

Response of the London Mathematical Society to consultation on 'Schools that Work for Everyone'

This submission by the London Mathematical Society is made directly rather than using the online survey because most of the questions in that survey assume agreement with the proposed policy, rather than invite comment upon it. It would be hard to respond to these questions without giving the impression that we agreed with various statements, both implied and explicit, included in the survey.

General

Everyone can echo the idea of "a country that works for everyone, not just the privileged few". But subsequent policy will be judged by whether this bold aspiration is rigorously pursued, or has merely been used as a slogan to justify changes that may well have precisely the opposite effect. The devil is partly in the detail. All in all, the consultation paper suggests that a lot of serious thought is needed before deciding whether any of these outline proposals should be pursued.

The proposals assume that improvement can be achieved through *ad hoc* initiatives. In contrast, high performing systems worldwide suggest that one must work towards a robust framework of national institutions to oversee curriculum, teacher recruitment and support, etc. We have found it hard to see how the proposals outlined here could serve as stepping stones on the way to such a system "that works for everyone".

The four chosen strands (independent schools, universities, selection, faith schools) have no evident coherence. So one is left with the impression that they have been chosen because they are all seen as vested interests, that might be "persuaded" using a mixed regime of benefits and sanctions to play ball. We note that:

All of these interest groups are *parochial* (even tribal) - serving at best a small minority within a single locality, benefiting a very small number of people and having a potentially adverse impact on a much larger group. Any implementation must therefore be designed to minimise the negative impact.

- It is hard to believe that those required to implement the different parts of these proposals have been involved in prior discussion of the package as a whole. For example, we are told that universities' compliance will be monitored and policed by the Director for Fair Access, Chris Husbands; yet his views on selection sit uneasily alongside the consultation document <https://ioelondonblog.wordpress.com/2014/12/05/selection-at-11-a-very-english-debate/>.
- The individual proposals are mostly unconvincing. For example:
 - Selection cannot "work for everyone" unless the testing is centrally monitored to ensure that it is as "fair" as possible - and is not distorted by coaching. The evidence does not appear to justify the claim that "new smart tests" make the process less prone to coaching.

Moreover, if the system is to "work for everyone", the alternatives available to those who are **not** selected must be seen to be potentially beneficial - for them, and for the wider community (as might be the case if selection took place later, at a point where the curriculum changed to offer different pathways, as in the German split between academic and vocational tracks around age 15).

- Whatever one's view of "faith-based" schools, the table on page 32 makes plain the consequences of allowing free schools based on "faith". The table shows that the policy has delivered ghettos - as was widely predicted. (These are not already *established* schools, whose reputation might appeal to parents from outside the narrow "faith community". They are **new** schools. So their appeal is inevitably restricted to a homogeneous clientele, and their effect is patently divisive.) The error is now clear. Yet the proposed "remedy" (removing the 50% cap), and the convoluted logic used to "justify" this change, suggest that the lesson has still not been learned.

For the rest we restrict to our domain of expertise - namely (A) universities and (B) selection.

(A) Universities playing a direct role in improving school quality and pupil attainment

In general UK universities, and specifically their Mathematics departments, actively support schools in their area. They do so in numerous (often unseen) ways. We would welcome greater recognition of the importance of such activities (such as the fact that the regional bases for the highly effective *Further Maths Support Project* have often been in a local university).

To develop policy in this area, consideration should be given to those areas of university expertise that can contribute to improving school quality and pupil attainment.

In relation to Mathematics, the relevant areas of expertise are:

- a) appreciation of the subject and active engagement in research and scholarship
- b) knowledge of Mathematics itself
- c) understanding of and involvement in the application of Mathematics
- d) teaching Mathematics at level 3 and above, both within Mathematics degrees and as part of degrees in other disciplines

and also within Education Departments

- e) research and scholarship in Mathematics pedagogy
- f) education and training of school teachers

This expertise suggests the following contributions:

- I. Supporting teachers whose Mathematics is strong

- II. Training Mathematics teachers using a research and evidence based approach in a PGCE led by a University Education Department working with a consortium of local schools
- III. Providing subject-based CPD for teachers
- IV. Providing expert governors for schools
- V. Outreach, including discipline-based widening participation and enrichment activity for all local schools
- VI. Schemes such as the Undergraduate Ambassadors Scheme that place university Mathematics students in schools to work with teachers.
- VII. Providing advice on careers and programmes of study
- VIII. Working with Local Education Authorities to support teachers and improve teacher subject knowledge, and generally assisting them with subject advisory work.
- IX. Mid-career secondment to allow significant numbers of serving teachers to register for Masters degrees.
- X. Providing twilight sessions for teachers.

Activity in these areas already takes place, but in some cases is threatened or has dwindled because of reduced funding and recognition of such work. Those carrying out such work may do it as a voluntary extra, not advancing their own career progression and in extreme case even damaging this. **The main policy development required is that more substantial and secure funding streams be established.** These funding streams need to be direct and earmarked, as this will enable universities to raise the status of such activity and ensure that those who provide it are recognised and rewarded. **We do not believe that the level of fees which a university may charge to students should be a driver of this activity.** We are against any linkage between fee level and Widening Participation activity.

We are concerned that some recent government policy has made some of these activities more difficult, and hope such policy can be revisited. In particular, the fragmented approach to teacher training, reducing the key and central role of universities, needs to be reviewed as a matter of urgency so that teacher training can obtain the intellectual standing it requires.

We do not believe that universities should be required to set up schools.

Where a university has the capacity and the desire to do so, and there is local need for such provision, then this may be both possible and desirable. It should never be required. A university setting up a school needs to work in partnership with Local Authorities, to ensure coordination with other local provision and to obtain the expertise it will lack when setting up a school.

Universities lack the experience relevant to setting up and running a school. Hence the policy is both risky and potentially wasteful. There may occasionally be a good reason why a university wishes to support, or to establish, a local school. But for a university to make such a commitment, there often has to be a degree of vested interest - such as founding a "teaching school" in order to gain access to funding streams for ITE, or for education research. (Indeed, the attempt to establish a national network of specialist Mathematics sixth form colleges has so far only led to the foundation of two schools partly because it failed to take account of the

conflicting pressures on those universities that might otherwise have shown an interest.)

The expertise residing in universities should be seen as, and should be deployed as, a **national** resource. Universities have traditionally contributed in this spirit

- (i) by working with exam boards to ensure that key national assessments are in some way consistent with each discipline (e.g. Mathematics);
- (ii) by setting transparent admissions standards for academic school leavers, which indicate clearly to schools what 18 year olds are expected to achieve;
- (iii) by engaging in outreach activity which is broader than, but consistent with, (i) and (ii).

The first of these (i) has been systematically dismantled during the last 20-25 years.

Also the third (iii) has been often been diverted into schemes that are centrally administered within each university (e.g. to satisfy OFFA requirements in a way that is easier for the institution to document) - thereby often reducing altruistic activities by individuals and departments in particular disciplines. An important part of Widening Participation activity is to assist the provision in schools and colleges the provision of subjects such as Mathematics, which underpin study in many areas. **It is essential that earmarked funding for discipline-based widening participation is provided.**

To harness university involvement in a way that might deliver a *national* benefit, we encourage the Department to engage in dialogue as to how to revive strong links between university academics and exam boards, and how to encourage academic involvement in producing school textbooks that focus on the discipline (rather than on preparing for a particular exam), etc.

(B) Selective schools providing more school places, and ensuring that they are open to children from all backgrounds

This subject does not seem to have been considered sufficiently carefully.

We hold no brief either for or against selection. The international data suggests that both systems can be made to work. But the consultation paper ignores most of the issues relevant to the current English context. **In particular, it fails to address the question of the AGE at which selection for differentiated schools should first occur, and does not carefully consider the knock-on effect on 'non-selective' schools (and their pupils) in areas where there are selective schools. We do not believe that an increase in selective school places at age 11 should be made at this stage.**

Selection is inevitable at some stage. Selection at age 18 is clear (though implemented through UCAS by individual institutions). Moreover there is evident, if more devolved and hence more opaque, selection at age 16 when students come to choose their options at Level 2/3. And there is clear (if even more opaque) selection at age 13/14 when students are channelled towards (or away from) GCSE options. All of these clear instances of "selection" fudge the issue, and avoid the fundamental **policy** questions:

- * Do we accept the need for divergence along clearly distinct pathways at some stage?
- * If so, what is the most appropriate first stage? And what pathways are available to students after this divide?
- * And how should this be managed to ensure the resulting system "works for everyone"?

Notwithstanding its bold title, the consultation paper continues to ignore these key questions. Hence we urge the Department to hit the "Pause" button, and to consider a more serious public debate, informed by well-researched analysis, before rushing ahead.

In particular:

- * It is assumed that the basic age for selection should be age 11. (Access at later ages is mentioned in passing. But this idea is not new, and the system has repeatedly failed to make this an effective option.)
- * The consultation paper fails to acknowledge the pernicious effect of "coaching", or to take responsibility for exploring an improved approach to selection which minimises its impact.
- * There is no acknowledgement of the total lack of public scrutiny of the selection instruments on which this policy and expenditure is based (namely, the tests themselves), which come from just two totally unaccountable sources (GL-education - recently acquired by InvestCorp, and CEM).
- * Before we have anything like "schools that work for everyone" we need an effective national strategy to address the acute shortage of Mathematics teachers.
- * Existing policy suggests that the curriculum pathways - both for those who are selected and for those who are not - are obliged to be "academic". Yet there is no recognition of the challenge of making sense of the obligatory "academic" pathway within those schools that have been deprived of their "more academic" students through top-slicing selection.

From a mathematical viewpoint, selection, and the attempt to involve independent schools more extensively, look like a distraction from the more serious challenge of supporting ordinary schools. For example, in some parts of the country (such as Dorset, or the Isle of Wight) there is no local university and very few independent schools. We would prefer to see more closely targeted programmes designed to improve provision in **all** state schools (such as FMSP, which more than tripled Further Mathematics A level entries from state schools in 10 years - from 2005-2014, whilst entries from independent schools increased by 75%). Further Mathematics A-level, with more than 15 000 entries, can hardly be regarded as a minority subject, and is required for access to many University courses.

12th December 2016

The London Mathematical Society (LMS), founded in 1865, is the UK's learned society for mathematics. The Society's main activities include publishing journals and books, providing grants to support mathematics and organising scientific meetings and lectures. The Society is also involved in policy and strategic work to support mathematics and the mathematics research community. This work includes engaging with government and policymakers on mathematics education and research, participating in international mathematical initiatives and promoting the discipline.