

Case Study: Beauchamp College & Lionheart Educational Trust

PROJECT DETAILS

Schools: Beauchamp College and additional school, Lionheart Educational Trust, Leicestershire

Project Leader: Alice King, Associate Principal, Beauchamp College

Supporting: Tim Dolan, *Associate Director of Curriculum and Director of Maths at Lionheart Educational Trust*

Research Strands: AI & Digital Pedagogy; Implementing Innovative AI; Leveraging Data and Generating Insights

Research Questions:

- How can AI tools be integrated into digital pedagogy to support personalized learning and improve student engagement, both in and out of school?
- How can AI tools reduce teacher workload through automated feedback provision?
- How do secondary school teachers perceive the use of AI tools for enhancing instruction and reducing workload?
- What is the impact of AI-driven adaptive learning platforms on student performance in GCSE Mathematics, Science, and English?

Timeline: 2024-2026 (piloted 2024 with Year 7; expanded 2025-26 to Years 7 and 10)

Scale: 990 students across three subjects (Mathematics, Science, English) and two schools

Key Data Collection:

1. Student performance data (GCSE outcomes, common assessments, progress measures)
2. Teacher and student surveys, chromebook usage, AI tool effectiveness, workload impact
3. Platform usage analytics and engagement metrics
4. Teacher perception data on AI adoption and implementation process
5. Qualitative interviews and focus groups

The Challenge

Beauchamp College, the largest and founding school of the Lionheart Educational Trust in Leicestershire, serves an ethnically diverse student body across Years 7-13. Associate Principal Alice King faces a challenge shared by many secondary schools: how to provide students with frequent, high-quality formative feedback that closes learning gaps without overwhelming teachers who are already tight on time. In traditional assessment cycles, teachers spend long hours marking, often providing detailed feedback that students glance at once before filing away. Typically, students must wait weeks for feedback on extended writing or problem-solving tasks, by which point misconceptions have taken root and the moment for intervention has

passed. We know from the research that frequent, personalized feedback improves outcomes; this study asks whether it is possible to provide it at the scale and frequency that leaders and teachers at Lionheart Trust would like. For a Trust committed to equity and excellence across diverse catchments, this is about alleviating teachers' workload and learning how to give high-quality formative assessment to students in diverse contexts.

The Action Research Approach

Working with nearly 1,000 students across two Lionheart Trust schools, Alice is implementing and rigorously evaluating "The Big Teach App", a bespoke AI platform commissioned from Nimble and built to Trust specifications for Mathematics, Science, and English. Teachers have inputted subject specifications and designed quizzes and extended prose questions linked directly to curriculum requirements. The AI marks multiple-choice quizzes automatically and provides feedback on open-ended responses, with a critical teacher-in-the-loop component for validation and refinement. The most challenging and pioneering aspect of this research examines how well AI performs with non-multiple-choice responses: the kind of probing, challenging assessment tasks that seek to surface real understanding. Building on a successful 2024 pilot with Year 7, the project has scaled to include Year 10 (approaching GCSEs) and expanded across subjects. Students receive Chromebooks for home use, transforming assessment from episodic classroom events to ongoing learning conversations. The research design is comprehensive: tracking performance data through common assessments and GCSE outcomes (using progress measures to account for demographic differences between schools), surveying teachers and students on their experiences with Chromebooks and AI tools, analysing platform usage patterns, and conducting qualitative interviews to understand teacher adoption processes and perceptions. The pilot team has gathered so much data that the challenge now is focus: determining which elements truly respond to the core questions about feedback quality, student learning, and teacher workload without falling victim to information overload.

The Broader Significance

This project represents one of the most ambitious implementations of AI-powered assessment in the Coalition, tackling simultaneously the technical challenge (can AI reliably assess complex responses?), the pedagogical challenge (does more frequent feedback actually improve learning?), and the human challenge (can/will teachers trust and adopt these tools?). The scale matters: 990 students across multiple subjects and year groups provide statistical power to detect real effects while the Trust structure enables comparison across similar but not identical school contexts. The bespoke aspect of the platform is significant - rather than adapting practice to fit commercial tools, the Trust specified requirements and had a platform built to their pedagogical vision. The teacher-in-the-loop design is deliberate: full automation might save time but would risk, almost inevitably, a percentage of false positives and negatives based on AI limitations. Moreover, human marking is what the team is trying to improve in the first place. Finding the sweet spot where AI handles the scalable elements while teachers focus judgment where it matters most could model a sustainable approach to formative assessment. The equity implications are substantial - if successful, this would demonstrate that frequent,

personalized feedback needn't be a luxury available only in classes with high teacher-student ratios. The project also exemplifies the complexity of real-world implementation research: Alice is tracking not just outcomes but the irregular reality of adoption, technical hiccups, variable teacher enthusiasm, and the interaction between new tools and existing practices. Understanding teacher perception and the implementation process itself may prove as valuable as the outcome data, because the best-designed tool fails if teachers won't use it.

This project was featured in various news spaces:

<https://www.bbc.co.uk/news/articles/c1kvyj7dkp0o>

<https://www.manchesterdigital.com/post/nimble-approach/behind-the-ai-feedback-tool-featured-by-the-bbc>