

Public sector impact studies

# Education: Predictive analytics for staff retention and engagement





## The problem

The English education system is facing a severe and persistent teacher recruitment and retention crisis. High rates of staff turnover, particularly among early-career teachers, creates instability, increases recruitment and supply costs, and places a significant administrative and financial burden on school leadership.

A core part of this problem is that school leaders often lack the tools to proactively identify and address the root causes of staff disengagement. Traditional HR metrics, such as annual turnover rates, are lagging indicators – namely they measure a problem only after it has occurred, by which time it is too late for preventative intervention. This leaves leaders in a constant state of reactive crisis management, unable to strategically build and sustain a stable, high-performing workforce.

This public sector impact study is based on a talk at **Productivity Pitches**, a series of events hosted by the Institute for Government and The Productivity Institute, which aims to share and support ways to improve public sector performance levels. The talk is available to watch on the [Institute for Government's website](#).



## The innovation

An 'Engagement Platform' was developed as a system to provide school and trust leaders with predictive, real-time data on staff and pupil engagement. It is designed to function as an early-warning system, enabling leaders to move from reactive crisis management to proactive, evidence-based problem solving. The model's key components are:

- *Standardised research-led questions:* The platform uses a fixed, psychometrically validated question set to measure the core drivers of engagement across cognitive, emotional, and behavioural domains. This consistency allows for reliable tracking of trends over time.
- *Regular census windows for live benchmarking:* Rather than ad-hoc surveys, the platform collects data at fixed points in the academic year. This allows any school's results to be benchmarked in real-time against a live national dataset, as well as against similar schools (e.g., by phase or level of deprivation). This provides context, removes ambiguity from the data and reflects seasonal changes in sentiment.
- *Identification of key predictive drivers:* The system's analytics go beyond simple satisfaction scores to identify the specific factors that are most predictive of positive outcomes. For example, the data revealed that the most significant predictors of staff retention are buy-in to the school's strategy and confidence in leadership.
- *An automated, low-workload platform:* Survey collection and data analysis are automated through a central digital platform, ensuring that the process does not create an additional administrative burden for schools. This delivers actionable intelligence directly to leaders.





## The impact

The platform's effectiveness has been proven through research and its practical use in schools like Outwood Grange Academies Trust (OGAT), showing that engagement data can be used to drive improvements in real-world results:

- *Predictive link to retention:* Research confirmed that staff survey scores from November can accurately predict groups most likely to leave by the summer. This turns engagement data into an early warning system, allowing leaders to intervene before staff resign.
- *Dramatic improvement in staff retention:* After using the platform to guide its strategy, OGAT saw teacher retention jump from 84% to 94% in just one year, and vacancies for support staff fell by 78%. This meant fewer vacancies to fill and the lowest level of non-specialist teaching (e.g., a PE teacher covering Maths) in a decade.
- *Smarter decision making:* The data revealed that leadership quality was the most critical driver of engagement. In response, the trust changed its training budget to focus on building better leaders, which led to higher engagement scores across five surveys in a row.
- *Quantifiable improvement in engagement:* The system also tracks students, revealing a sharp, hidden drop in engagement specifically between Year 7 and Year 8. Knowing this allows schools to step in and support students during this critical window, helping to prevent attendance problems later on.



## Takeaways

This project demonstrates how schools can manage their workforce with the same data-driven precision they typically apply to finances or exam results. The innovation is not the survey itself, but the creation of a system that translates the intangible concept of school culture into concrete numbers.

By converting subjective feelings into quantifiable metrics, the platform allows leaders to move beyond guesswork and make evidence-based decisions about their most important asset - their people. This shift enables management to be predictive rather than reactive, addressing problems before they result in staff departures.

The ability to benchmark results against similar schools is also crucial for accurate diagnosis and accountability. By providing leaders with an objective comparison against their peers, the platform prevents them from dismissing poor results as merely the product of external pressures, such as national strikes or funding cuts. If a school underperforms relative to its neighbours who are facing the same challenges, it creates a powerful incentive for self-reflection.

Ultimately, this proactive approach to staff retention delivers a clear double dividend for productivity -both lower costs and higher quality. By using data to spot the early warning signs of dissatisfaction, leaders can intervene before a valued teacher resigns, directly avoiding the high costs of recruitment and agency cover.

At the same time, this workforce stability protects the quality of education, as retaining experienced teachers who know their students leads to better learning outcomes. This strategy therefore illustrates how workforce wellbeing is not just a concern to be left to the HR department, but a core mechanism for delivering more productive public services.

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