Working Paper Series
Paper 28

What can we learn from educational research? The implications of

work from the Cardiff University School of Social Sciences

The 5* educational research centre with a wider social science perspective

June, 2002

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Introduction

This working paper is a summary of some of the strands of educational research conducted at the Cardiff University School of Social Sciences 1997-2001. It is intended to convey a flavour of this work, its findings, and practical implications for an audience of policy-maker and practitioners. The digest consists of eight cases, each of which represents the work of several social scientists over a number of years as part of a variety of funded and unfunded projects.

The work presented here throws up several recurring themes across projects, sectors, and age groups. Perhaps the first of these is the need for combined methodological approaches, involving both large-scale analyses (setting the scene, and testing propositions) and in-depth consideration (generating theories and providing explanations). UK educational research, in particular, has over-emphasised the latter at the expense of the former. Our work on complex interventions in health education, design experiments for teaching and learning, and new political-arithmetic analyses of policies, all have this element in common - they provide models for using and combining data from a variety of sources. Our position is that no one method is intrinsically preferable to any other, and that fitness for purpose is the key criterion for method selection. This forms an important part of our work on research capacity building, as part of the ESRC Teaching and Learning Research Programme (www.cf.ac.uk/socsi/capacity).

Another theme emerging from several unrelated projects is that of the importance of place and time. Purportedly universal descriptions based on human capital theory, public choice theory, or the accumulation of prior learning hypothesis, have been shown by our work to be incomplete. Educational patterns and trends change over time, and vary between places at the same time. Therefore, only large-scale work is capable of producing generalisable propositions, while only local work leads to the non-universal explanations that underlie the glib ones. Understanding patterns of participation in education, or levels of attainment in examination, also involves appreciating the socio-economic background against which they occur. This leads to alternative views of the impact of changes in educational policy and practice, a larger role for non-educational solutions to educational problems, and the need for truly 'joined-up' policy-making in the public sector.

Case One - Patterns of differential attainment

Background
The apparent underachievement of boys at school has caused considerable alarm among some political, media and even academic, commentators in recent years. Concern has primarily been based on an apparently widening gap between the qualification rates of boys and girls, both over historical time (different cohorts) and over the lifetime of the individuals involved (same cohorts). Considerable resources have been used in attempts to ameliorate what was described by a previous Chief Inspector of Schools as the biggest problem facing UK education today. This has involved almost all aspects of education from programmes of governor training, through action research by practitioners, to large-scale government funded studies attempting to find a solution. Similar patterns of increasing *under*achievement have apparently been observed for other identifiable social groups, such as the lowest achievers, and children from ethnic minority or unskilled occupational backgrounds. If correct, these widening patterns of underachievement represent a major challenge for UK education, making the search for their solution a clear priority. Happily, work at Cardiff shows that these problems are nowhere near as acute as sometimes stated.

Method
This work was largely based on re-analysis of existing official datasets. These included the public examination results for all children of the appropriate age-cohort at school in Wales 1992-1997, and summary figures for the entire age cohort England and Wales 1968-2001 (as provided by DfES and National Assembly for Wales). The figures for Wales were broken down by Key Stage, subject, gender, and local authority. This dataset was of higher quality than those used in all previous studies for a number of reasons, most notably because it allowed the separation of the appropriate 15-year-old cohort from all other GCSE entries (such as adult returners to education). The figures for England and Wales were broken down by gender, ethnicity, and level of attainment. The figures for Key Stages One to Three are incomplete for several years after the start of statutory assessments (owing to industrial action).

The re-analysis centred on the notion of an achievement gap between two groups, such as that used by the Equal Opportunities Commission for differential attainment by gender. The achievement gap is the proportionate difference in attainment between the groups for any outcome. It takes into account the entry gap, which is the proportionate difference in the number of cases in the two groups. For example, if an equal number of boys and girls take and pass a test, then the entry gap is zero and the achievement gap is zero. If an equal number of boys and girls take a test, and twice as many boys as girls pass, then the achievement gap in 'favour' of boys is one third. Putting this last example another way, if one third fewer boys but one third more girls had passed then the gap would be zero. Therefore the gap is one third.

Findings
There is no sizeable or consistent gender gap at the lowest level of attainment in any public examination for any subject for any Key Stage. Approximately the same proportions of boys and girls of the relevant age gain at least the lowest level of each qualification (such as Level 1 at Key Stage One). In addition, for Mathematics and Science (and a few other curriculum areas) there is no sizeable or consistent gender

gap at any level of attainment. Put another way, the assessment system is *largely* gender-neutral.

There are achievement gaps in several curriculum areas, most notably English, other languages, and humanities. Where these appear, they are greatest at the highest level of attainment, mostly affecting a minority of (the most able) children (Table 1). These gaps are not increasing over time. The gaps in some subjects remain relatively static, while some are declining slightly. It is also worth noting that in subjects where children are assessed both by teachers and by a task or test, then the task or test produces lower achievement gaps (i.e. it is more gender neutral).

Table 1 - Achievement gap in favour of girls: GCSE English

	Entry	A*	A	B	C	D	E	F	G
1992	.2		.27	.23	.16	.10	.5	.1	.0
1993	.2		.31	.24	.16	.10	.5	.2	.0
1994	.3	.43	.34	.27	.18	.11	.5	.1	.0
1995	.1	.44	.35	.24	.16	.8	.4	.1	.0
1996	.1	.43	.36	.25	.16	.9	.4	.1	.0
1997	.2	.43	.35	.25	.15	.9	.5	.2	.1

[these fractions represent the extent to which girls outnumber boys in each cell. 0.2 as an entry gap shows that 20% more girls sit the assessment. 0.16 as a gap at C grade shows that 17% more girls attain a C or above]
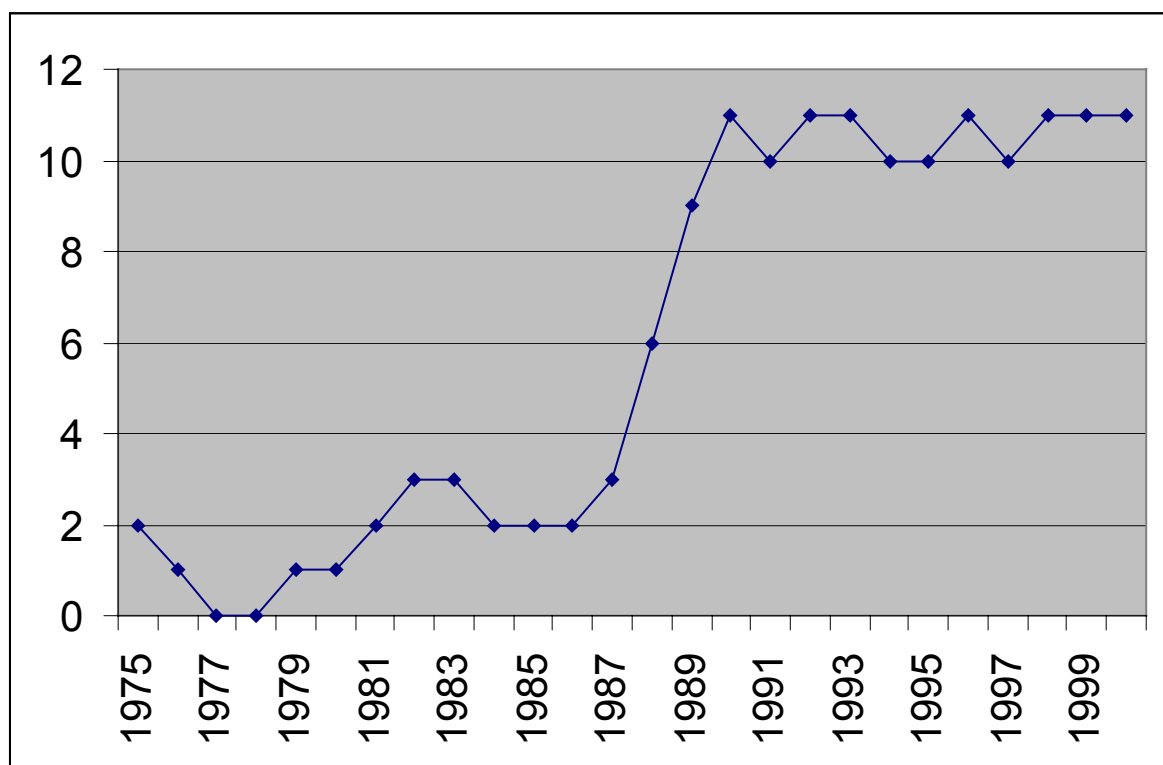

Figure 1 - Achievement gap in favour of girls attaining 5+ GCSE A*-C

For Key Stage Four, an overall gap 'in favour' of girls existed as far back as 1968, meaning that for as long as records exist there is no evidence that boys have done

better than girls up to GCSE (O/CSE) level. From 1968 to 1986 this gap was small and approximately the same every year (Figure 1). From 1987 to 1989 the gap grew very rapidly, since when it has remained roughly similar. The period 1987-89 is important for several reasons, most notably perhaps the introduction of the GCSE, the change from norm-referencing to criterion-referencing, and a marked increase in the proportion of coursework assessment.

Similar findings apply, where data are available, to differential attainment by ethnic group and by economic region. It is not clear why differences between ethnic groups, regions, and genders occupy so much commentator attention. The gaps between other social groups, such as by first language or between rich and poor, are much larger than the gender gap. Perhaps the biggest single gap is between the high and low achievers, and this point is well-made in Tables 3 and 4. The achievement gaps between the top and bottom 10% are very large, and completely dwarf any differences between boys and girls. Girls do have higher GCSE points scores than boys for every decile but these gender differences are small and getting smaller over time.

Table 3 - Gap between top and bottom 10% by GCSE points - boys

Boys	Points 1995	Points 1996	Points 1997	Improvement
Bottom 10%	.10	.15	.20	2.00
Top 10%	64.70	66.45	66.95	1.03
Achievement gap	99.7%	99.5%	99.4%	

Table 4 - Gap between top and bottom 10% by GCSE points - girls

Girls	Points 1995	Points 1996	Points 1997	Improvement
Bottom 10%	1.30	1.45	1.55	1.19
Top 10%	65.95	68.25	68.80	1.04
Achievement gap	96.1%	95.8%	95.6%	

Although the method used here allows fair comparisons over time and place, there is no method suitable for comparing gaps in tests scores between different age groups. It is impossible, for example, to decide whether the gender gap is larger, smaller or the same at Key Stage Four as it is at Key Stage Two. The metrics are not equivalent. However, the gender gap in qualifications, such as it is, reverses among adults in later life (see Case 6).

Implications
All of these findings run counter to the prevailing view that there was a recent period in which boys were doing better than girls at school, girls have 'caught up' and overtaken boys, that boys are now increasingly underachieving at low levels, and the gap widens over the lifetime of the individuals. The alternative account presented here is based on the most complete official figures available at the time, for all students over as long a period as possible. There are no issues of sampling for example. In so far as it is possible to say, this *is* what has happened in assessments in England and Wales since 1968.

Perhaps the most important conclusions to be drawn are negative ones. The fact that boys and girls perform the same at low levels of attainment (or indeed at all in some subjects), coupled with the relative stasis of the gender gap since 1989, suggests that many potential explanations are now unworkable. Any useful causal explanation would focus on high, not low, level attainment, and suggest an instant one-off impact. Notably therefore, this differential attainment is not the result of a cultural change in society, new methods of teaching, seating arrangements in schools, mixed-sex classes, boys' laddishness, or poor attendance at school. This has serious implications for the conduct of future work, and for the validity of previous work, in this area. Longitudinal work with large-scale datasets has elucidated the overall pattern, while the action research and the transfer-of-successful-strategies approaches adopted by the DfES have been unhelpful at this stage. In fact, a considerable amount of public funding is being wasted in attempting to solve a specific problem of underachievement at school that does not actually exist. And this is being done, be it noted, in a school system already near 'initiative-overload'.

Another possible conclusion to be drawn from this would be that differential attainment by gender is a product of the changed system and nature of assessments rather than any more general failing of boys, their ability, application, or the competence of those who teach them. Such a conclusion - that differences are highly dependent on the nature of assessment - would be supported by the recent debate over the apparent improvement in boys' literacy. This improvement was apparently the result of sensitivity to the precise nature of the test. It might, for example, be much simpler to obtain gender neutrality through a reconsideration or redesign of the assessment system (whence the gap may have come), than through changes in classroom interaction. Whatever ameliorative strategies are proposed, it would be preferable for them to be considered carefully in light of a fuller analysis of differential attainment than hitherto (especially through a consideration of the *interaction* of gender, ethnicity, poverty and so on). This should also be done with the full realisation that all such strategies may have longer term impacts on the lives of both men and women in adult society.

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Case Two - The limitations of school improvement

Background
School improvement has been at the heart of many recent UK educational policies. In policy-making this has largely involved identifying particularly successful schools, and using these as models for the improvement of others. The implementation of these models has usually involved one of two strategies: borrowing policy or practice from successful countries, or giving more schools the same characteristics as particularly successful ones. An example of the first strategy is grounded in claims that schools in other countries (such as Japan) are particularly effective and that UK schools should aim to be more like them. The second strategy rests on the claim that a particular sector of schools (such as specialist or faith-based) is particularly effective, and that more UK schools should be converted into the same. However, work at Cardiff has revealed serious limitations in this approach, and none of these models for improvement has so far survived detailed scrutiny.

Method
This work was largely completed using a combination of official statistics (supplemented by in-depth interviews and documentary analysis, see Case Three). Most notable is a database of the composition, structure, resources and outcomes of all schools in England and Wales for 13 years (1989-2001). In addition, the work involved data from the Second and Third International Maths and Science Studies, annual statistical reports from the DfES and National Assembly for Wales, and the 1981 and 1991 population census.

Differences over place and time for all indicators (e.g. number of pupils per school) were calculated as proportions. The proportions of pupils in poverty were converted into national/regional proportions, where the figure represents how many disadvantaged children attend each school in relation to how many would be expected given the national/regional figure for poverty and the size of the school. A school with a proportion of three, has three times as many poor children as expected. Where possible, comparisons between schools were based on the design of natural experiments. Multiple linear regression was used to relate school outcomes (e.g. GCSE results) to background variables (e.g. proportion of pupils in poverty).

Findings
The nature of formal assessments means that comparing standards over time (and between countries) is very difficult. If the same test is administered repeatedly year-on-year, so that we can assume the same level of difficulty over time, then there are potential practice effects. Any increase in test results could be due to familiarity with the test. There are also potential era effects - so that the fact that fewer people today know the meaning of the word 'mannequin' may not signify educational decline as much as a change in the frequency of use of the term. On the other hand, where the test is changed every year to keep it up-to-date and prevent practice effects, then we have no way of knowing whether successive tests are of the same standard.

Until 1987 this problem was largely overcome in public examinations by 'norm-referencing'. An assumption was made that the test cohort every year was of the same ability, but that the test varied. So, instead of having a pass mark the test had a set pass proportion. For example, in O-level English perhaps 10% were given the top

grade every year. So, by definition, it was impossible to ask whether standards were rising year-on-year. The underlying assumption of exam marking was that standards did not change. The only change allowable was in the proportion of the age cohort entering any examination. Since 1987 the UK has moved to a system based largely on criterion referencing. Now, each grade is related to a description of what is required, and if the candidate gives evidence of this then the grade is awarded. Since 1987, therefore, standards have been allowed to vary (see Figure 1, for example). This has led to an annual increase in exam scores, but has also made it impossible to tell whether this is due to rising standards of candidates or a lowering of the standards of tests. In the absence of a valid independent benchmark, any discussion of relative educational standards in the UK is pointless.

Figure 1 - Percentage attaining 5+ GCSE A*-C equivalent
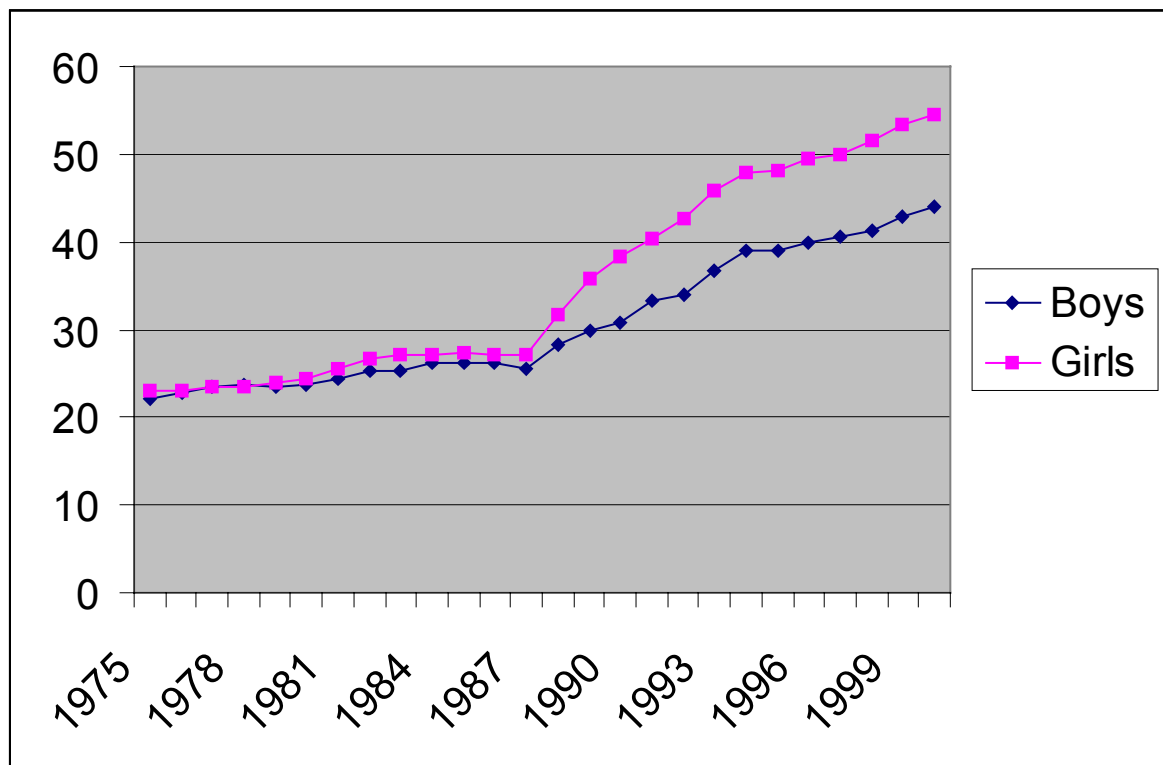
Similar problems arise when trying to compare results between countries. Here, the problems of different entry rates and different standardisation procedures are compounded by the different assessment systems, and even by differences in the educational systems (and, of course, the curricula) themselves. Where the same test is administered in each country (as in the Third International Mathematics and Science Study), re-consideration of the results shows that there is no convincing evidence of 'underachievement' in the UK. UK scores are compared with countries like: the US which has much fuller coverage of the curriculum underlying the test; Singapore where children do not advance through school years automatically (meaning that they were, on average, 6 months older than UK pupils in TIMSS); and even Thailand whose scores are based only on the 32% of the age cohort attending school. Where a different test is used for each country (perhaps more appropriate to the local curriculum), problems of comparability arise. How can we tell whether the Bacca Laureate in France or the Arbitur in Germany are equivalent in difficulty to the GCSE in the UK?

Where claims have been made regarding the superiority of schools in one or more home countries of the UK, the situation is somewhat easier to assess as the systems themselves are more similar. While both countries have very similar school systems, Wales has traditionally (and until recently) produced lower exam scores at all levels than England. However, once levels of poverty have been taken into account, schools in Wales are producing results that are as least as good as those in England. Similar points can be made about differences between types of schools within one home country. Figure 2 plots the GCSE score of every secondary school in Wales against its proportion of pupils from families in poverty. Very similar graphs appear for all levels of attainment for every home country, and what they show is the well-known negative link between exam success and poverty.

Figure 2 - School GCSE benchmark 1998 against proportion of poverty
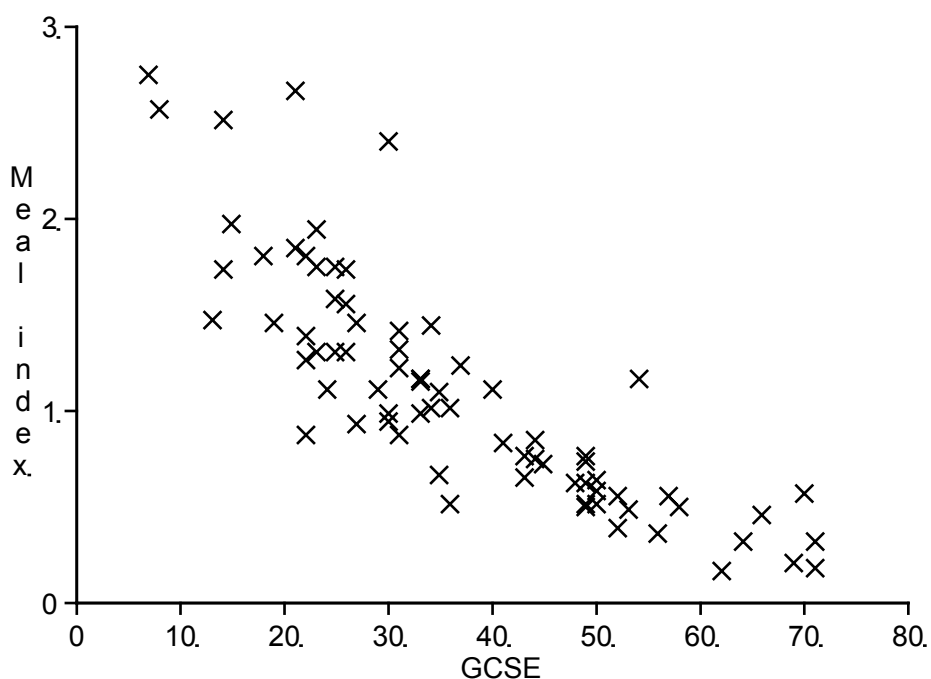
Given this relationship, to expect a school with nearly three times as many poor pupils as expected to gain the same kind of exam success as a school with nearly no poor pupils at all, is ridiculous. Yet this is what raw-score comparisons (such as league tables) do. Once levels of poverty, and other background factors, are taken into account in the regression equations (accounting for nearly 90% of the variance in outcomes) then there is no evidence that any type of school performs any better than any other. Welsh-speaking schools, for example, which have been held up as a model of success, take pupils from a wider catchment than their rivals, leading to much lower proportions of poverty. Given the nature of their intake, Welsh-speaking schools are performing only as well as would be predicted by patterns like that in Figure 2. The same findings apply to all sectoral comparisons, including Foundation schools, and the fee-paying sector. State-funded schools in the UK are also rapidly catching up with the exam scores of fee-paying schools. The extreme outliers in Figure 2 are single-sex schools (see Case One).

Once their context is taken into account, there appear to be better and worse performing schools of all types and in all sectors. However, the overwhelming majority of variance in school results is predicted by the nature of the intake. Little variance is left to be labelled a 'school effect', and even this contains an error component of unknown size. Put another way, there is no clear evidence of schools having much systematic effect *at all* on the attainment of their pupils. It appears that each individual would achieve pretty much as they do in any school, and that school 'improvement' consists largely of admitting more high achieving pupils - whether through direct selection as in specialist and grammar schools, or indirectly via the admissions systems, as in faith-based, Welsh-speaking and Foundation schools.

Implications

The use of school improvement models has led, indirectly, to an overemphasis on the most visible indicators of schooling - examination and test scores. There is a considerable danger of targets, based on these indicators, determining the practice of organisations (see Case Eight). The use of test scores leads to three related problems. It may marginalise other purposes and potential benefits of schooling. In addition, it suggests that variations in the scores themselves are the product of school effects when the evidence clearly shows otherwise. It also neglects the fact that the scores themselves are artificial, and technically difficult to compare fairly over time or place. It is impossible, therefore, to decide whether any examples of apparent underachievement is due to actual underachievement or deficiencies in the measurement of relative attainment.

Work at Cardiff has shown that once other factors (such as the socio-economic background or age of pupils) are taken into account then there is, so far, no convincing evidence of the superiority of any school system or sector over any other. Thus, there is no evidence-base for the kinds of school improvement plans described in the introduction. Borrowing policy from other countries, or from particular sectors such as fee-paying schools, will not lead to improvement by itself. Creating more specialist, grant-maintained, or faith-based schools is not a viable improvement model (and LEAs containing more of these are no more effective than their neighbours). Advocates of particular types of school should appeal to the intrinsic nature of the schools they champion. Thus, whether faith-based schools are a good idea should be judged on the basis of the importance of religion in education, not the unsubstantiated claim that such schools are more effective. Similarly, the expansion of Welsh-speaking schools in Wales should be based on the need for education through the medium of Welsh, and not the unsubstantiated claim that such schools do better with equivalent pupils. The fact that, in both of these examples, advocates have moved quickly to a school improvement argument might suggest a weakness in the popular appeal of both religion and Welsh-speaking (as desirable school characteristics in themselves).

Most of the variation in even the most visible and easy-to-measure school outcomes cannot be attributed to school processes. The remainder of the variation (the so-called 'school effect') is minimal and contains a substantial error term. This remainder reveals that some schools, in *all* systems and sectors, appear to be slightly differentially effective (with equivalent pupils). How we isolate that school effect for improvement purposes is a considerable challenge. School improvement in the UK remains a largely superstitious process based on the following flawed logic. Suppose

school A has better results than school B, and also differs from B in having a characteristic X. Thus, if we give X to school B also, then B will be as good as A. Unfortunately for this argument, not only it is tremendously difficult to establish the premise that some schools *are* more effective than others, but also the solution (X) could be anything including: payment of fees, school admission policy, size of classes, length of the day, number of terms, or even the colour of the decor in the foyer. Such superstitions have led to a super-abundance of 'improvement' policies, and ironically therefore to an initiative overload for schools that may well have the opposite effect to that intended. A more challenging improvement strategy would be one aimed at the major determinants of attainment, which are largely socio-economic and distributional rather than pedagogic. This theme is discussed further in Case Three.

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Case Three - School choice and the social composition of schools

Background
There has always been a tension in the provision of state-funded schooling between the freedom of individuals to obtain the education of their choice, and the desire of the state to make provision fair and equivalent for all social groups. Since 1944 secondary schooling in England and Wales has been universal, but also heavily stratified by the socio-economic background of pupils (children from different social backgrounds tend to go to different schools). The tri-partite system, ostensibly based on academic selection at 11+, led to stratification. The ensuing comprehensive system, largely based on catchment areas defined by the type and cost of local housing, led to stratification. The 1988 Education Reform Act (ERA88), and ensuing legislation and court rulings, introduced a greater degree of formal choice to the school system. By forcing local authorities to abolish catchment areas, and purportedly allowing families to select schools (rather than the other way around), it was hoped that stratification would be reduced. A child no longer needed to pass the 11+ or live in a desirable area to be able to attend a 'desirable' school. However, critics of this body of legislation argued that the propensity and ability to make a good choice of school are even more socio-economically stratified than areas of residence. Thus, it was predicted, greater school choice would lead to an even more socially stratified school system. Happily, work at Cardiff has shown that this prediction was incorrect. Choice was initially associated with lower, not higher, stratification. The implications of this work for current policies on equity and diversity in schools are profound (www.cf.ac.uk/socsi/markets).

Method
This work used a combination of official statistics to create a database of the composition, structure, resources and outcomes of the 8 million pupils in all 25,000 schools in England and Wales for 13 years (1989-2001). This school-level data on social composition was analysed using a range of models, and used to decide whether schools are getting larger or smaller over time, and to document when they close, split, merge, or open. It was also used to calculate the proportion of 'disadvantaged' pupils in each school. In each case, the raw figures for each indicator per school are therefore converted into a segregation index. This was defined as the proportion of disadvantaged students who would have to change schools for there to be an even spread of disadvantage between schools within the area used for analysis.

A related dataset is a collection of interviews with a variety of local education authority (LEA) officials and school managers from 41 LEAs selected as a sub-sample for more detailed study, and supplemented by documentary analysis of their published admissions procedures. These are used to help explain the patterns of change in the focus schools, and the ways in which the procedures for school allocation are related to these changes. A final dataset is a survey, with 5% follow-up interviews, of 1,267 parents and children involved in choosing a new school in Wales. Their reported reasons for choosing a new school were explored via principal components analysis (with orthogonal rotation), in order to overcome the problems of ranking overlapping frequencies.

Findings

From January 1989, the last annual census before the introduction of parental choice as defined by ERA88, to 1996 there was an annual decline in segregation of pupils in poverty in England and Wales (Figure 1). This took place in all economic regions, and represents a powerful social 'movement'. From 1997 to 2001 segregation by poverty has begun to rise again in England (although it remains well below 1989 levels). Where other indicators are available, segregation by ethnic group, first language, and additional educational need has also declined over this period, and continues to decline.

Figure 1 - National changes in segregation by poverty
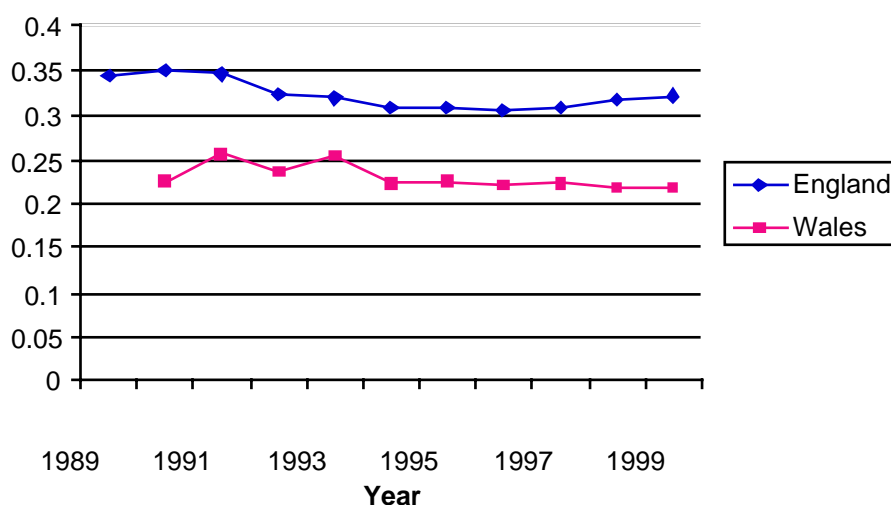
Levels of, and changes in, segregation are far from uniform across England and Wales (see Table 1 for example). Not all LEAs have experienced desegregation, and a few have even experienced some increased segregation. In general, Wales has less segregation than England, and urban areas have less segregation than rural ones. Urban areas have also shown the greatest change over time, and some inner-London LEAs now have almost no segregation by poverty for example.

Table 1 - Change in FSM segregation over time in English Regions

Region	1989	1990	1991	1992	1993	1994	1995	1996	1997
North East	24	24	25	23	24	23	23	22	22
North West	31	32	33	32	31	30	29	29	29
Yorkshire/Humberside	32	33	34	32	30	30	29	29	-
East Midlands	31	32	32	30	29	28	28	28	29
West Midlands	34	35	35	34	32	31	31	32	31
Eastern	30	31	32	29	27	26	27	27	-
Inner London	-	18	19	19	16	16	16	15	15
Outer London	-	30	30	28	27	25	25	25	25
South East	34	34	34	33	32	30	30	30	30
South West	27	28	27	25	23	23	22	24	23

The largest single factor determining the level of segregation in schools is the pattern of local housing, since even in a system of choice most children attend a school near their home. Where richer and poorer families live 'cheek by jowl', usually in densely

populated areas, then residential segregation is low meaning that school segregation in also low. However this work also considers and develops the 'Belfast model' in which patterns of housing and of schooling are mutually determining (e.g. the price of local houses affects schools intakes, and the perceived desirability of schools can also affect the price of nearby houses). Other relevant indicators are the population density, and the actual levels of local poverty and unemployment. As would be expected, areas with more similarity among inhabitants (where there are no 'rich' or 'poor' for example) have less segregation by schools. When these geographical factors change, through the provision of new housing estates or the closure of local industry, the levels of segregation in local schools are affected.

The next most important factor is the nature of local schooling. One key indicator here is a change in the number of schools. When schools are closed or merged then local segregation tends to decrease (as happened in several areas in the early 1990s), and when new schools are opened then segregation tends to rise, at least temporarily (as has happened in the later 1990s). Another important indicator is summarised as diversity of schooling. Areas with elements of selection have higher levels of segregation, and show less change over time. The same is true of areas with higher proportions of voluntary-aided, voluntary controlled, Foundation, Welsh-medium, and independent schools (and more recently specialist schools appear to have a similar impact). Areas with *only* LEA-controlled comprehensives have less segregation, and tend to reduce that segregation over time. These school organisation factors are separated from the impact of admissions arrangements since ERA88 since factors such as diversity of schooling pre-date 1988. Limited 'choice' has always been available, but previously dependent only on income, aptitude or family religion.

The vast proportion of variation in levels of segregation and changes over time is accounted for by the kind of factors already outlined. Given that geography and school organisation anyway precede school allocation procedures in historical terms this means that the impact of increased market forces, if there is any, is likely to be confined to the margins of change. Policy changes at the Westminster parliament, the action of the adjudicator, and even the growing number of appeals are not related to substantial changes in socio-economic segregation in schools. This interpretation is confirmed by our interviews. However, both LEA and school-level admission procedures do play a small part. For example, LEAs that have retained some element of banding (mostly ex-ILEA) have levels of segregation in their schools running at half what would be expected *ceteris paribus*. LEAs that use catchment areas as their main method of allocating places have levels of segregation around 20% higher than would be expected otherwise, and, as explained above, LEAs where a large proportion of schools are their own admissions authorities also have above average segregation. The local level of appeals has no clear relation to segregation, but is naturally inversely related to the number of surplus places. It is not clear whether appeals are a natural and expected outcome of increased market forces, or whether they are a symptom of the failure of the market. What is clear is that any area can elect to spend on funding surplus places, or on holding an increasing number of appeals.

The relative lack of impact of the legislation related to school choice could be explained in several ways. First: although more privileged families may initially have been more aware of their rights and privileges under new legislation than others, these

were the same kind of families who were already at an advantage in systems of selection or catchment. In addition, the work at Cardiff has suggested that awareness of changes increases rapidly. The proportion of families not gaining their first choice is less than 10%, and the proportion going to appeal is also near 10%. Second: many declared 'choices' were, in reality, made long before, and influenced by clearly prior events such as the education of a sibling and even the parents themselves. Third: public choice theory does not, therefore, provide a good description of how school users actually behave. Despite the advocacy and criticism of 'league tables' of school results, the information they provide is far from the most important for school choice. Families may express this desire differently, but the most important latent variable underlying school choice is concern for the immediate well-being of a child of 10, currently the oldest in a small nearby school, moving to be the youngest in a much larger more distant school. What will happen when the child is 16 or 18 is far less significant at that time, in most cases.

Implications
Probably the most important conclusions derived from this work are methodological ones. The impact and implementation of national policies for education have local variations. Thus, local small-scale studies cannot tell us much that is reliable about the general impact of policies (and that is a major reason why several other studies have appeared to reach different conclusions). Additionally, it is unreasonable to draw general conclusions about the impact of national policies - because something that works well in London may be very different in Pembrokeshire (and vice versa). The approach used in Cardiff ('new political arithmetic') brings together large-scale datasets with detailed case studies derived from them, and so overcomes these methodological problems.

School choice, per se, does *not* lead to increased social stratification in the school system. As a component of a system already heavily stratified by residence, choice was initially associated with an era of overall decline in stratification. In a system which was already perfectly equitable (if it were possible) choice may well lead to increased stratification. Its impact depends on the prior conditions, and the precise nature of the policy.

Choice does not lead, naturally, to diversity of provision. The pressure to diversify school provision, and move away from the 'bog-standard' comprehensive model, comes from policy-makers and their advocate-advisers rather than popular demand. City Technology Colleges are few in number. Many Foundation schools changed to their current status to avoid the threat of closure by their local authority. Specialist, faith-based, and Welsh-speaking schools are not generally being driven to expand in number by market forces (see Case Two).

Diversity of schooling is, after residence, the main determinant of the levels of social stratification in a local school system. In summary, areas with high proportions of similar LEA-controlled comprehensives tend to have low levels of between-school segregation (by poverty, ethnicity, language, and educational need). If this area is also urban then the level of segregation has tended to decline further since 1989. Areas with a high proportion of non-standard schools tend to have the reverse characteristics. This is the danger (or cost) of having fee-paying, specialist, faith-based, Welsh-speaking, or Foundation schools. The problem appears not to be the

nature or desirability of the schools themselves, nor even their funding arrangements, but their policies for admission. What all of these types of school have in common is that they routinely recruit pupils from a much wider area than the majority of schools with which they are competing. On the other hand, where, for example, specialist schools have a rigid catchment area just like nearby comprehensives then their intakes more accurately reflect those of the local inhabitants. The implication for those wishing to see greater equity is that either all schools should be allowed to recruit across larger areas (and appropriate free travel should be provided), or else all schools should be restricted to nearby catchments.

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Case Four - Bullying in School

Background
Bullying has attracted growing public concern in recent years. There is recognition that it can have a profound impact upon young people and their families. Thus, for example the media have carried 'front page' reports of children driven to suicide by being bullied at school, polls of parents show that it is their greatest concern for their children at school, and analysis of calls to children's telephone help lines finds that bullying is, by far, the problem most frequently raised by children. The government has responded to these concerns in various ways, including introducing requirements on schools to develop and implement anti-bullying policies. The School Standards and Framework Act (1998) places a legal obligation on head teachers to draw up procedures to prevent bullying and to bring these procedures to the attention of pupils, parents and teachers. Curriculum-related and other material to help schools combat bullying (e.g., Don't Suffer in Silence) has been widely disseminated. The Scottish executive has produced similar material via its Anti-Bullying Network. Several projects have surveyed the incidence of bullying in schools and evaluated the effectiveness of interventions designed to reduce its incidence. Despite this attention much remains to be done in order to understand the nature of bullying, particularly verbal forms (name-calling) and the ways in which girls and boys are bullied for behaving in non-traditional ways (gender-based bullying) - the focus of research projects carried out in Cardiff. For the purposes of this chapter, each research programme is presented separately.

Verbal aggression and name-calling in school
Background
There is much discussion about identifying and combating physical forms of aggression, yet research shows that non-physical forms are more prevalent. Psychological research into bullying distinguishes among direct physical (hitting, taking things), direct verbal (threats, name-calling, teasing) and indirect forms (social exclusion, spreading false stories). Surveys show that direct verbal aggression, whether name-calling, assigning unkind nicknames or malicious teasing, is the most prevalent form of bullying. It is also among the most insidious since, unlike more overt forms, it can be practised anywhere at any time, even under the eyes of teachers.

Name calling and assigning hurtful nicknames have scarcely been investigated, yet such research is essential if interventions to reduce the incidence of bullying in schools are to be effective. Research in Cardiff is in the forefront of investigating the incidence and nature of these activities. The aims of this research are, first, to examine how children perceive name-calling, its incidence, the kinds of names they are called, the effect these names have, and what they think should be done about it. Children's perceptions are particularly important in this area, since much bullying goes on un-noticed by teachers or parents, so that children are 'expert witnesses'. Research has additional aims. One strand of research aims to assess the potential long-term impact of name-calling – a full appreciation of the seriousness of bullying benefits from studies that ask adults to look back on their experiences and reflect on the impact that they had on their life in school. Little attention has been paid to any enduring consequences of verbal forms of bullying, or indeed of any form of bullying, which is often discussed essentially as an issue of effective school and classroom management rather than in terms of its implications for the psychological development of those

involved. Another strand of research considers the role of wit in verbal forms of bullying. Hurtful names often make onlookers laugh and even, despite themselves, the recipients, and they can create an ambiguous situation for their victims, making it difficult for them to know how to respond. By focusing on this aspect we can understand better the social dynamics of bullying.

Method
Research has employed a range of methods and individual studies tend to incorporate more than one method. Questionnaire surveys have been distributed to children and adults in order to assess the incidence of name-calling, the kinds of names that are involved, the effects that they have and the coping strategies that are adopted. 'Open' type questions allow respondents to give examples of names or to comment on them in their own words. Crozier and Dimmock employed a questionnaire together with a structured interview in a study involving a sample of 60 children from the top two classes in a primary school in south Wales (this is the peak age for bullying). Another study, by Crozier and Skliopidou, employed a questionnaire to survey a sample of 220 adults about their recollections of the experience of name-calling at school. The ages of participants ranged from 18 to 70 years, with an average age of 25. The design of the questionnaires facilitates comparison of the responses of children and adults to similar items. Structured interviews are also employed, to give children an opportunity to describe their experiences in greater detail, to give accounts of incidents they have been involved in or have witnessed. For example, they might tell us why a particular name is painful to them or how they dealt with it, what were the responses of teachers, and so on, the 'whole picture' being impossible to reconstruct from questionnaire responses. Interviews are also combined with card sorting and sentence-completion tasks.

Findings
The prevalence of name-calling is high. The 9-10 year-old children in Crozier and Dimmock's study reported that verbal forms of bullying were routinely encountered. Thirty percent reported experiencing hurtful teasing on at least a weekly basis, and the corresponding statistics for other forms were: nasty comments (28 per cent), unkind nicknames (25), being made fun of (20) and having untrue stories spread about them (13). Scourfield, Evans, Shah and Beynon interviewed a sample of minority ethnic children in an area of the South Wales valleys where the minority ethnic population is very small (less than 1 per cent of the total population). Although the children reported that other kinds of racist treatment were rarely encountered, 15 of 19 said they had been called racist names, and many identified it as the worst form of racist treatment they experienced.

There is consistent evidence that being called names is extremely painful. Children's responses in the Crozier and Dimmock study revealed the impact of these names: they felt hurt, angry, depressed and unhappy. Nearly all the children said the school should take some action to stop it because of the effect it had on children. Adults surveyed by Crozier and Skliopidou also recalled that the names they were called at school were 'extremely' or 'very' hurtful (37 per cent of respondents) or at least 'quite' hurtful (67 per cent). The names made them feel embarrassed, angry, ashamed and unhappy.

The most common ways of coping reported by the children were to tell a teacher or parent or to retaliate either verbally or physically. However, other children coped by

withdrawing from the situation in some way, for example hiding, locking themselves in the toilet or staying away from school. The most frequently reported coping strategies recalled by adults were verbal retaliation and ignoring the names. Other responses involved physical retaliation, withdrawal, or telling someone, either parents, teachers or other children. Talking to a teacher was the least chosen course of action and, in hindsight, few of the adults believed that their school had been helpful.

Adults regarded the experience as negative, at the time and subsequently, with the intensity of negative feelings diminishing over time, and the majority did not believe that the experience had any long-term effects. Nevertheless, although most adults regarded name-calling as a moderately painful experience, some 25 per cent said they had been very hurt at the time. Compared to the other respondents, this group reported an earlier age of onset and a longer duration of bullying and identified stronger effects on all aspects of the experience of school: academic work, attendance, enjoyment of school, friendships and participation in activities. Finally, they rated their current feelings about the past experience as more negative and did report long-term effects on their personality and attitudes. Data on 'average' responses across a sample can mask significant trends within the sample.

Adults and children mentioned similar types of names. The most common categories refer to physical appearance, most frequently to height and weight ('midget', 'Mr Blobby', 'skinny ribs') but also to distinctive features as in 'rubber nose', 'nesthead', 'wartman' and 'piano teeth'. This is followed by animal names ('bulldog', 'cow'), a play on the individual's name ('Jones bones') and references to psychological attributes ('thicko', 'snob'). These types of names are similar to those found in accounts of name-calling in other contexts, in teasing, and in the nicknames that children have for their teachers. Identifying recurrent themes provides insight into the processes by which names have their effects. Crozier and Dimmock argued that the pain that names are intended to inflict relates to various threats to identity – ridicule, deindividuation and dehumanisation – and even a play on names can be unsettling since an individual's name is an important element in his or her identity. Crozier has followed up this research with an analysis of the contribution of wit and aptness to perceptions of the offensiveness of these kinds of names.

Implications
The recurrent theme in this research is that being called names or attracting unkind nicknames is a painful experience and that, for a substantial minority, the distress is lasting. These findings should help put to rest notions that name-calling is less hurtful than 'sticks and stones', a complacent view that can prevent serious attention being paid to verbal forms of bullying. Schools need to be aware of the serious impact that name-calling can have. There can be a tendency for it to be regarded as less serious than physical forms of aggression or as an experience that is easier to cope with. Not only is it distressing in itself, it can also lead to social withdrawal, truanting or physical aggression, if only in retaliation. Anti-bullying policies in schools must give name-calling as much emphasis as other forms of bullying. It is particularly difficult for schools to manage as it can be carried out in a clandestine manner anywhere or at any time, including in the classroom. Schemes for supervising playgrounds and communal areas, a central element in anti-bullying strategies, will have less impact on verbal forms of aggression and supplementary strategies have to be devised.

Bullying is often difficult to distinguish from other activities, for example from rough and tumble play, and this is also true of name-calling, since it, like teasing and nicknames, can serve positive as well as negative ends. Name-calling, assigning nicknames and teasing are all potentially ambiguous events, since they involve a balance of playful and aggressive intentions that can be tricky to assess. Responding to these events can be what the bully is looking for and increase the likelihood of repetition. Problems in distinguishing these activities are compounded by the key role that wit plays in devising names and coining nicknames. The uncertainty that humour produces is evident in a leader article, 'Barbs that bite', in the <u>Times Educational Supplement</u> (April 13, 2001) commenting on the research by Crozier, Dimmock and Skliopidou; the article acknowledges that name-calling can be humiliating and painful while pointing out that the line between bullying and 'good-natured banter' is hard to draw.

Humour contributes to the ambiguity of name-calling and makes it difficult for the recipient to know how to respond. It can mean that teachers and other children fail to detect the aggression. It can mean too that incidents are treated less seriously than they warrant. The most common advice to children anxious about bullying that is available from help lines and other sources is that they should tell someone about it. It is difficult to tell if you cannot be sure that it won't be regarded simply as funny, as a sign that you are over-reacting or lack a sense of humour, or if you are not sure that you are right to interpret it as malicious.

The aims of research undertaken in Cardiff are to gauge the impact that verbal bullying can have, to examine when and where it takes place, to understand how children cope with it, and what they ask of their schools. This information is essential if schools are to develop effective policies and strategies to deal with bullying. A further aim of the Cardiff research, to understand the psychological processes through which names have their impact, is also important in developing approaches to help bullied children cope with their predicament.

'They say I'm gay, they say I'm like a girl': Gender-based and Sexualised Bullying
Background
Over the last few years there has been an increasing central government recognition that pressures of gender conformity are contributing factors to pupils' unhappiness, inequality and social exclusion. Indeed, there is a growing awareness that many children and young people are bullied if they deviate from gender norms and behaviours. While bullying has long been recognised as a pervasive feature of children's lives and schooling experiences, gender-based bullying (e.g. calling a boy a sissy) or sexualised bullying (e.g. homophobic insults) are often absent in conventional understandings of bullying with many anti-bullying policies and initiatives failing children who experience this type of peer abuse.

One of the most significant gaps in the UK and International bullying research is its failure to fully explore the relationship between gender and bullying beyond stating that girls and boys bully in different ways. While some research has developed more sophisticated accounts, particularly how bullying behaviour is embedded in relations of power and control, gender as a dimension and agent of power is rarely commented

upon. Research which has examined the role of bullying and violence in children's construction of 'acceptable' and 'unacceptable' gender and sexual identities has derived from broader studies of gender relations and schooling. However, the site of investigation has been the secondary school and subsequently the experience of teenagers. There has been little published work which has explored the salience of young children's experiences of gendered forms of bullying and thus little information of guidance on how teachers, parents or policy-makers can support children and tackle this form of bullying. However, Renold's research into gender-based and sexualised forms of bullying has investigated and is continuing to investigate these very issues.

Method
Renold's exploration of primary school children's experiences of gender-based forms of bullying derives from a broader ethnographic study of children's gendered worlds. This involved spending 12 months observing and interviewing sixty 10 and 11 year old boys and girls in their final year of primary school. One of the central features of the research was its commitment to prioritising children's own experiences by using methods that would enable children to freely discuss what they felt was significant or important to them. Unstructured exploratory group interviews, organised by friendship groups in particular was the main method chosen, precisely because it fulfilled the these methodological commitments and resolved other methodological dilemmas when conducting research with young children. Firstly, arranging group interviews by friendship group enabled the creation of a supportive, trusting and non-threatening relationship with which children could share their experiences. Second, group interviews helped equalise the power relationships between adult researcher and child participant, particularly given the social status and relative powerlessness of children. Third, the exploratory nature of the group interviews and the 'group dynamic' enabled children to wield some control over the focus and direction of the interviews themselves and reveal issues that may otherwise have been untapped when using individual interviews in isolation. In addition, by repeatedly interviewing children over the year (6 times in total) and keeping the number of children small, it was possible to create a environment in which they could disclose some of the more painful experiences, such as bullying, as they negotiated their gender identities as 'girls' and 'boys'. Almost as a result of the methodology, Renold's research has tapped into and examined the more neglected accounts of children's experiences, such as homophobia and sexual harassment. The findings are discussed in more detail below.

Findings
Sexual harassment
Sexual harassment commonly took the form of boys denigrating girls and women through sexually abusive and aggressive language and was usually delivered through humour. Terms included, 'bitch', 'slag', 'tart' and 'whore' and resonate strongly with much of the secondary school research into sexualised name-calling. Indeed, many primary school boys seemed to use sexual swear words to unsettle and overtly intimidate girls. One possible interpretation is that sexualised name-calling is part of the ways in which some boys construct their masculinity.

Much less common were reported incidents of physical sexual harassment. One of the most extreme cases was of a boy repeatedly punching his female classmates in the

chest. Unfortunately, like so many reports of sexual harassment, the girls did not disclose the incidents to staff or their parents. Reasons for non-disclosure included fears of ridicule, being believed, avoiding 'arguments' or 'getting into trouble'. Retaliation was also not regarded as a viable option for the girls, because, in their words, 'girls don't fight boys'. Consequently, their experiences remained untold and went unchallenged.

Homophobic insults
Homophobic insults were embedded in boys' everyday playground and classroom social interactions. Delivered mostly by boys, but also by some girls, they were mainly targeted at boys who for one reason or another did not engage in conventional 'masculine' activities. For example, two boys were regularly called 'gay' by their classroom peers because they did not engage in the three routes that were perceived to secure a hegemonic masculinity – football, fighting and girlfriends. While homophobic insults could be used solely as a resource for abuse (e.g. regardless of the meaning of the term 'gay') they were most frequently expressed by boys who did not engage in the boyfriend/girlfriend culture and more frequently than by boys who did have 'girlfriends'. This finding suggests that boys labelled other boys as 'gay' as a way of differentiating themselves from non-conventional masculinties/sexualities and constructing and thus confirming to other children their own hegemonic masculinity and, furthermore, their heterosexuality.

Gender-based bullying
More common than overt homophobic name-calling was the bullying (verbal, physical, direct and indirect) of children, boys and girls alike, who transgressed traditional femininities or masculinities. That is, they did their gender in non-traditional ways. Over a third of all children in the research experienced a form of what Renold has termed 'gender-based' bullying, which most commonly involved verbal abuse (rumour spreading and name-calling), ritual humiliation and ridicule and peer-group exclusion. Gender-based bullying affected boys who were studious, adopted 'pro-school' attitudes, did not keep up to date with the latest fashion or preferred fantasy games over football. They would often be called 'geeks', 'dorks' or 'gay'. In sum, boys were targeted if they took part in an activity or behaviour that was deemed by the peer group (and wider society) as 'non-masculine'/'feminine'. Alternatively, girls were generally targeted if they were 'loud', 'fat', 'square' (overtly 'pro-school'), 'unfashionable' or who were not interested in boys romantically. Indeed, there is a strong relationship between the pressures of gender conformity and boys and girls attitudes and dispositions to school and schoolwork.

Implications
As stated earlier, tackling school bullying has been a central concern for the DfEE and the DfES in recent years and the definition of what counts as bullying has become more inclusive. Indeed, there has been a shift in education policy under the Local Government Act 2000 stating that teachers must take steps to prevent any form of bullying', including 'homophobic bullying', advice and guidance to date has centred on older children and teenagers. Renold's research at the Cardiff School of Social Sciences has shown, however, that young children can and do experience and perpetrate different forms of gender-based and sexualised bullying. It was found to be one of the ways in which children create and maintain normative gender identities – that is 'acceptable' ways of being a 'normal' girl or a 'normal' boy. However, still

very little is known about the impact of this form of bullying, including the social, emotional and academic costs of challenging conventional gender identities. Indeed, next to nothing is known about how children make sense of gendered forms of bullying in relation to other forms of bullying and abuse (e.g. racism). Even less is known about children's coping strategies, support networks and methods of resistance. More importantly, perhaps, much of the gender-based bullying is overlooked or its impact undermined because it is perceived as just 'boys being boys', 'messing about' and thus constructed as 'normal' and 'natural'.

Cardiff is at the cutting edge of research which is investigating children's experiences and coping strategies of gender-based bullying and the pressures of gender conformity. Recent funding, for example, has been secured to examine the impact of gender-based bullying upon primary school pupils' perceptions and experiences of academic success, to explore more fully the relationship between the pressures of gender conformity and children's attitudes and dispositions to school and schoolwork.

Conclusions
Collectively, Crozier's and Renold's research into bullying places them in a central position to directly inform and support the government's strategy to tackle <u>all</u> forms of bullying, with <u>all</u> age groups, contribute to the development and implementation of primary school anti-bullying policies and offer broader guidance to support children, their parents and teachers to create safer and more inclusive children's cultures in school.

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Case Five - Patterns of participation

Background
The notion of lifelong learning has awakened new interest recently for a variety of reasons. Among these are: an apparent decline in 'jobs for life', leading to a demand for retraining, transferrable skills, and careership; a perceived need to invest in human capital to compete effectively for inward investment in a globalised economy; and the advocacy of greater adult participation in education and training to combat exclusion and increase equity. Most actual investment has been in continuous full-time education and training for those aged 16+, such as the expansion of FE and HE, Modern Apprenticeships, and the New Deal. This front-loaded investment is based, sometimes indirectly, on the accumulation of prior learning theory, suggesting that people who have already participated in post-compulsory learning are more likely to do so again than those who have not. The expansion of continuous education should therefore be leading to the UK nearer to a learning society, with widening participation for all adults of all ages. Work at Cardiff, on the other hand, suggests that both human capital and the accumulation of prior learning theories are deficient. It explores the ways in which the determinants of participation in lifelong learning vary systematically over time and from locality to locality, using empirical patterns of participation in lifelong learning known as 'trajectories'.

Method
This work is based on five datasets. The first contains the life and educational histories from structured interviews of a systematic sample of 2,482 individuals in 1,104 households in Wales. We used existing data from the census of 1991 to select the sites for the survey, and the electoral register of 1996 to select households systematically from these sites. The structured interviews attempted to capture all and any episodes of formal learning including one-off health and safety training, leisure reading, and evening classes as well as the more usually reported induction training, and Further and Higher Education. We also held extended interviews with 110 of these households, and 30 local educators and trainers. The third set consists of taped oral histories of families dating back to 1890 in the South Wales Coalfield Archive. The fourth dataset is the Individualised Student Records (ISR) for all post-compulsory students in Wales 1995/96 to 1998/99. Finally, we used figures from the Labour Force Survey (1992-1999) to examine qualification trends in Wales over time.

The individual histories were converted to lifelong learning trajectories. Logistic regression analysis with forward stepwise entry of predictor variables was used to explain these lifelong patterns of participation. The dependent variable is the trajectory and the independent variables are entered in batches in the order that they occur in the individuals life. At birth these variables include gender, year, place, and parental occupational and educational background. By the end of initial schooling these variables include details of siblings, type of schools attended, examination entry and performance, and so on. In this way, the variables entered at each step can only be used to explain the variance left unexplained by previous steps. The comparison of patterns of trajectories within families was based on standard forms of odds calculations, measuring proportionate changes in patterns of participation from one generation to the next. The interviews and oral accounts were analysed using coding categories derived from the prior analysis of trajectories. The student records were

used to measure changes in post-compulsory participation by social groups and geographical areas.

Findings

The patterns of participation of all individuals in the survey have been encapsulated in five classes of learning trajectories - an overall lifetime pattern of participation which is predictable to a large degree from the educational and socio-economic background of the respondent. *Non-participants* reported no episodes at all despite, in many cases, numerous and varied vocational changes. *Immature* trajectories describe those still in continuous full-time education, and these individuals are not used in the analysis below. *Transitional* learners reported only full-time continuous education or immediate post-compulsory work-based training so far. *Delayed* learners have a learning gap after compulsory school until at least age 21, but then reported at least one substantive episode of education or training. The *lifelong* learners reported both transitional and later episodes (Table 1).

Table 1 - Frequencies of the 'Lifelong Learning Trajectories'

Trajectory	Percentage
Non-participant	31
Transitional	20
Delayed	13
Lifetime	32
Immature	4

Over the past 50 years, compulsory schooling has been extended from age 14 to age 16, and staying-on rates for further and higher education after that age have increased considerably. Therefore, the frequency of non-participants has dropped over the same period. More people are now likely to undertake some formal education or training post-16, but most of these undertake it only immediately after reaching school-leaving age. The greatest growth has been in transitional learners. While lifelong learners have increased a little over time, delayed learners have correspondingly decreased a little. These changes largely reflect differences in patterns of participation for women.

Males were almost twice as likely as females to take part in both further initial and later learning. However, when the respondents were divided into age cohorts there was a significant complication. Among those aged 38-65, men were three times as likely as women to have completed further study immediately after school, but no more likely to have undertaken any study thereafter. Among those aged 21-37, men were no more likely than women to have completed further study after school, but over four times as likely to have undertaken study thereafter. Therefore, initial post-compulsory participation has become gender neutral, while later participation now over-represents men.

The incidence of work-based training has declined over the past fifty years (although there is no evidence that employment episodes themselves are any shorter now than they were in the 1950s). Indeed, not only is training declining somewhat in frequency but those episodes now reported are notably shorter on average (reflecting the growth of IT and health and safety courses perhaps). This means that employers have been funding, directly and indirectly, a declining share of adult learning over time. Perhaps one reason that later learning is less common for women is that almost no training

takes place in industries with high proportions of 'flexible' (i.e. short-term and part-time) labour. Women are currently over-represented in these industries, and it is these, not learning organisations requiring highly-skilled personnel, that have actually been the growth area over the last decade. Coupled with the virtual demise of uncertificated adult education classes it is clear that later learning is in nowhere near as healthy a state as initial education. Also apparently in decline is the incidence of substantial informal learning, undertaken by those who were otherwise not participating. Current training and certification arrangements do not recognise the relevance of these informal episodes.

The key social determinants of lifelong participation are time, place, gender, family and initial schooling. When respondents were born determines their relationship to changing opportunities for learning and social expectations. It is significant that respondents with similar social backgrounds from different birth cohorts exhibit different tendencies to participate in education and training. Time may be a composite proxy here for a variety of factors such as changes in local opportunities, economic development, the increasing formalisation of training, the antagonism between learning and work, and the changing social expectations of the role of women. Older respondents often reported quite radical changes of job or responsibility with no training provided at all.

Where respondents are born and brought up shapes their access to specifically local opportunities to participate and social expectations. Those who have lived in the most economically disadvantaged areas are least likely to participate in lifetime learning. Again this may be partly to do with relative social capital of those in differing area, or the changes in actual local opportunities to learn. However, those who have moved between regions are even more likely to participate than those living in the more advantaged localities. It may not be an exaggeration to say that those who are geographically mobile tend to be participants in adult education or training, while those who remain in one area, sometimes over several generations, tend to be non-participants.

Men consistently report more formal learning than women. Although the situation is changing, these changes are different for each gender. Women are still less likely to participate in lifetime learning, but are now more likely to be 'transitional learners'. Extended initial education is now relatively gender neutral, while later education or training is *increasingly* the preserve of males. Parents' social class, educational experience and family religion are perhaps the most important determinants of participation in lifetime learning. Family background is influential in a number of ways, most obviously in material terms, but also in terms of what are understood to be the 'natural' forms of participation (as is indicated by the importance of family religion).

Experience of initial schooling is crucial in shaping long-term orientations towards learning; and in providing qualifications necessary to access many forms of further and higher education. There are important 'age effects' here, however, relating especially to the reorganisation of secondary schooling in the maintained sector. For the older cohorts, the 11+ was a clear watershed, even, perhaps especially, when they did not sit the examination, and the ways in which the story played out from then on are clear from the subsequent interviews. In contrast, those who 'failed' at school often

come to see post-school learning of all kinds as irrelevant to their needs and capacities. Hence, not only is participation in further, higher and continuing education not perceived to be a realistic possibility, but also work-based learning is viewed as unnecessary. There is thus a marked tendency to devalue formal training and to attribute effective performance in a job to 'common-sense' and experience. Whilst this is certainly not confined to those whose school careers were less 'successful' in conventional terms, it is a view almost universally held amongst this group of respondents.

It is important to note that all of these factors reflect characteristics of respondents which are determined relatively early during the life-course. This can be expressed more formally, as the variables were entered into the statistical model in the order in which they occur in real life. Hence, those characteristics which are set very early in an individual's life, such as age, gender and family background, predict later 'lifetime learning trajectories' with 75 per cent accuracy. Adding the variables representing initial schooling increases the accuracy of prediction to 86 per cent. And this rises to 89 per cent and 90 per cent respectively, as the variables associated with adult life and with respondents' present circumstances are included.

Implications
The analytical implications of this are profound. It provides strong empirical support for the utility of the concept of 'trajectory' in analysing participation in lifetime learning. Not only is there a clear pattern of typical 'trajectories' which effectively encapsulates the complexity of individual education and training biographies, but also which 'trajectory' an individual takes can be accurately predicted on the basis of characteristics which are known by the time an individual reaches school-leaving age. This does not imply, of course, that people do not have choices, or that life crises have little impact, but rather that, to a large extent, these choices and crises occur within a framework of opportunities, influences and social expectations that are determined independently. At this level of analysis, it is the latter which appear most influential.

Certainly, it is clear that, to make sense of individuals' learning histories, it is necessary to understand the ways in which learning opportunities were understood when decisions over participation were being made. Moreover, there is strong evidence that these 'social constructions' of opportunities, in turn, are shaped by a range of contextual influences. Previous analysis in this field has tended to isolate individuals from the social and economic contexts in which participation in learning takes place. In particular, a dominant interpretation of the determinants of participation has been in terms of the individual's calculation of the net economic benefits to be derived from education and training, as proposed within human capital theory. Where wider social considerations have been taken into account, this has been restricted to a straightforward description of the 'barriers' which prevent people from participating in education and training. More importantly, questions of individual motivation been confined to those who *do* take part in education and training of some kind.

Providing extra places and courses, and making participation easier and cheaper are certainly necessary precursors to improving rates of participation among adults. Are they sufficient? There is an air of compulsion in some writing about a learning society, suggesting that non-participation in formal learning is not an acceptable

lifestyle choice but is somehow deviant. This underplays the role of motivational factors which are crucial to later learning, and ignores a major part of non-trivial learning that takes place which is 'informal', and which is now being cited as a potential area for greater recognition.

It is a commonly held view that later learning episodes are contingent upon earlier ones - the accumulation thesis implies that somehow increasing extended initial participation will itself lead to greater participation in later learning. The above finding, and others like it, show that this is not so. Many episodes of extended initial education are instead of, not additional to, the episodes of later-life episodes that occurred for some in previous generations. There is no progress in participation and qualifications for adults *while they are adults*, and the differentials between some sectors and social groups are increasing over time.

Whereas extended initial education has grown in length, scale and funding since 1944 and still receives the bulk of political attention in Britain, later participation in education or training has not and does not. Formal adult participation in learning is now less prevalent, and less equally distributed between social groups than it was in the recent past. In trying to build a learning society, policy-makers may therefore have been unintentionally robbing Peter to pay Paul by forcing more and more learning into 'front-loaded' provision. Each successive age cohort leaving initial education tends to have a longer education and a higher mean level of qualifications. However, each age cohort also tends to simply retain, rather than improve, their initial education over the remainder of their lives. Thus, the incidence of education among the population and the workforce as a whole increases, but only through the 'conveyor belt effect'. For example, the incidence of education among those past retirement age is no longer targeted, and is consequently ignored in policy terms. The disastrous impact of this on third-age patterns of participation can only come from disentangling within- and between-cohort changes over time.

Current initiatives to deal with the problem of increasing inequity in later participation suffer from one or more of the following defects: they are output-driven, they replicate and reinforce existing inequalities, and most importantly they deal almost exclusively with improvements in initial education or training. The standard human capital thesis that education and training are valuable for the economy (rather than valuable in their own right) is far from convincing anyway, but especially so when employers appear unconvinced of the need to invest in the skills of their own employees. Whatever criticisms might be directed at individuals with little motivation to learn, or at successive administrations seemingly obsessed with spending money only on initial education, it is apparently British private and multi-national employers who are the weakest partners in this lifelong learning venture at present.

Non-participation is largely a product of the fact that individuals do not see education and training as appropriate for them and these views, in turn, are structured by factors which occur relatively early in life. This suggests that policies which simply make it easier for people to participate in the kinds of education and training which are already available (for example, removing 'barriers' to participation, such as costs, time and lack of child-care) will have only limited impacts.

These results offer important correctives to the conventional view of participation in lifetime learning, summarised as 'if at first you don't succeed, you don't succeed'. The standard explanation of differential patterns of participation and non-participation in adult learning is that those who participate early participate often, and those who miss out at the start have great difficulty returning to formal learning. This is most graphically expressed in the 'accumulation thesis'. The findings of this study show first of all that patterns of participation have general determinants that predate the first episodes, and that these determine whether someone participates early. They also suggest that the determinants of early and later participation are significantly different, and that simply increasing front-loaded provision (increasing FE, HE etc.) is unlikely to 'cash out' into increasing lifelong learning trajectories. This raises the crucial policy issue of where scarce resources for education and training should be directed, especially given the focus up until now on 'front-loading' investment into initial schooling. Whilst the evidence should be treated with caution, it does indicate that shifting this balance in favour of policies addressed to the determinants of later participation would be more efficient and cost-effective.

These patterns of change raise questions about conceptualisations of the 'learning society' exclusively as a desirable future state, yet to be achieved (as is most commonly the case in contemporary discussions). They discount the possibility that elements of past practice in education and training were superior to the present; or that the development over time of participation in learning may be distinctly non-linear, especially for particular population groups. Certainly, for those men who left school in South Wales during the 1950s and 1960s - a period of full employment, relative affluence and settled welfare state provision - their situation with respect to lifetime learning was significantly better not only than that of their female contemporaries, but also than that of those who have left school during the marketised 1980s and 1990s.

Over time, factors such as social class, parental education, ethnicity and first language have become less important as predictors of post-compulsory participation. This is, presumably, good news. These factors have been replaced in the regression model by early school experiences, which are therefore becoming increasingly key determinants of later patterns of education. Whether this is good news is still far from clear.

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Case Six - Targets for lifelong learning

Background
Work at Cardiff suggests that even the most visible of the National Targets for Lifelong Learning are hard to measure, but that using current best estimates existing targets are having no impact, and will not bemet.

Method
The main data source was the quarterly Labour Force Survey of a rolling sample of 150,000 individuals in 60,000 households. Each respondent reported their highest level of qualification. Some respondents reply 'don't know' or 'no answer' when faced with a question about their highest qualification. Official sources have previously divided these proportionately between the remaining categories. The likely outcome is a bias towards higher qualifications. This is because it may be assumed that those with PhDs, or postgraduate certificates, are more likely to respond and more likely to know what their qualifications are than those with level 1 or no recognised qualifications. On the other hand, we have assumed that null responses all represent qualifications below NVQ level 2, and should be partitioned between none and level 1 in proportion to the existing frequency of those categories. The practical importance is illustrated below.

Similar comments can be made about the much larger group classified in the LFS as 'other qualifications' (i.e., not one of the other named 46 qualifications). The official position has been that 10 per cent of these qualifications are at NVQ level 3, 35 per cent are at level 2, and the remainder at level 1. Since this group is so large (8 per cent of the base in 1998), this decision makes a significant difference to higher-level Targets compared to assuming that most 'other qualifications' are at level 1. In fact, it is hard to imagine many qualifications, other than those from overseas (which are anyway at least partly covered by 'A level *or equivalent*', etc.), which would be of 2 A-level standard. The official assumptions date from an earlier period when the survey named far fewer qualifications.

Findings
Although there has been growth towards some targets, this was mostly insufficient to suggest that any current targets will be met. For example, the level 3 target for Wales was that 'The proportion of adults of working age with an NVQ level 3 or equivalent to increase from some 3 in 10 in 1996 to approaching 5 in 10 by 2002 and over 5 in 10 by 2004'. Despite previous downwards adjustment, the current figure for attainment was still a long way short of that envisaged even for 2004 (Figure 1).

Figure 1 - Percentage of working age population with NVQ level 3 qualifications

Level 3

```
50.
45.
40.
35.
30.
25.
20.
15.
10.
 5.
 0.
        '94     '95     '96     '97     '98     '99              [2002]
```
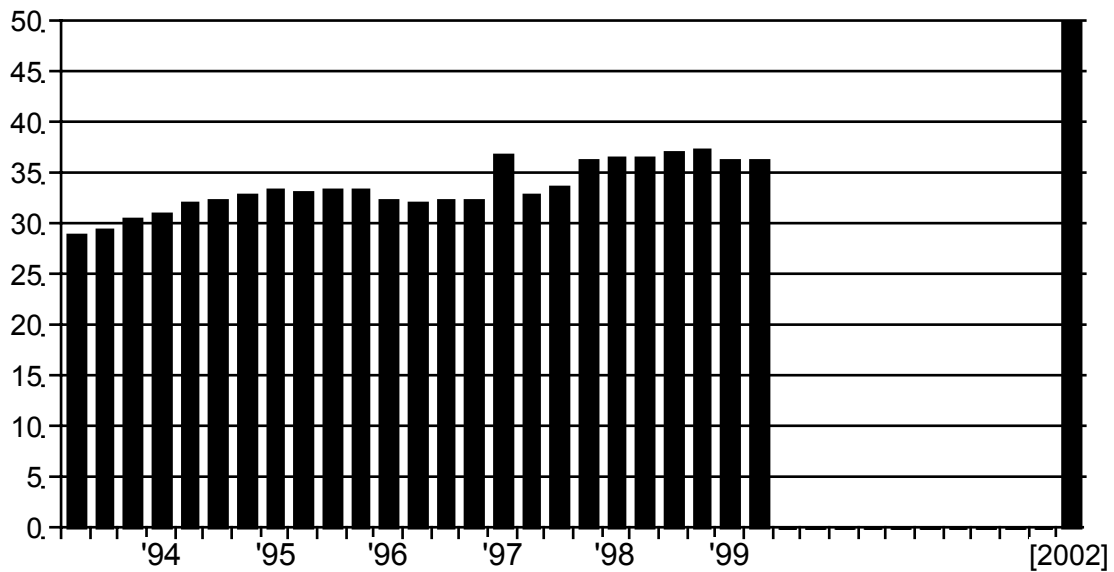
More disturbingly, the progress that is evident is largely dependent on progress towards the Foundation, *not* the Lifelong, Targets. Changes in the qualification indicators for schools will, in time, produce changes in the equivalent qualification indicators for the adult population, so at least some of the changes in the lifelong indicators can be traced back to foundation indicators. It is important both for setting targets and assessing progress towards them that an estimate of this 'conveyor belt' effect is produced. For example, every year around 40,000 16-year-olds join the working-age population, while a similar number of 60-65 year-olds leave it. Each young cohort has higher levels of qualifications than the last year, and much higher qualifications than the older one. At NVQ level 2, our calculations show an annual growth of 0.5 percentage points without any improvement in terms of qualifying adults at all, but simply as a result of adding qualified school-leavers to the working-age population. Hence, progress in terms of increasing qualifications amongst the adult population (i.e., non-school-leavers) is confined to the residual that remains once this 'conveyor belt' effect is taken into account.

This section presents some the difficulties inherent in measuring progress towards even the relatively simple targets in current use. These difficulties range from choice of an appropriate data source, through issues of comparability over time and space, to the mechanics of calculation. Even the narrow version of propositional knowledge tested by examinations is very difficult to assess. There are difficulties of reliability, errors in marking, and even cheating. The equivalence between different qualifications including those from overseas, such as is used to define the 'levels' for targets, requires considerable judgement and some guesswork. Comparability has to be established over years, between examining boards, and across subjects and modes. Where vocational and other qualifications are being recorded by different bodies to those for academic qualifications, there is also a danger of 'double-counting', estimated to effect around 9% of each age cohort.

Some targets for individuals specify a precise age, such as 19-years-old, while others specify an age range, such as working age (16-59 or 64). Previous targets have used vaguer terms such as 'adults' or 'young people', which are not always comparable. Some have used those in employment, or those available for work, and more recently those of working-age as their population. Adults have been variously defined as being over 16, over 19, or over 21. Clearly, the nature of the target and progress towards it is dependent upon the precise nature of the population specified. The alteration of the definition of adults from those aged 19 years or over to those of working-age has had the effect of bringing the target for adults closer to attainment, without any learning taking place. The revised version excludes those adults past working-age, who are generally less well-qualified than average, and includes those aged 16-18 who are generally better qualified than average.

Table 1 shows the proportion of the working-age population with level 2 qualifications according to the LFS. In each case, the first row uses all operational governmental assumptions about non-response, other qualifications, trade apprenticeships, and Scottish qualifications. The second row treats 'other' qualifications as level 1, and non-response as level 1 at best. As can be seen, the differences are significant. The significance is that government publications give different, and higher, figures for target indicators than is obtained using the results of the LFS directly. Put another way, progress, which is currently weak, towards the National Targets, which have already been down-sized more than once, may be even less than publicised but disguised by the retention of obsolete analytical assumptions.

Table 1 - Testing the impact of assumptions on percentage with NVQ level 2

	1996	1997	1998	1999
Official view	54.1	55.9	58.9	59.9
Our view	48.2	52.0	55.4	56.1

Changes in proportion, time, sources, and population, and the use of official assumptions, have been used to bring targets more nearly within reach without the need for any actual improvement in qualification rates. In consequence, it is possible to question the actual impact of Targets on the growth of related indicators, and to estimate this impact by comparing progress before and after the creation of the NETTs in 1991. Although it is clear that other factors than the Targets also differ pre- and post-1991, it is certainly not clear that these policies and interventions since 1991 have been any less, or any more effective. Therefore, it is fair, in the first instance, to assume that if the policy of setting Targets has been a useful one, then this will be reflected in improved progress in terms of levels of qualifications since the Targets were introduced. NACETT were formed in 1993, and it was only then that Targets began to become known to employers and educators. The lowest annual growth in the indicator for the original Lifelong Target 3 is in 1996 (actually negative), and the growth in 1998 is otherwise the lowest since 1991 (Table 2). The year of peak growth is 1991/1992, when the targets were first devised (although this is almost certainly a coincidence). The average growth since 1992 has been 7.5% per year, and the average growth until 1992 was 8.7%. Overall then, it is likely that not much has changed as a result of target-setting.

Table 2 - Percentage of 21-year-olds with level 3 qualifications: Britain

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998

NVQ 3	27.5	28.6	30.5	30.7	34.7	37.6	40.9	45.0	44.3	48.8	50.3
Change	-	4	7	1	13	8	9	10	-2	10	3

Implications

The first, perhaps the major, conclusion is that the current quantitative targets for education and training are not directly measurable. Nor are the indicators they use comparable over time. In some cases, there are even inconsistencies in the results of the same survey published by the same organisation. Official publications generally present higher rates of progress than the results from direct reanalysis of the same dataset. While focused on lifelong learning targets in Wales, these findings also have clear relevance for equivalent policies both for foundation target-setting, and for target-setting more generally in the other home countries.

Although the National Targets for Education and Training in England and Wales include indicators for lifelong learning, and the progress towards the targets set for these indicators has been lauded by politicians and other observers, much of this apparent progress is actually accounted for by changes in these same indicators at Foundation level. However, once the 'conveyor belt effect', of passing increasingly qualified 16-18 year-olds into the working-age population instead of less qualified 60 and 65 year-olds, is taken into account then progress in qualifying those of working-age is much less. In fact, there is then very limited evidence that Lifelong Learning targets have had any impact at all. Certainly work-based training has not increased, and may even have declined over the last decade, while some socio-economic inequalities in adult participation in education and training have worsened (see Case Four).

The Targets miss out a great deal of the learning which actually occurs amongst the adult population, in consequence of their focus upon certificated education and training. In part, of course, this reflects the paucity of data, but is also a consequence of the Targets themselves which by their current nature privilege the apparently measurable. The compensation for this is the unwarranted assumption of greater accuracy in measurement of quantitative output targets than the headline, exhortative, and qualitative targets. If we retain but reconsider the idea of targets for lifelong learning there are some additional issues to consider. For example, there is no strong rationale for the continued exclusion of individuals past the conventional retirement age from the Targets, although again data are not readily available. It is clear that, in addition to being exclusionary, the over-emphasis on qualifications for those of working-age is leading to an over-education paradox whereby many people are employed in posts not requiring their actual level of qualification, such that qualification and lack of qualification is a poor guide to competence. There may also have to be revision of the analytical assumption that men retire at 65 and women at 60. Planning should be underway for this already, and the new set of assumptions underlying target revisions should be based on the new non-gendered definition of retirement age. In addition, it would be useful to consider ways of rephrasing some Targets so that they are expressed as average qualification (or participation) per resident, rather than a proportion meeting a certain threshold. If the Targets have an impact on qualifications and participation, the current set appear to encourage a focus on those who are on the 'cusp' (for example, between grades D and C at GCSE). Work

in the USA suggests that the setting of thresholds serves progressively to exclude those furthest from it. A more carefully designed 'average' target could allow all residents of Wales to be included in progress towards meeting the Targets.

Many of the changes that have taken place in the definition of the targets since their inception have made it difficult to assess progress over time accurately, but have had the effect of bringing the publicised targets closer without necessarily improving qualifications or participation among adults. More complex analyses have shown that the qualification of adults *as adults* has remained almost constant since 1991, and that the only real growth stems from the arrival among the working-age population of 16-year-olds with higher levels of qualification than those aged 60-65 who are leaving it. Added to this, actual growth in the indicators set for the targets was actually marginally greater in Wales before the policy of targets was implemented. Faced with the weaknesses in measuring the existing privileged targets, it might be more practical and certainly cheaper to simply abandon the use of targets altogether than to build a satisfactory but more complex kind of indicator system.

The emphasis on formal qualification is leading to a paradox. People are now more likely to gain qualifications, and figures generally rise year-on-year. The national target for young people having a qualification equivalent to NVQ level 1 is near 100%. As we approach that target, and similar ones for working-age adults and for NVQ2, it means that almost everyone in the target group has that qualification. The certificate therefore becomes almost entirely irrelevant as a means of selecting people for further education or training, or for a skilled post. All applicants have one, and so the decision is made on other grounds, making the qualification worthless in exchange-value. The situation for those with the qualification is worse than it was before (when there were fewer of them). However, for the few people still without the qualification the situation is also worse than before since they are, by definition, a more extreme group. These people are seen as not simply unqualified but unqualifiable. Progress towards 100% on any indicator devalues it for most while pathologising it for a few. Reaching the target simply means the creation of another higher target, and there is no positional, and little educational, advantage for anyone in the meantime.

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Case Seven - A technical fix for education?

Background
One of the central tenets of the drive towards widening participation in adult learning lies in the facilitation of easy access to learning resources and opportunities away from the traditional confines of educational institutions. The use of information and communications technology (ICT) is widely regarded as the chief means by which this goal will be accomplished. Therefore, alongside the potential economic benefits of upskilling the workforce, technology-based learning is also being enthusiastically promoted as a new way of combating social exclusion. Moves are also currently being made to provide technology-based learning to all sectors of society, via the National Grid for Learning, the People's Network of libraries and museums, and various virtual college initiatives. It is intended that the key post-compulsory components of this drive will come under the umbrella of the University for Industry (now referred to as the UfI, and marketing as 'learndirect'), linked to the telephone-based guidance and registration system of Learning Direct.

However, the actual role of technology in widening participation in lifelong learning remains largely untested. Many in government and even in education, distracted perhaps by the allure of the technology concerned, may have tended to treat these new media as relatively unproblematic in their impact. Work at Cardiff takes a more detached view and also raises doubts whether technology is really capable of widening participation in adult learning.

Method
We are clear about the general characteristics of those who currently participate and those who do not, and those who do not make up nearly one third of the adult population (see Case Six). These individuals can, therefore, provide a real benchmark for the success or failure of current technological initiatives.

We conducted 30 interviews with training organisations and companies in Wales, and a further eight interviews with people involved in setting up and running on-line training provision. We conducted participant observation of the work of the Access Group of a digital television based initiative. We also adopted both a user-based and content-based analysis of their learning web-site. This involved a content analysis of the on-line learning materials as well as a cumulative log file record for their sole live course over thirteen month period from 1st August 1999 to the 31st August 2000. Such logs, maintained by the website providers, cover who was visiting the site (via individual Internet addresses); when they visited (in terms of month/ week/ day/ hour/ minute/ second level data); where they came from; what aspects of the site were being used and what software (and often hardware) they were using. We co-operated with the National Institute for Adult and Continuing Education for Wales in the analysis of a survey of adult participation in learning. We collected background information, employment and learning histories, and details of access to information and communications technology at work and home from 483 respondents.

In order to find respondents for interview who were recent participants in on-line learning we designed a brief email-delivered questionnaire. We sent this to all 59 of the registrants on what was then the only 'live' course, and asked them about their

social, economic and educational background. In the follow-up interviews we asked about attitudes, learner identities, the nature of barriers, and possible tranformative experiences. We also conducted face-to-face interviews with a further 36 people who had recently or currently participated in learning on-line or learning via ICT. These interviews were taped, transcribed, and thematically coded in the usual way. They provided us with useful indications on at least two important issues: the nature of on-line learning and how it is experienced by the learner, and the background characteristics and previous lifelong learning trajectories of the participants.

Findings

One of the most obvious present barriers to participation in learning is its cost, and it is not immediately clear that ICT-based provision will eliminate rather than simply alter this. Current non-participation in learning can be explained, at least in part, by the relatively higher costs for poorer groups whether defined by unemployment, low-wages, occupational class, gender or area of residence. The cost of equipment, communication and insurance to participate in learning digitally is therefore unlikely to attract many such newcomers. Moreover, where facilities are provided institutionally free at the point of delivery (via 'distributed learning centres' in libraries, colleges and other community sites) the problems of transport and other institutional barriers remain. So, technology may alter but not necessarily overcome many of the situational and institutional barriers to learning.

As Table 1 shows, ownership of PCs, while larger than access to computers at work, amounts to only one third of the households of Wales (and this includes computers of all kinds, including those used solely for games-playing). Since it is already clear that a considerable proportion of the computers in homes do not have the capacity to access information via the Internet, it is not surprising to discover how few people actually had access to the Internet in 1999. With one in ten individuals lacking access to even basic telephony (and access here includes use of shared public payphones), any assumptions of complete access to the Internet in the near future would appear groundless. Even when digital access becomes more common it is already clear that technical problems will remain for those resident in sparsely populated areas, or in awkward terrain such as the mining valleys of Wales. Of course, the proportions will change over time, but two conclusions appear obvious so far. First: initiatives face a major communications obstacle in trying to register those currently excluded from adult learning. Second: even when access patterns change, so will the technology required for access, so it is likely that many of those already excluded may still be playing 'catch-up' for the foreseeable future.

Table 1 - Access to ICT in Wales

Technology	Percentage at home	Percentage at work
Telephone	91	41
Computer	33	26
Internet	13	19
None of these	7	53

The culture of ICT is generally young, white, middle-class and male; the very attributes of the traditional adult learning base the government (and many others) wish to move beyond. Many of the technologies used to deliver learning (the Internet etc.) are not necessarily dominant or familiar technology with the working class, older,

female, or ethnic minority learner. Access to computers in Wales, both at home and at work, is significantly more common among men, occupational classes A and B, those who left full-time continuous education (FTCE) later, and with higher qualifications. Most significantly access to ICT is most common among those who are currently already participating in an episode of adult learning. Access is less likely for those aged 55 or more, the retired, or unemployed and those otherwise not working, those who left FTCE as soon as possible, and have no qualifications (Table 2). These characteristics have already been identified as more likely to be those of lifelong learners and non-participants respectively. When asked why they did not take part, or plan to take part, in learning, nearly two-thirds of existing non-participants reported no actual barrier to their participation, suggesting therefore that their patterns of behaviour would remain unaffected by any initiatives to ease their entry back into formal episodes – whether technology based or not.

Table 2 – Percentage with access to computers in Wales

Access	all	age 55-64	age 65-74	class E	ftce at 16	no qualif.	non-participant
At home	33	28	7	12	24	13	17
At work	26	14	1	12	15	7	7

At the time of our study of access to learning via virtual colleges, the two principal ways in which a potential user may engage is via their website on the Internet or by means of a telephone call (either directly or via learndirect). Neither of these may be particularly effective means of recruiting disaffected learners new users. For example, several informants revealed that initial telephone enquiries about how to register did not produce very encouraging results. The receptionist was unable to answer even the most basic questions about the purpose and functions of the college, such as what courses it 'offered' and how to enrol in them. In fact it transpires that one college was catering for Welsh language learners alone. Rather than emphasising the role of new technology as an aid to learning, one caller was directed to a current series of programmes for Welsh language learners on terrestrial television (and offered the purchase of video tapes). The 'innovative' uses of ICT to develop critical thinking, reflection or even social, collaborative and conversational experiences so often celebrated by technological enthusiasts were not in evidence during our empirical research.

The college did not record the characteristics of their registrants. For example, users only register for a password (and thereby give any usable information about their socio-economic characteristics) if they wish to access official documents concerning the formation and day-to-day running of the college. The password anyway takes several days to organise and is only available to those with a fixed address. Access to the learning resources on the other hand does not require the user to register. Neither are the details of telephone callers recorded, apart from attempts to distinguish between callers who are individual learners and callers who represent businesses and potential sponsors. The organisation therefore has no way of testing their claim to be overcoming barriers to access.

Another clear problem for many people was the technology itself. Our interviews with the key actors generally suggest that technical issues constitute the over-riding

problems faced by virtual educational provision in Wales. In their experience, the realities of implementing virtual learning entail often insurmountable technical challenges. These include establishing and operating an ICT centre in the South Wales valleys, having to rely on sporadically reliable network connections, and imperfect software, which bely the rhetoric of the seamless 'network society' and the provision of 24 hour on-line learning 'anytime, anyplace, anywhere'. These technical shortcomings were amply illustrated in our interviews with those learners already using ICT-based provision. Faced with the considerable limitations of a real-life website via a real-life Internet connection on a real-life computer, the promises of constantly streamed video footage of Welsh speakers and interactive access to online tutors suddenly appeared rather naive. Similarly, the technical problems faced by those learners in distributed learning centres (such as the learndirect centre where the same learner had to use the same computer every day in order for the system to work), although appearing trivial on paper, often led to dis-satisfaction and dis-engagement with the learning process.

The effectiveness of the 'new' forms of lifelong learning in our study was also noticeably reliant on mostly pre-existing structures of education. Despite the high-profile positioning of distributed learning centres in a few innovative locations such as football stadia and pubs, the fact remains that the vast majority of community access to ICT will be provided through learning centres such as the ones in our study housed in existing educational and community institutions including schools, colleges and libraries. Moreover, the majority of commissioned on-line content and learning resources will be supplied by existing and established educational providers. Whereas this fashioning of the 'new' system of lifelong learning around 'old' structures will ensure an initial stability it may not go far in overcoming many of the existing institutional, situational and motivational barriers to learning that prevented some individuals from choosing to learn there previously. Additionally, significant informal learning goes on in work and at home which is virtually unnoticed by researchers, and even by employers. This oversight has simply been replicated by ICT initiatives.

Of some concern here was the apparent complacency of other politicians, educationalists and industry figures with regard to the ease with which inequalities in access to ICT would soon be overcome; either by 'universal access' or the introduction of 'less socially divisive' technologies. The data within the National Assembly's 2001 *Cymru Ar-Lein* consultation document show clearly that areas of Wales with low rates of qualification among the population, also have low rates of training and reported learning, *and* low use of and access to computers. It is important for the authors of Cymru Ar-Lein, and the relevant Assembly members, to realise that simply altering one of these problems will not lead to amelioration of the other. Similar maps can be presented for initial education, housing, crime, and health. The same areas come up again and again as problematic. The root problem is actually poverty, and rather than trying to ameliorate access to each public policy service separately, real joined-up government might devote resources to solving the poverty and then watching the other indicators, including ownership of computers, improve as well. Indeed, to imagine a digital world free from the inequalities of the offline world is again indicative of technological naivety rather than foresight. In our questionnaire and interviews *all* of the respondents had been traditional post-compulsory participants in learning before their current 'technological' participation.

Implications

Perhaps the most significant 'educational' factor in the long-term effectiveness of this 'new' agenda of lifelong learning was the resulting 'surf wars' from the positioning of initiatives such as UfI and virtual colleges around pre-existing structures of education. In doing so it was naive for virtual education providers to believe that they could truly complement existing forms of adult education without being seen as a competitive threat by the very institutions that they were paradoxically relying on for partnership. One of the very real barriers faced by virtual education turns out to be the pre-existing micro-politics that characterise the education sector, and particular the FE/Adult education sector.

In attempting to establish the UfI, for example, the UK government were clearly looking to create a viable and sustainable commercial marketplace for educational ICT with the state acting as regulator and evaluator. In doing so the UK government have distanced themselves from the model of ICT policy-making adopted in Europe, America and Japan which firmly positions the role of the state as one of facilitator and the private sector as the generator of change. Imposing a framework of ICT-based learning from Westminster was resulting in significant problems on the ground in Wales - including a fair degree of hostility towards an initiative seen not to have been formulated with the needs or demands of local education and learners in mind. Thus, whatever the global intentions of UK technological policymaking, this local context should not be overlooked if such initiatives are to be implemented effectively. There is a need for a 'bottom-up' approach to building technology-based opportunities and services.

The argument is that digital broadcasting, the Internet and so on overcome barriers of space, inflexibility and travel by bringing the learning experience to the home or near-neighbourhood of those currently excluded. What appears to be ignored in this plan is that access to the relevant technology and expertise is unevenly distributed in society, and that those without access are also more likely to be those currently not participating in more traditional episodes. Around one third of the adult population left school at the earliest opportunity and have received no education or training since. There are systematic social and economic differences between these individuals and those characterised as lifelong learning participants, which have been confirmed in many reports. Non-participants are generally older, less economically active, less geographically mobile, still more likely to be female, from less-educated families, and of less prestigious occupational class. They are therefore identical in summary to those currently excluded from access to the Internet. Around one third of the adult population in Wales does not have access to a home telephone, and around two thirds do not have access to any form of computer. Needless to say, these figures will decline in the future but the technology and the demands on that technology will also change (with obsolescence occurring every 18 months according to a recent estimate). In a few years a reconditioned year 2000 personal computer with one telephone line may no longer be sufficient for access. Those currently without suitable technology will still be playing catch up.

Similarly, disparities in the *context* of ICT access are also an important consideration. Will accessing on-line information and resources from a home-based computer or digital television set be equitable to accessing the same materials via an open-access work station in a public library or other community-based ICT centre? The danger is

that by focusing solely on issues of basic access politicians and educationalists are overlooking the quality of that access and, it follows, the quality of access to information and services once experienced on-line.

The major implication of our findings reinforces that from Case Six, which is that for a host of technological *and* non-technological reasons, many adults remain unwilling or unmotivated to participate in lifelong learning programmes. There is no technical fix to patterns of participation in lifelong learning.

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