils attaining level D according to objective tests, and, in the black bars, teachers' judgements of these same pupils. The discrepancy is large, especially in science.

Figure 8: percentage attaining stipulated level in Primary 7 – test result and teacher judgement



Source: Scottish Survey of Achievement (2007-2009). pp. 3 and 6 in Scottish Government (2009); pp. 4 and 88 in Scottish Government (2008); Tables B1, B3 and B4 in Scottish Government (2007).

Why educational surveys are useful for policy

Figure 9 sums up the reasons why surveys are essential for understanding education policy, under two broad headings – survey design and survey analysis.

Figure 9: why surveys matter	
Through survey design	Why?
Series	Policy happens in time
	Social change happens through time
Longitudinal	Students learn
Multiple levels	Students learn in institutions
	Policy shapes institutions
Through survey measurement	
External and internal to the student	Sociology and psychology both explain
Ideas from policy	Policy has the authority to do things
	Policy has to be held to account
Ideas in public debate	Debate stops academic introspection

To be useful, surveys have to be part of a series, since policy is an intervention in time and since social change happens through time. A series records data from periods before a policy was even thought about, and so can provide an adequate baseline. The absence of suitable series today is why the OECD could conclude in 2015 that the evaluation of Curriculum for Excellence was impossible (pp. 18 and 14 in OECD, 2015).

Since individual learning also happens through time, educational surveys also should be longitudinal at the level of the individual. But, valuable though cohort

studies are for understanding individual change, they can be used to study policy change or social change only if they, too, are part of a series. Thus *Growing Up in Scotland* is an excellent example of a high-quality longitudinal study (see GUS website). But it cannot be used to evaluate Curriculum for Excellence, because there was no preceding longitudinal study.

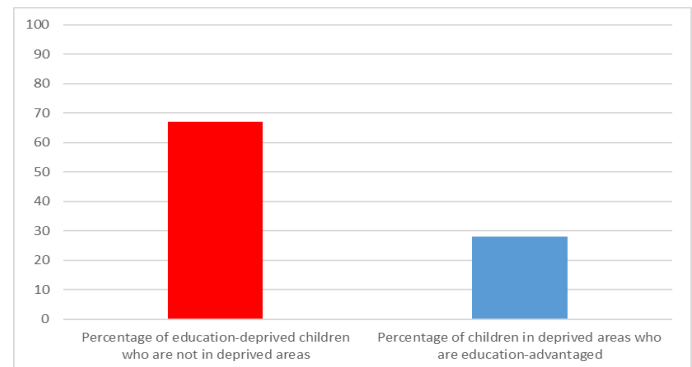
Surveys also have to be linked to educational institutions because policy works through institutions. That is also important if we want to understand social change, since traditions can shape institutional practices, and thus can influence students' learning as strongly as deliberate interventions by policy makers.

The second set of points is about how to interpret the surveys. Mere monitoring is not enough: the surveys must also include the potential for explanation. For that to be possible, the surveys need to measure the social environment validly and reliably, but there also have to be ways of distinguishing between explanations internal to the student – notably their measured intelligence and educational attainment – and explanations that require attention also to the student's social circumstances. The only regular survey now in place in Scotland that would satisfy these minimal requirements would be the three-yearly Programme for International Student Assessment (PISA), but in other respects it provides no explanations of much use to understanding policy. For example, it provides no information on school leavers, and no way of linking the data to any other sources (such as SQA data, or data from the new standardised assessments in primary school, or census data on the neighbourhood of schools).

The capacity of surveys to evaluate reforms depends not only on being a series, but also on the nature of the measurement. For example, the series always allowed a distinction to be drawn between family social circumstances and the social characteristics of neighbourhoods. They thus never suffered from the problems of all the current official monitoring measures in Scotland which record social circumstances only through a deprivation index of neighbourhoods. The resulting problems may be illustrated by the current official targets for widening access to university. These are expressed in terms of neighbourhood deprivation – for example, that 20% of entrants to university ought to come from the 20% most deprived neighbourhoods. The problem is that the 20% most deprived neighbourhoods have lots of non-deprived people, and that lots of deprived people don't live in these neighbourhoods, as is shown in Figure 10. Two thirds of children who live in a family where no adult has a higher-education qualification live outside the 20% most deprived neighbourhoods. One quarter of children living in the most deprived neighbourhoods are not

educationally deprived at all. Weedon has shown that, of the university students from the 20% most deprived neighbourhoods in 2014, as many 35% had a parent with a higher-education qualification (p. 10 in Weedon, 2016). Recruiting these students is not widening participation in any sociologically meaningful way.

Figure 10: area deprivation and individual deprivation



'Deprived area' is 20% most deprived by Scottish Index of Multiple Deprivation.

'Education-deprived' means no adult in the household has a higher-education qualification. 'Education-advantaged' means at least one adult in the household has a higher-education qualification. Source: *Growing Up in Scotland* (2011). Tables 1a and 2a in Paterson (2017).

Conclusions

The statistical evidence provided by carefully analysed and continually improving surveys has repeatedly provided useful evaluation of policy. These surveys, long before we had a national parliament, provided the stage on which a debate was had about Scotland's educational future. The hope in the 1990s was that a parliament would support this kind of evidence. But it has not. The Scottish Government no longer funds any leavers' survey of any kind. Reporting of primary-school attainment is based on teachers' judgements, not objective measurements (Scottish Government, 2017a). Teachers are expected to draw upon standardised assessments but, unlike in the Survey of Achievement, no public data will allow a comparison of these judgements with independent measures. The Scottish Government has withdrawn from the two international surveys of pupil attainment that cover the primary years (TIMSS on mathematics and science, and PIRLS on literacy). The only regular survey that remains is the PISA study, valuable in itself but wholly inadequate for measuring students' progress or for evaluating policies.

There is now no survey series with which to hold Scottish government to account in education, and not even an openness in government to methodological discussion of the kinds of evidence that would be needed. This closing of minds to science is the very antithesis of proper accountability.

References

Burnhill, P., Garner, G. and McPherson, A. (1988), 'Social change, school attainment and entry to higher education, 1976-1986', in D. Raffé (ed.), *Education and the Youth Labour Market*, Lewes: Falmer, 66-99.

Croxford, L. (1994), 'Equal opportunities in the secondary school curriculum in Scotland', *British Educational Research Journal*, 20, 371-91.

Deary, I. J., Whalley, L. J. and Starr, J. M. (2009), *A Lifetime of Intelligence*, Washington, D.C.: American Psychological Association.

GUS web site,
<https://growingupinScotland.org.uk/about-gus/study-design-and-methodology/>.

Iannelli, C., Gamoran, A. and Paterson, L. (2011), 'Expansion through diversion in Scottish higher education, 1987-2001', *Oxford Review of Education*, 37, 717-41.

OECD (2015), *Improving Schools in Scotland: An OECD Perspective*, Paris: OECD.

Paterson, L. (2017). Submission to Consultation on National Improvement Framework, available at <https://tinyurl.com/ydddpt3n>.

Paterson, L., Calvin, C. and Deary, I. J. (2015), 'Education, employment and school religious denomination in Scotland in the 1950s', *Oxford Review of Education*, 41, 26-46.

Paterson, L., Pattie, A. and Deary, I. (2010), 'Post-school education and social class destinations in Scotland in the 1950s', *Longitudinal and Life Course Studies*, 1, 371-93.

Paterson, L., Pattie, A. and Deary, I. (2011), 'Social class, gender and secondary education in Scotland in the 1950s', *Oxford Review of Education*, 37, 383-401.

Scottish Council for Research in Education (1968), *Rising Standards in Scottish Primary Schools, 1953-1963*, London: University Press.

Scottish Government (2007), *Scottish Survey of Achievement: 2007 Science, Science Literacy and Core Skills*.

Scottish Government (2008), *2008 Scottish Survey of Achievement: Mathematics and Core Skills*.

Scottish Government (2009), *Scottish Survey of Achievement 2009: Reading and Writing*.

Scottish Government (2017a), *Achievement of Curriculum for Excellence (CfE) Levels 2016/17*.

Scottish Government (2017b), *Scottish Survey of Literacy and Numeracy (SSLN) 2016 – Literacy*.

Weedon, E. (2016), *Intersectionality in Scottish Higher Education Institutions: Examining Socioeconomic Status and Protected Characteristics*, London: Equality Challenge Unit.

About this study

This briefing is based on a public lecture at Moray House School of Education, 26 March 2018, in honour of the late Professor David Raffé, former director of CES. A recording of the lecture (and its full text) is at <https://tinyurl.com/yd282m4g>, with the discussion after it at <https://tinyurl.com/y9s2g59u>

*Lindsay Paterson is professor of education policy, School of Social and Political Science, Edinburgh University.
lindsay.paterson@ed.ac.uk*

CES Briefings

CES Briefings are edited by Dr Cathy Howieson, email c.howieson@ed.ac.uk

All Briefings can be downloaded from our website, free of charge.