GL Assessment

Smart Data 2016

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INTRODUCTION

I've lost count of the number of times teachers have written, blogged or tweeted in desperation that our obsession with data is crippling education not enhancing it.

Data, they complain, has turned teachers into data managers and schools into audit factories. When asked to name the biggest single reason for their overburdened work lives by the government last year, 53% of 44,000 teachers blamed data.

Yet as our survey makes clear teachers are not anti-data. Indeed, an overwhelming majority, 95%, think data has a place in the classroom. Why the discrepancy? Why do so many teachers cite data as the biggest contributor to their increased workload but at the same time acknowledge how essential it is?

The answer must be that too much of the data being used in schools is being misapplied or is pointless, while a lot of it isn't data at all but subjective assessments unrelated to other objective information. In short, there is far too much bad data in schools and not enough good or 'smart' data.

Smart data is infrequent – most children only need to be assessed formally a few times a year. It is transparent, honest in its intent and freely shared. Smart data is about analysis rather than administration. Ultimately, smart data leads to something – it isn't an end in itself but provides enough information for a teacher to make a decision about a student.

The right data can make a real difference and simple data can make very smart schools. I only hope that our report goes some way to helping teachers see that data done well will not increase their workload but should significantly reduce it.

GREG WATSON, Chief Executive of GL Assessment

WHAT TEACHERS SAY ABOUT DATA

The **survey findings** of teacher attitudes to data use in schools

Our survey of teachers shows why 'smart data' is so important and how the misuse of data can impede learning rather than enhance it. Although a majority of respondents indicated that they spent more time analysing data rather than administering its implementation, a significant minority did not. Moreover, some responses suggest that over-assessment in a few schools remains a problem.

Increased teacher workload has become a growing issue for government and schools over the past few years. Unfortunately, our findings indicate that some schools are unnecessarily adding to teacher workload by running too many assessments and focusing colleagues' energies on administration rather than analysis and informed intervention.

Two fifths (43%) of teachers are spending more time administering pupil assessments than interpreting and acting on the data and a small minority run more than 10 or more assessments every year.

Some **43%** of teachers say they spend **60%** or more of the time administering assessment rather than interpreting what it means for individual students, with **15%** saying the proportion of time spent on administration is **80%** or more. This is clearly a concern given that data input and marking can be avoided with digital assessment or external scoring.

On the other hand, most schools do not seem to be over-assessing their students. On average, the teachers in the study say that their pupils take four tests or assessments annually and spend approximately **37 hours**, or the equivalent of five school days, a year taking them.

As **two-fifths (41%)** of teachers believe that three to four tests is the minimum each class should take every year to allow them to do their job effectively, with **one in five (19%)** saying one to two assessments would suffice, the findings suggest that most teachers are not significantly over assessing their students.

That is not the case with all schools, however. Some children are sitting far more tests. A **third (34%)** of teachers say their students sit seven or more tests every year with 15% admitting that the number is 10 or more. More than **one in ten (12%)** say their pupils spend **57 hours** or more taking tests.

We were not able to deduce from the responses how many of these assessments were repeats of the same assessment or different ones. It would be a concern if many of these tests were serial repetitions of the same assessment because teachers would gain little to no added value from the exercise.

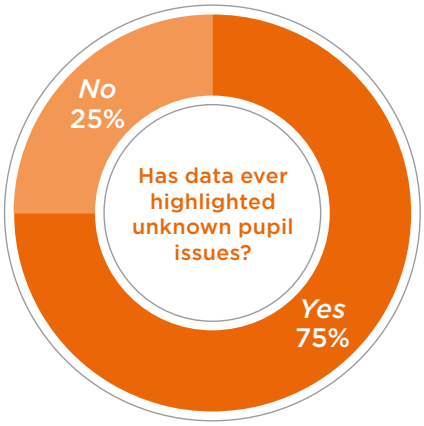
Moreover, it is impossible to infer from the findings which tests and assessments were conducted to satisfy external accountability targets rather than identify individual student need. A preponderance of the former would be a concern.

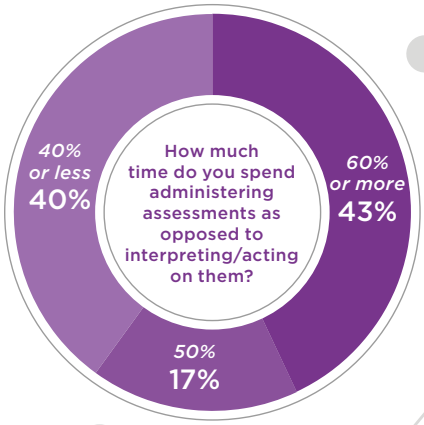
An overwhelming proportion of teachers – **95%** – think that data has a place in the classroom. Given the understandable worries over teacher workload and the part data is perceived to play in adding to it, it is significant that almost all the teachers in our survey acknowledge the vital role of data.

Yet more than half of the 44,000 teachers who responded to the government's recent workload survey cited data as their main bugbear. How can we square their negative perception of data with our finding that **95%** of teachers believe data is vital? The answer must be that too much data currently being used in schools is 'bad' data rather than 'smart data'.

In many schools, there is too much data, or it is misapplied, or it is not really data at all. The use of tracking systems, for instance, is not data but the accumulation of subjective teacher observations unrelated to other information. It is, by its nature, flawed. As Daisy Christodoulou, Research and Development Manager of ARK Schools, has pointed out teacher assessment is biased, "not because it is carried out by teachers, but because it is carried out by humans". It is more effective – and less time-consuming – to use smart data that allows teachers to see what really works in the classroom.

Three quarters of teachers in the survey also acknowledged that data had highlighted pupil issues that they hadn't been aware of previously. The most common examples cited by teachers included spotting children that had confidence issues or were coasting in class. Other examples included children that had unidentified SEN, notably dyslexia.





WHAT DOES SMART DATA LOOK LIKE?

Daisy Christodoulou, the Research and Development Manager at ARK Schools, gives her expert view on how data can be misreported

In the modern world, we have grown accustomed to incredibly precise measurements. Phone apps can measure the distance we walk, thermostats measure the temperature around us and even a cheap bar of chocolate has a sophisticated measure of various nutritional values.

Educational measurement, whilst also sophisticated, doesn't offer us the same level of precision. Not only that, but educational measures are often misreported, meaning the data we get from them are often not as useful as they could be. Here, I'll look at two ways such data can be misreported: reporting scores as grades, and failing to consider confidence intervals.

Grades, levels, and thresholds

Often, pupils' scores on a test are reported not as the underlying scaled score, but as a grade or level. These might be the 1 – 9 of the GCSE grades, or the KS1 & KS2 boundaries of 'working towards' 'working at' and 'working in greater depth'. All of these systems divide up pupil performance into a handful of categories. However, pupil performance is actually continuous. These grade boundaries are just arbitrary lines that have been imposed on a smooth distribution of performance, and can lead to distortions and inaccuracies.

For example, a pupil at the very top of the 'working towards' boundary has more in common with a pupil at the bottom of the 'working at' boundary than they do with most other pupils in the 'working towards' category. But the problem is that such boundaries have come to be seen as real things, rather than the arbitrary lines they really are. The result is that a great deal of effort is spent on getting pupils across certain boundaries, and such success is celebrated because it's seen as pupils moving from a 'working towards' standard to 'working at'. But in practice, there are no fundamental differences between pupils at the top of one category and the bottom of the next one.

Grade systems like this one reward tiny and illusory improvements at the boundaries, whilst ignoring real and significant improvements at other parts of the distribution. An easy way to solve this problem is to stop focussing on the grade, and start focussing on the standardised score instead – which is how most of GL Assessment's test scores are reported.

Confidence intervals

The above problem is exacerbated by the fact that all test scores are subject to some variation. If a pupil took different versions of the same test on different days, their score would vary slightly from test to test due to how they were feeling on each day, differences in the selection of content on each paper, and differences in how the tests were marked.

These variations are taken into account in the confidence intervals that are published with many standardised scores: the confidence interval gives an indication of the range within which a student's score lies. It's particularly important to consider confidence intervals when measuring progress, because with progress we are measuring the increase or decrease from one score to another. But when we remember that both of these scores will be subject to confidence intervals, it reminds us that small increases and decreases may not actually be as significant as we think.

Why does this matter?

Accurate measurement can sometimes seem quite pedantic and nitpicking. But we know from other walks of life that accurate data can be transformative: improvements in measurement brought about by microscopes and stethoscopes in the 19th century led to improvements in healthcare itself, while improvements in the measurements smartphones can make have transformed many people's lives. Spending time ensuring our educational measurements are smart can help us work out what really works in the classroom, and ensure that no pupils are left behind.

ASSESSMENT DO'S AND DON'TS

Scott Heyhoe, GL Assessment's Director of Education, explains how teachers can get the most from assessments

Five do's

1. Do make sure you understand what you are measuring and what you are not. Data will only shed light on the questions being asked. So if the test only measures skills and knowledge in a particular area don't be tempted to draw conclusions about issues outside of it.

2. Do have a consistent and effective plan. Assessment isn't an end in itself but the beginning of a process that allows you to use data to support individual pupils. Once you have the results use them.

3. Do be open with students. Let them know that formative assessments aren't about passing or failing and that they don't need to revise for them. They're designed to understand why they might struggle with some class work, how they can be even better than they are and what they need to focus on next.

4. Do trust your judgement as a teacher. Data shouldn't be read in isolation but used to complement your knowledge of individual children. If a single assessment contradicts all that you know about a student, trust your judgement. If repeat assessments continue to challenge your assumptions it may be time to reconsider – but never jump to simplistic conclusions. You make a thousand decisions every day in the classroom. Use data to inform and support these decisions.

5. Do remember to share the information with parents. Parents love to know how they can help their children. Data from assessments will help you explain to them where they can help build on their child's strengths or address any weaknesses.

Five don'ts

1. Where possible, don't mark high stakes assessments yourselves. Digital assessments are of course marked automatically but it's better to have paper assessments scored externally. Not only can this save valuable time, it's also more reliable and objective. External reports will also provide you with analysis and insight that you won't get from anywhere else.

2. Don't get hung up on small differences in student performance. Context is key; without it, it's impossible to conclude that there has been a significant change in student performance with any degree of accuracy.

3. Don't mistake similar standardised scores in different years for a lack of improvement. If students score 100 one year and the same the year after it doesn't mean they are failing to improve – just that they have kept pace with the average, because the performance of the entire cohort will have increased from year to year. They are, in fact, making average progress.

4. Don't dismiss the idea of standardised assessments just because they aren't appropriate for every child. Most schools will have a tiny percentage of pupils who may struggle with them. But it's better to use specialised assessments for these children than to give up on standardised assessments for the others.

5. Don't over assess. Too much assessment adds to the teacher's workload and takes time away from teaching but won't produce any added insight.

BLUECOAT ACADEMY, NOTTINGHAM

Bluecoat Academy is a Church of England school in inner-city Nottingham. It has over 2,000 students aged 4 to 19 across three different sites and enjoys rapidly improving results. 63% of Year 11 students achieved 5A*-C including English and maths in 2015, up from 6% in 2014.

Steve Cox, Assistant Principal, says: "We cater to all abilities within our diverse intake. Our aim is to personalise our lessons as much as we can – and that requires robust and consistent assessments to validate teacher judgments."

The academy uses GL Assessment's Complete Digital Solution (*CDS*) to establish a starting point and monitor progress. *CDS* incorporates seven digital assessments, including the Cognitive Abilities Test: Fourth Edition (*CAT4*), the New Group Reading Test (*NGRT*) and the Pupil Attitudes to Self and School (*PASS)* survey, which together provide insight across ability, attainment and attitude.

Cath McCarney, Vice-Principal, explains: "We use *CAT4* to benchmark Year 7 entry and examine ability. We have over 75 different feeder primary schools so this helps validate Key Stage 2 results. We use *CAT4* again in Year 8 to inform GCSE option choices and we recently started using *NGRT* to assess children's reading and comprehension skills.

"Against the backdrop of Progress 8 accountability and 'life after levels', *CDS* came at the perfect time. As well as being so comprehensive, *CDS* helps bring consistency across our different sites and externally validates what we are doing."

The school is now in the best position to notice any trends and quickly act on them. Ms McCarney continues: "We've noticed a decline in the average point score of *CAT4*, perhaps due to a cohort that is more diverse than it used to be, and we also know one site has students with higher abilities than the other. With *CDS*, we can drill down into exactly what is going on and adjust teaching accordingly."

Mr Cox says: "Literacy levels tend to be significantly lower than the national average so we have organised extra English and phonics. We focus hard on improving reading ages throughout the school. *NGRT* is central to this – we use it at the beginning and the end of each year, and in the interim to monitor progress.

"This means every member of staff is able to focus on the different reading ages in the room. For example, in a Year 11 class I teach, two of the 15 students have reading ages of less than seven years old, while the remainder span reading ages of between 14 and 17 years of age. There is no way I could give all the students the same material and expect them to understand it. Knowing the range of reading abilities means we can differentiate the text, personalise resources and provide outstanding lessons."

Benefits of *CDS*

- Caters to all abilities and measures progress over time
- Provides a standardised starting point for pupils across different sites
- Allows teachers to take a whole pupil approach to assessment
- Allows forensic analysis of why students are over or underperforming
- Brings consistency and allows externally validated results to be monitored centrally
- Enables teachers to develop personalised learning for different abilities

BRIGHTON COLLEGE AL AIN, ABU DHABI

Brighton College Al Ain is a sister school of Brighton College in Abu Dhabi. The school has an intake of 650 and attracts a mix of local and expatriate children.

As part of the admissions process, children are tested using GL Assessment's Cognitive Abilities Test (*CAT4*). The series of four tests – verbal, non-verbal, quantitative and spatial ability – helps schools identify student abilities and likely academic potential.

Scott Moore, Deputy Head of the Senior School, explains: "*CAT4* is incredibly useful in assessing the ability level of new pupils as it is not linked to any specific curriculum and focuses on learning capacity. Once a child has been offered a place, we share results with teachers so that they can factor them into their lesson planning and so that learning material can be pitched at the appropriate level."

Teachers routinely consider the learning profiles of students throughout their school career and differentiate lessons accordingly. At regular points, the college compares teacher assessments of pupil attainment in each subject against *CAT4* indicators. "Teachers are directed towards pupils who are under-performing according to the *CAT4* indicators, and are asked to devise and implement strategies to help improve performance," Mr Moore says. "This has led to extremely high rates of progress across all groups."

Last year, the college decided to start sharing *CAT4* information directly with Year 10 pupils. "The focus was on the relative strengths and weaknesses of the four scores, how this impacts upon preferred learning strategies, and their 'expected' and 'if challenged' GCSE grades," Mr Moore explains. The conversations proved so beneficial that plans are afoot to extend them lower down the school.

The college made the pupil reports available to parents and gave them the opportunity to discuss the results with a member of the senior leadership team. "Parents found the process very useful. It also helped to set realistic expectations," Mr Moore says.

The college has also found that the comprehensive data tracking system incredibly useful. "We're able to evaluate progress at a pupil, cohort, special group or department level. Yes, the data can be used to hold teachers to account, but it can also be an incredibly powerful way of illustrating the difference that a teacher or group of teachers can make."

Benefits of *CAT4*

- Gives swift insight into the ability level and potential of new pupils
- Allows progress to be measured and performance tracked at individual and cohort level
- Provides an early marker for special educational needs or able children
- Helps pupils understand their own learning profiles and to set their own targets
- Enables parents to have realistic expectations of their child's performance

A WHOLE APPROACH TO PUPIL ASSESSMENT

Sarah Haythornthwaite, GL Assessment's Sales and Marketing Director, explains how the company's **Complete Digital Solution** supports the needs of every pupil

GL Assessment has worked in partnership with schools for over 30 years to develop a range of assessments that support better outcomes for pupils. We believe in a 'whole pupil approach' to assessment which, alongside a teacher's own judgement, can provide a powerful and objective all-round view of an individual learner.

Our **Complete Digital Solution (*CDS*)** allows schools to test consistently across all pupils without the worry of escalating costs. It delivers critical insight of every student's ability, attainment and their barriers to learning.

CDS provides schools with unlimited usage* across a range of leading standardised assessments including our Cognitive Abilities Test (*CAT4*), the Progress Test Series (*PTS*), our New Group Reading Test (*NGRT*), our Pupil Attitudes to Self and School (*PASS*) survey, and the Kirkland Rowell Surveys (*KRS*) which offer an instant overview of a school's strengths and weaknesses by listening to pupils, parents and staff.

As this paper has demonstrated, the correct use of assessment data can allow schools to easily benchmark pupils on a national level and track and report pupil progress year-on-year. *CDS* can help inform teaching, track and provide evidence of progress to Ofsted and parents, and motivate pupils by identifying their barriers to learning.

The **Complete Digital Solution** can dramatically improve outcomes for learners and, as a result, drive whole-school learning. Of equal importance it can help senior leaders determine where their school is adding value and where there is room for improvement.

For further information on any of the assessments included in our **Complete Digital Solution** please visit www.gl-assessment.co.uk/cds. To contact your local area consultant to organise a school visit or a free quote please visit www.gl-assessment.co.uk/consultants or email cds@gl-assessment.co.uk

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