Is Education Getting Better?

Published in the British Educational Research Journal, Vol. 7, No. 1, 1981

BERA Presidential address, University College, Cardiff, 1980.

BRUCE CHOPPIN, *National Foundation for Educational Research*

The Question

My thesis is a simple one. This question is education getting better? is relevant, and important at a time when society is concerned to reassess its priorities and the distribution of resources and yet it cannot be answered definitively at the present time. We just do not have sufficient information. Despite the usually optimistic anecdotal reports of classroom innovations from progressive educators and the depressing reports of general decline from the Black Paperites (not to mention the almost daily headlines in the popular press), there is little hard evidence of change *either way* of the level of success of our educational enterprise.

I apologise for the way my question is formulated, but it is the sort of question the layman asks people who are identified as educational researchers. Is education getting better? can start a whole series of debates. What should be included as education? What do we mean by better, and for whom? I accept that there are a number of different interpretations, and that this makes the task of providing answers more difficult, but the question itself must be attacked, evidence must be sought, and we, as educational researchers, have a major responsibility in this regard.

Not that I am implying that all educational research should be directed to answering this question in one form or another. It should be no more than a part, maybe a very small part, of our total research endeavour. Yet at a time when the principle of public accountability has legitimately been raised I feel that we have an obligation to provide much more hard evidence. This would help to balance the mass of anecdotal reporting which presently fuels the somewhat irrational political debate.

It is not unreasonable to pose such questions in other fields. Is the weather getting better? Is the Ford Escort getting better? Is the postal service getting better? In each case there is room for some discussion because of the inexactitude of the question, but there is also hard evidence which can point the way towards an answer. In education we have some of the tools and techniques needed to get the evidence. We have specialists in measurement, assessment and monitoring. We have debate about the place, if any, that these activities should have in the classroom. What, until now, we seem to have lacked, is the determined effort to gather and co-ordinate evidence on what must surely be among the most important questions facing the research community. The educational system is changing with time. Are these changes in the desired direction?

There are many aspects which can be considered, but here I will restrict the discussion to just two: do we have more education than in the past, and are standards of attainment rising?

Is Education Getting Bigger?

Education seems to be valued most where it is in short supply. In many parts of the world, where formal schooling is still not available to more than a fraction of the children, the equation *bigger equals better* is easy to defend. Despite the hardships endured by most their adult population, and a grave lack of resources, almost all of the poorest countries of the world (whatever the political colouring of their governments) have placed the very highest priority on educational development for their young people.

In many instances the results have been impressive. If I might quote just one example, Indonesia, where I have spent a fair portion of my time in the last six years, the number of children enrolled in primary school has increased by a factor of 10 since the country became independent in 1945 (and there has been a similar expansion in the provision for secondary education). By 1980, school places were available for about 85% of Indonesia's 4½ million six-year-olds, and, despite a continuing population growth, universal primary education cannot be too far away. At the time of independence, more than 90% of Indonesia's population were illiterate. The expansion of the school system, together with determined efforts to Promote non-formal education in the villages, have by now reduced the illiteracy figure in the whole population to somewhere between 20 and 30% (Postlethwaite & Thomas, 1980). For Indonesia the provision of more education has been the priority; and their politicians, planners and researchers can say with some degree of satisfaction *education is getting better.*

In third world countries, statistical data on pupil enrolments and numbers of teachers are themselves hard to obtain, and frequently any estimates of the size of a complete educational system contain a good deal of guesswork.

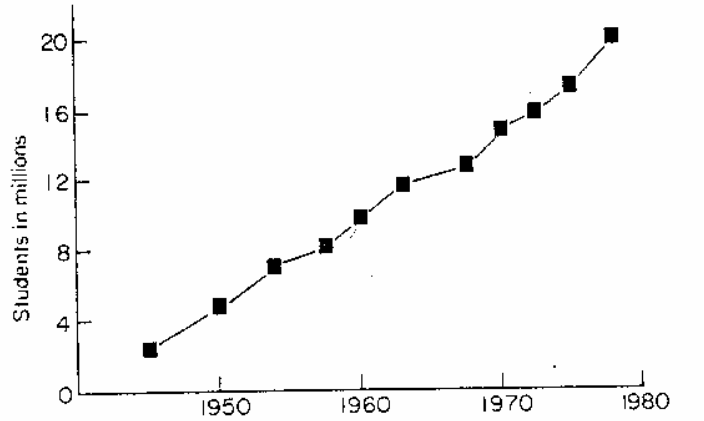

FIG. 1. Primary school enrolments in Indonesia.
Source: International institute for Educational Planning (Paris).

Developed countries, on the other hand, usually compile reliable statistics on the size of the educational industries on an annual basis, so that we can say with some confidence how much formal education is being provided.

Evidence for changes in the extent of this provision can usually be inferred, directly or indirectly. In Britain, primary education has been universal for a comparatively long time and increases in the size of the educational system relate mainly to (a) the raising of the age beyond which children are not required to attend secondary school; (b) the encouragement of greater proportions of children to stay on beyond that age; (c) expansion of provision in the further and higher education sector.

In respect of the first of these, the raising of the school leaving age in 1973 did result in a substantial increase in the number of children attending school, but partly because of the element of compulsion involved, and partly because the schools seemed to lack any clear idea of what type of education they should be providing for discontented fifteen-year-olds, this change is not universally regarded as having been for the better.

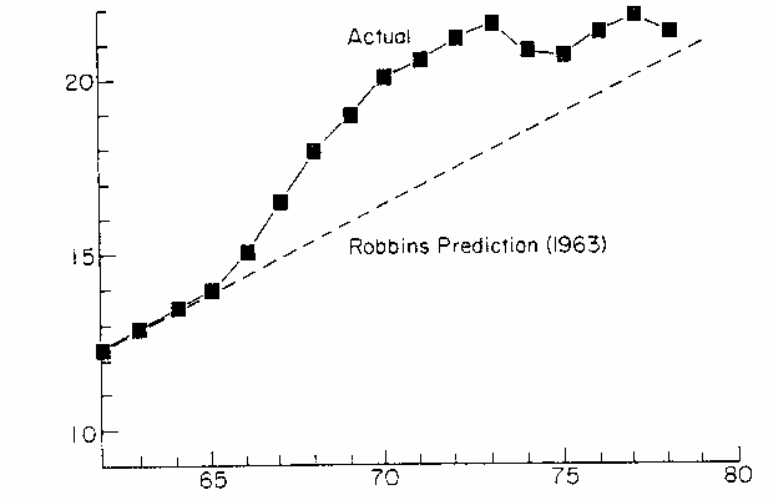

FIG. 2. Percentage of 17 year-olds in school.
Source: DES Statistics of Education.

There might be more consensus about the desirability of having a larger proportion of seventeen and eighteen year olds stay *voluntarily* within the school system. In the early 1960s the Robbins Committee predicted that the percentage of the seventeen-year-old age group remaining in full-time education would rise from a figure of 12% by about half a percentage point each year. In the event the 1960s saw a rate of growth three times that predicted by Robbins, so that the figure of 20% staying on was achieved in 1970 instead of in 1978 as Robbins had predicted. Since 1970 however, the curve has levelled off rather dramatically, and we are now almost back on the Robbins' predicted course. As a result, although at the upper end our educational system is certainly larger than it was twenty years ago, it has not expanded as much as the planners of the higher education system had expected. We have moved, in less than a generation, from a time of intense competition amongst young people for places in higher education to an era where there

are not enough students to go around, and where a reduction in the subsidy for overseas students can threaten certain university departments with closure.

It has been suggested that admissions tutors in higher education are now scraping the bottom of the barrel for academic talent, and that it is unrealistic to expect the majority of children to complete the secondary stage of education, let alone go on to a further stage. On the face of it, the figures would seem to lend support. However, most countries in Western Europe now have considerably higher proportions of young people completing secondary education and going on to university study. In the United States, 75% of their youngsters earn a high school diploma at the end of 12th grade. In Russia, though the formal period of schooling is shorter (only ten years), no fewer than 98% of children complete a secondary education. (While I will have more to say about educational standards later, it may be noted that each student in this 98% will have had three years of calculus, will have studied physics for five years and chemistry for four, and in general will have studied a curriculum that in science and technical areas puts them at least three years ahead of their more privileged contemporaries in the United States (Wirszup, 1980)). In 1940, less than 5% of Soviet youth completed secondary school. The increase to 98% in forty years, is even more dramatic than the development of Indonesian primary education that I mentioned earlier. It was the result of a sustained and determined effort to develop the country through the expansion of education. For the USSR too, more has meant better for several decades, and in Britain, with our meagre 25% completing secondary school, we clearly have some way to go.

I have mentioned America and Russia for a purpose. Experience has taught me that the British educator is never more firmly on the defensive than when these two giants are mentioned (and they are educational giants as well as military giants: in their very different ways each of them offers far more education to the average child than he or she could expect to get in this country). The standard response seems to be that although we have less education available, it is perhaps education of a higher quality. If consideration is focused on the upper secondary school, then I think there is very little evidence to support such a claim. Our schools are trapped in a mental conflict. On the other hand they accept that they are preparing young people for employment (and the competition for jobs that has largely replaced competition for university places), and on the other they still respond to a deep-seated instinct to protect young people from the harsh realities of working life (the Charles Kingsley syndrome). America and Russia have sorted out these issues, albeit rather clumsily. Western Europe is finding it more difficult, but most of its nations have made more progress than we have in Britain. I am particularly impressed by the Swedish system that encourages young people to leave the school system and get some practical experience of work with the possibility of re-entering the educational system and indeed, proceeding to university at any age up to 25. A system such as this may well reduce the number of pupils in the classroom in the short-term, but it can lead to a recognition and valuing of continuing post-school education that may be an important part of Europe's contribution to the twenty-first century.

To summarise, we have volumes of statistics that document the changing scale of our educational enterprise, and the statistics are both comprehensive and reliable. Yet in

Britain, as in other developed countries, we cannot be confident that *increases* in formal education necessarily imply *improvements* in the total system. The exception to this may well be at the upper-secondary stage where until recently, the *scale* of the provision in Britain was really poor. Now there would appear to be adequate space for all both at upper-secondary, and in some part of our diverse tertiary provision, and this must be judged an improvement. The question now is whether the provision, especially the school provision, is what young people, and society at large, really need.

Do People Learn More?

This is a pretty obvious interpretation of 'is education getting better?' and one to which a great deal of interest has been attached in recent years. Every week it seems the press highlights a new discovery in this area, we see headlines such as "Standards of school leavers 'Abysmal' " *Sunday Telegraph,* "Drop in school quality proved" *Guardian,* "GCE survey shows fall in standard" *Telegraph,* or more hopefully "NUT chief say standards in education are rising" *Times,* ILEA juniors reach new high in verbal reasoning" *Balham and Tooting News* and "A-level standards maintained". Unfortunately (perhaps that's the wrong word), when one looks behind the headline one finds that the basis is usually 99% speculation and unjustifiable extrapolation, and 1% real data. As an illustration, let me take that last headline "A-level standards maintained", which appeared in *The Times Education Supplement* about two months ago. The headline appears over a brief account of a Schools Council report written by Christie and Forrest of the Joint Matriculation Board (1980). The first sentence of the TES account notes that "A Schools Council enquiry into A-level mathematics, chemistry and English literature published this week *has failed to reveal any more change of standards* in these subjects between 1963 and 1973". This is not quite the same as "A-level standards maintained" which was their own headline. If in fact one goes back to the source document, one finds that the authors characterize their study as a "pilot experiment" in which a mere 30 scripts in each subject from 1963 were re-marked according to 1973 standards. The experiment was "intended to demonstrate the viability of the method, and to discover potential difficulties, rather than to make firm pronouncements about the rise and fall in standards over the decade". The authors point out that *it is not possible to draw conclusions about changes in standards* because of changes in both syllabuses and methods of examining in the subjects investigated and because of the small number of scripts available for remarking. Does that, in your view, add up to convincing evidence to support the headline "A-level standards maintained". I will come back to the subject of GCE results later, but my point here is that the press have become so obsessed with the value of a story about standards declining or not declining, that almost any report of educational research is likely to be stretched in all directions to see if it cannot justify an evaluative comment.

Let me then pass over the swarm of press reports of change that have no real evidence to support them, and also anecdotal evidence such as Personnel manager reports that modem youngsters cannot add and subtract, which though it may reflect changes in the educational scene is difficult to quantify and validate.

I will concentrate instead on work by members of the research community that is claimed to address itself to the question of standards.

In this context I cannot avoid some mention of Cyril Burt, who shortly before his death reported (in a number of publications, but particularly the Black Papers) on standardized test results spanning the period 1914-1965. The figures he quotes purport to show a substantial decline in standards of reading and arithmetic between 1930 and 1940 with only a slow recovery since then. Burt was somewhat shy about publishing details of the research studies which gathered these data, but since his death investigation of college and Ministry records and Burt's correspondence in the later 1960s have largely destroyed the credibility of his results. It now emerges that the early samples of children were not nationally representative but were from small numbers of schools in inner-London chosen by Burt and the inspectorate on a judgement basis. The children tested were selected by the teachers. The social composition of inner-London was in any case drastically changed by the second world war, so that the pre-post-war comparisons within Burt's data are virtually meaningless.

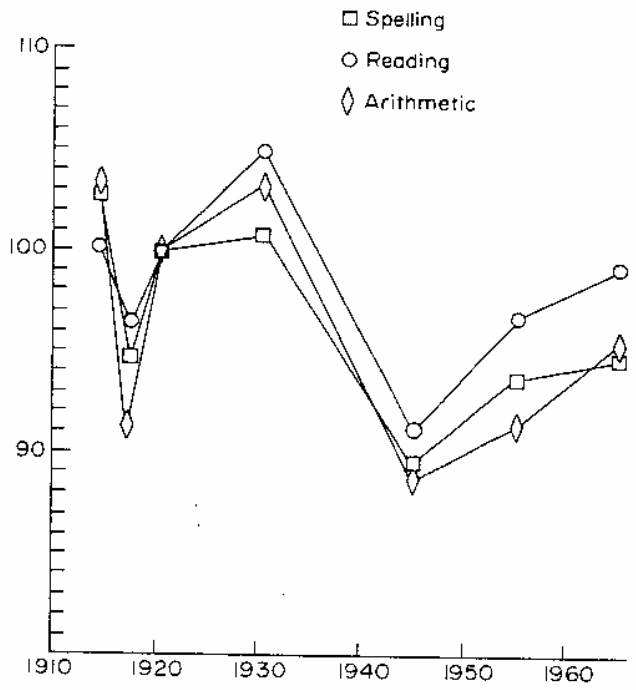

FIG. 3. Performance figures (Burt) taking the 1920 index as 100.
Source: Wright, N. *Progress in Education* Croom Helm 1977.

Further the associate who was supposed to have compiled the table reproduced here appears never to have existed. If Burt invented his associates, we cannot be sure that he did not also invent his data. The sad thing is that if we disregard these results we have little quantitative evidence to support the general perception of teachers and inspectors that performance standards did fall quite considerably during the war.

If we confine our attention to the post war period, there is much more information, but very little that is conclusive. For example there have been a number of reports in recent years (and particularly since the publication of Bullock) that literacy is in fact declining in Britain; or to put it another way, that illiteracy was on the increase. I have unearthed from the literature seven separate estimates of the numbers of illiterates and semi-literates being produced by our school system at various dates between 1945 and the present. Unfortunately meaningful comparisons between these figures are impossible since the studies either used different definitions of literacy and semi-literacy or else constructed their samples in idiosyncratic ways (for example excluding special schools). It is difficult to avoid the impression that some researchers actively seek to discourage the investigation of trends over time.

For standards of reading in the primary school we have rather better information. A standardized test (the NS6) has been given to randomly selected samples of 11-year-olds periodically since 1955. I would not want to suggest that these comparisons are without problems (some samples were of England and Wales, some of England alone) and there have been many criticisms raised as to the quality of the test. Nevertheless if one studies the mean values there is a suggestion that standards are rising, albeit slowly. Survey results, however, are prone to sampling errors and when we draw in the 95% confidence limits for these results, bearing in mind that the different surveys were performed with different degrees of accuracy, you see that the data are not entirely inconsistent with the hypothesis that the mean score in the population has been 30 all along. (Surveys in the Scottish Primary Schools have revealed the same general pattern.)

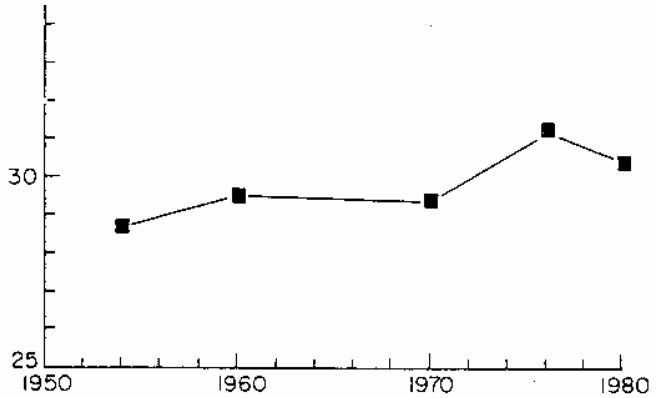

FIG. 4. Mean scores on test NS6.
Source: various reports of national surveys.

I am not criticising the accuracy of these surveys. This type of research is expensive and the additional benefits to be gained by reducing standard errors down to a small fraction of a score point are slight. What we can say with some confidence as a result of these studies is that standards of reading among 11-year-olds have changed *very little* over the past 25 years. What *very little* means in this context may be deduced from the fact that addition of one score point on this test corresponds to about eight weeks of learning. What we need are similar sets of figures for other age groups, and on other aspects of

language development, so that we can judge the full impact of educational and indeed societal change on patterns of performance.

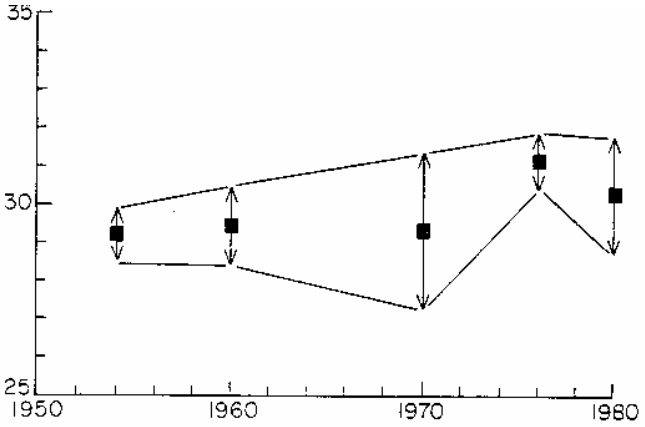

FIG. 5. Confidence bands (95%) for NS6 score means.

The general public (and sometimes even Secretaries of State) look to the public examination results, and particularly the GCE, for evidence that standards are improving or declining. The very independence of the GCE Boards gives them credibility, and their public stance suggests a commitment to the maintenance of standards. Let me quote you something recently published by Richard Christopher, the Secretary of the JMB.

> The Boards are therefore working as part of a national system within which it is their aim to maintain constant standards over the years. It is often thought that in pursuance of this aim the percentages of candidates passing in a subject are decided in advance, or that the minimum marks for each grade is fixed in the same way, whereas the deciding factor is in fact the quality of the work presented. . . . The chief concern is to ensure that as far as possible a *given standard of performance carries the same grade in one year as similar work carried in proceeding years.* (Christopher, 1977.)

Or again, two GCE board research staff, replying to a recent article in the *Guardian* that suggested that the proportion of GCE candidates who will pass is fixed in advance:

> Nothing could be further from the truth. The statistics published each year by the various boards show that the percentage of candidates obtaining the various grades varies between subjects, between boards, and between years. The reason for this is precisely that the boards consider it important *that standards of attainment are maintained at a consistent level* in spite of variations in the standard of the entry. *(Guardian,* 29.7.80.)

This sounds simple enough, but let us look at some figures. Between 1952 and 1978 the number of GCE 'O' level candidates rose from 160,000 to over a million a year, a growth of more than six. The number of entries in individual subjects rose over the same period by a factor of three and a half. Now I don't wish to suggest that all the extra candidates in 1978 were of lower academic calibre than those tested in 1952, but

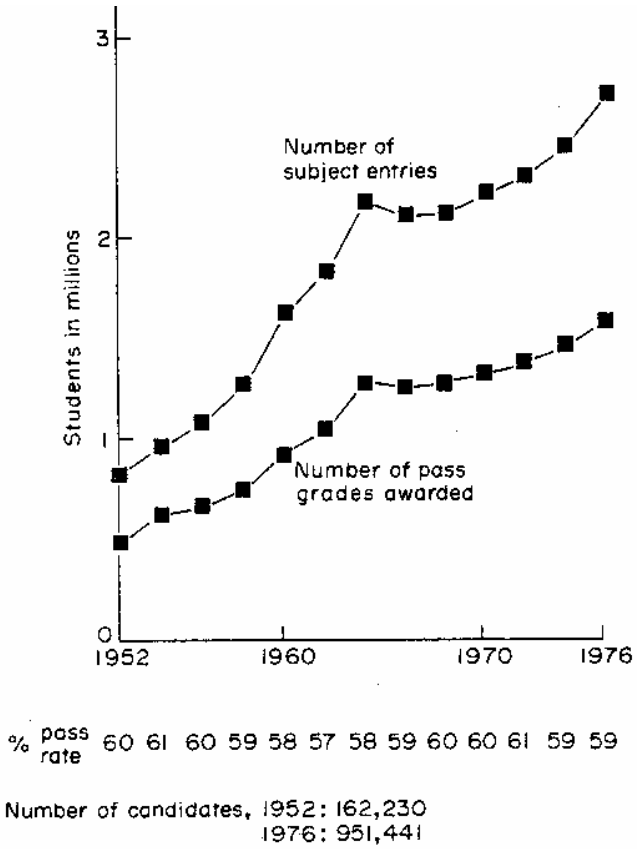

FIG. 6. GCE O-level entries and passes.
Source: Willmott, A. S. *Twelve Years of Examinations Research* Schools Council 1980.

it is difficult to avoid the conclusion that what may be taken to be the average intellectual calibre of the entry has probably declined. Of course we can set against that, the increase in the quality of schooling that we hope has occurred over the past twenty-eight years, but since a proportion of the anecdotal evidence suggests a decline in teaching standards, it seems improbable that an increase in the *quality* of education would quite compensate for the six-fold increase in the *number of* 'O' level candidates. Yet look at the pass rate in the examination. It moved from 59.6% in 1952 to 58.5 % in 1978. In the intervening period it never went higher than 61% nor lower than 57; very very narrow margins (Willmott, 1980).

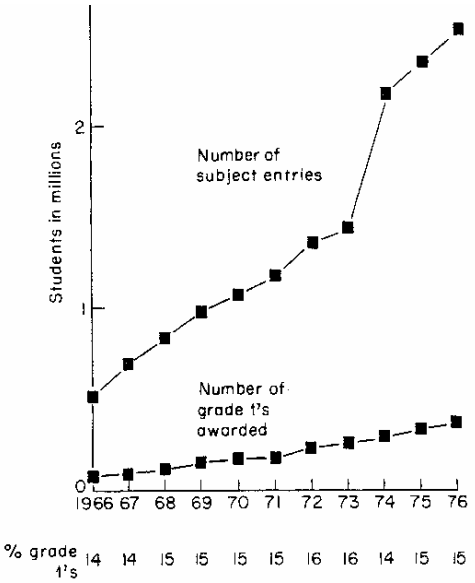

FIG. 7. CSE entries and number of grade 1 passes awarded.
Source: A. S. Willmott, *Twelve Years of Examinations Research. Schools Council 1980.*

The same phenomenon applies to the CSE and to GCE Advanced level. The overall pass rate at A-level has never been more than 70% nor less than 68.

At this point I can't resist another dig at the educational journalists. In August, the London *Evening Standard* carried the headline "Class of 80 a Winner at 'A' Level". Their education correspondent reported "two out of three 18-year-olds who took 'A' level examinations this summer will be told within the next twenty-four hours that they have passed, and today the London Examinations Board chief disclosed that *school standards are not on the slide.* Two thirds of the class of 1980 who took English, Maths, German, French or Sciences at 'A' level in June topped the pass mark. 70% of English 'A' level and Maths candidates tested by his Board passed, and in two subjects named by the Government as nationally vital, Physics and Chemistry, fewer than a third of the candidates failed".

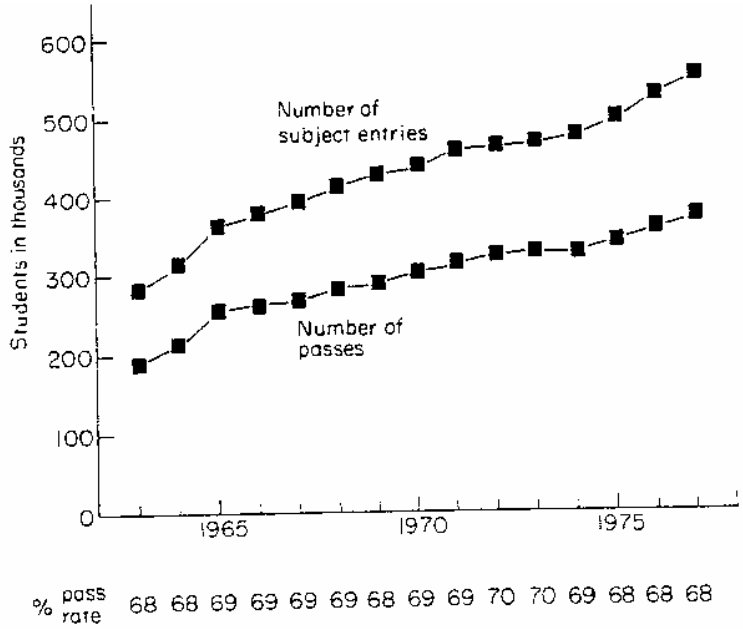

FIG. 8. GCE A-level entries and passes.
Source: DES Statistics of Education.

The GCE Boards, the Press and the Secretary of State (not to mention the Prime Minister), all want us to believe in the GCE Boards as guardians of our national academic standards. They are not. And lest you think I am making too much of the numbers I have quoted, Fig. 9 gives the grading scheme for Advanced level agreed on by the Boards and published by the HMSO in 1960. You will notice that the sum of the percentages for the five passing grades comes out at 70%. That was 1960, but in March *this* year the Schools Council report "These guidelines *(the ones in Fig. 9)* are the only published description of 'A' level grades to which both GCE Boards and users of 'A' level results refer." Further the Schools Council report that although these percentages were intended to be no more than guidelines, in practice the distribution of grades over all Boards and in

each of the large entry subjects has conformed closely to the guidelines with only marginal fluctuations from one year to the next (Schools Council, 1980). In other words Advanced level (and Ordinary level and CSE) are norm-referenced and not criterion-referenced. You pass or fail in terms of where you stand relative to the other candidates who took the test at the same point in time. As the number of GCE entries has increased over the years so has the number of passes and the number of failures. In themselves, these figures do *not* help us to determine that children are learning more.

Grade	A	B	C	D	E	O F
Percentage of entries	10	15	10	15	20	30

FIG. 9. A-level Grading Scheme.
Source: Third Report of the Secondary Schools Examination Council.

The work of the Assessment of Performance Unit is clearly much more relevant to our search for data on changing standards. Indeed the lack of such data was one of the reasons for the creation of the Unit in 1974. However testing (on a very limited scale) began only in 1978, so we shall have to wait some years before we have any real answers.

There are also growing doubts in my mind as to whether the APU is going to be allowed to monitor *change* except in one or two rather trivial aspects. APU activity in itself appears to be controversial even before we have any results. There are statisticians advising the DES that monitoring performance over time is impossible, (Goldstein, 1979) and curriculum specialists who feel that even the attempt will destroy existing teaching patterns in the schools (Lacey and Lawton, 1980). Then there are other interests (within the Department and outside) who see in the APU surveys a potentially cheap way of obtaining information about such diverse areas as the effects of economic hardship on school attainment, the effects of different styles of teaching on classroom learning or the educational problems of immigrant populations. In this view, APU could replace much of the existing research activity in education. The net result seems to be a growing sense of confusion about the work of the unit and a weakening of the APU's original commitment to monitor standards.

To some extent this development mirrors that undergone by the National Assessment of Educational Progress endeavour in the United States. Here the objectives, hammered out by politicians and measurement specialists, were progressively diluted as entirely different goals were added into the programme by well-meaning research enthusiasts. As a result the NAEP has come up with remarkably little data on changing standards over the fifteen years since testing began, and there is now pressure for a reanalysis of all the data gathered with the original objectives in mind.

Nevertheless there is some information available and most must be depressing for American educationists. Many of the reported results suggest a decline rather than an increase in performance levels in basic skills subjects. This trend is duplicated in

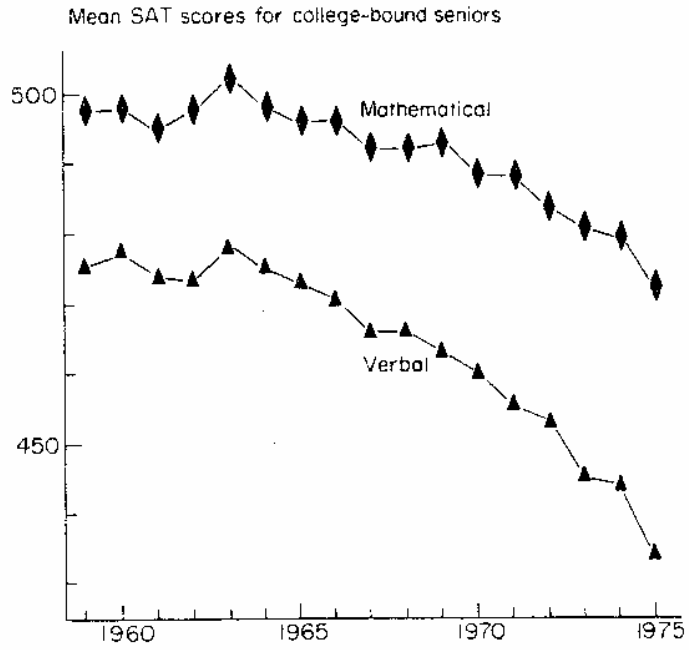

FIG. 10. Mean scholastic aptitude test scores for college-bound seniors in the USA.
Source: College Entrance Examinations Board.

analyses of scholastic aptitude scores for university-bound American students. While the number of such students has remained approximately constant since the niid-60s both verbal and mathematical aptitude scores have shown an accelerating decline. The verbal decline is particularly noteworthy reaching almost half a standard deviation.

More heartening perhaps is some recently published information from Australia (Rosier, 198). This is perhaps the most carefully worked study of changes in levels of performance that I have come across, though it is restricted to mathematics and at two ages, 13 and 17. To take the 13-year-olds first, between 1964 and 1978 the average level of performance in Australia *declined* by about one quarter of a standard deviation (that is about six months' worth of study). The decline was particularly noticeable in Geometry but apparently absent in the area of Mathematics. However it was noted that over the fifteen-year period the amount of lesson time devoted to Mathematics was down by 16% and summed over the-years in school this seemed to suggest a cumulative deficit of about six months' worth of teaching. In other words the decline in Mathematics performance could be explained entirely in terms of the reduced instructional time (and a detailed path-analysis of the correlation data supported this).

At age 17 the data suggested an overall *increase* in mean level of performance between 1964 and 1978 amounting to a sixth of a standard deviation. Here performance in

Geometry and Calculus were actually down, but performance in New Mathematics was greatly increased. These results are quite surprising when one considers that class time for this age group was also reduced, this time by about 10%, and also that the holding power of the educational system has increased so that 50% more 17-year-olds were in school in 1978 than had been in 1964.

I am impressed by the thoroughness of this particular piece of research which was conducted within the context of the international surveys mounted by the IEA, a cooperative network of research agencies in some thirty countries. Particular care was taken with the selection of samples, the preparation and administration of instruments and to the data analysis. The results provide fairly convincing evidence that mathematics teaching in Australia secondary schools has improved quite notably. We can only speculate whether the same would be true for our own school system.

The Future

I suppose it would be possible to read into my remarks an indictment of the press, the Examination Boards and quite a few researchers. It is certainly not my intention to mount a general attack on the educational research community. In recent years educational research has undoubtedly produced a significant increase in our knowledge about the educative process and the detailed working of the school system. From the mass of studies (most of which are modest both in scope and scale) it is necessary to draw generalisations on a subjective and individual basis. I think this will change in the future as new and sophisticated techniques for the secondary analysis of data (or meta-analysis) become applied to a wider range of educational issues. Those of you who are unaware of this development would be well advised to look at the recent American literature on this topic. (Glas, 1978; Walberg & Haertel, 1980.) For the moment my own assessment of significant discoveries bearing on educational efficiency is necessarily a subjective one.

In my view, educational research has produced convincing evidence regarding the importance of both *the content and the structure* of curriculum. The perceived relevance of what is taught is an important motivation for the child. The organisation of the learning around a discovery or child-centred approach has an immediate pay-off in the affective rather than the cognitive domain. Children who are interested in what they are doing, learn more than those who are not.

Secondly, research has shown that what has come to be called *time on task,* that is the actual amount of time during which an individual is engaged in a learning activity (as opposed to day-dreaming, filling in the football pools, or watching the girls across the road playing netball) is a major determinant of the amount of learning that takes place.

Thirdly, the accumulated evidence suggests that certain *teacher behaviours,* particularly certain types of questioning, are related both to increased interest and increased learning for most students.

Fourthly, that various technological developments can assist learning by working towards *individualised instruction* and optimising the learning conditions for each separate pupil. In the past teachers have been aware of individual differences within the classroom, but they have been forced to ignore them to a considerable extent. Individualised learning that takes account of the differences should benefit everybody.

My last outrageous generalisation concerns the scheme known as *mastery learning.* I suppose this remains the most controversial, though the earlier points all lead in this direction. We now have reached a stage where the research evidence from a number of countries with widely differing cultures is fairly conclusive. Where teachers and curriculum developers jointly plan teaching sequences so that virtually every child in the classroom masters the basic core material that is a prerequisite for further progress (and thus enjoys the positive encouragement that such success implies) then the class as a whole works together and learns more than under more conventional teaching methods. The strength of this effect is such that perhaps 80% of the class achieve final examination scores only attained by the top 20% under conventional teaching.

These I see as being major outcomes of educational research that could be directly applied to the improvement of the educational system. They relate to our understanding of education, and give us perhaps some grounds for hoping that *standards are rising.* They do not, in themselves, help to answer the question: 'Is education getting better'? This brings me back to my main theme: our lack of knowledge in this vital area. As the years pass, researchers, however talented, will lose credibility if we cannot show that application of their findings does lead to some real improvement.

I feel that we do not need some agency, private or public, with a mission to promote the monitoring of changes in the school system and in standards of attainment. Perhaps BERA has some role to play in this. I am thinking beyond the carrying out of educational surveys, to an agency that would encourage researchers to conduct their work in such a way as to permit comparisons over time and/or secondary analyses of their data. This could be done through generally accepted guidelines regarding the drawing of samples, on the use of standardised tests (and more especially item banks), and by the promotion of operational definitions of such concepts as functional literacy.

I also favour having a single national examining body, because I see little virtue in our present network of GCE and CSE Boards; not to mention the numerous examining authorities in the further education sector. I think we have too many examinations and far too many examining bodies in this country. A centralised and simplified system run in an open fashion by a publicly accountable examinations authority would seem in the long run to be in everybody's interests. Not that I want to restrict curricular diversity in any way, nor indeed different approaches to assessment (such as that represented by Mode 3). These virtues can be secured just as easily within a national assessment framework as they are now within the various GCE and CSE boards. I would seek to break the domination of the examiners in the field of curriculum. The curriculum is far too important to be left in such hands. Let the Schools Council or its successor oversee

curriculum development and coordination. I would make the new assessment centre the servant, not the master, of the curriculum.

But here I am straying too far from my thesis. As well as certifying the educational standards of individual pupils, the national assessment centre would gather the necessary data to check the system as a whole. Such data on changes over time are not available at present. Is education getting better? We should know the answer to this question, but we do not.

Correspondence: Dr Bruce Choppin, The National Foundation for Educational Research, The Mere, Upton Park, Slough SL1 2DQ, England.

REFERENCES

CHRISTIE, T. & FORREST, G.M. (1980) *Standards at GCE A-level: 1963 and 1973* (London, Macmillan Education).

CHRISTOPHER, R. (1977) *GCE- the search for fairness and consistency Education,* 15th July.

GLASS, G.V. (1978) Integrating findings: the meta-analyses of research, in: SCHULMAN L.S. (Ed.) *Review of Research in Education, 5,* pp. 351-379.

GOLDSTEIN, H. (1979) Changing educational standards: a fruitless search, *Journal of the NAIEA, No.* 11, pp. 18-19.

LACEY, C. & LAWTON, D. (1980) *Issues in Accountability and Evaluation* (London, Methuen).

POSTLETHWAITE, T. N. & THOMAS, R.M. (1980) *Schooling in the ASEAN Region* (Oxford, Pergamon Press).

ROSIER, M.J. (1980) *Changes in Secondary School Mathematics in Australia 1964-78.* Australian Council for Educational Research.

WALBERG, H.J. & HAERTEL, E.H. (1980) Research integration: the state of the art, *Evaluation in Education,* 4, No. 1.

WIRSZUP, 1. *(1980) Survey of Recent East European Mathematical Literature* (Chicago University Press).