



Introduction

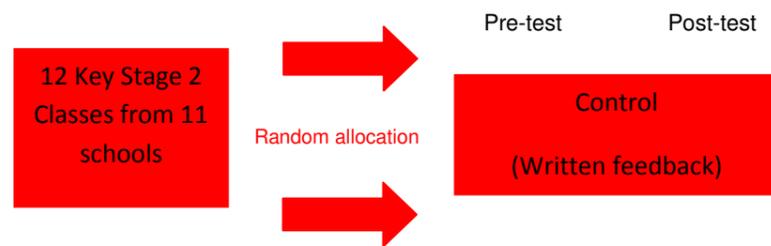
Research evidence suggests that effective feedback has a significant impact on pupil progress. Our work over the last 18 months across 34 schools has indicated that delivering effective feedback practices can be challenging and specific approaches are required to improve pupil outcomes. Trials across collaborative partnerships of schools have indicated a positive correlation regarding the impact of digital feedback on outcomes in writing. Evidence suggests greater pupil engagement with feedback and improved outcomes in response to the feedback. Our research also suggests the impact of digital feedback may be greatest on lower attaining and free school meal (FSM) children.

This is an important area to explore using a randomised controlled trial design because the initial small scale experimental trial we have undertaken on digital feedback suggests these techniques can have a positive effect on pupils' writing outcomes, but variation between schools indicates the approach needs further refinement. It is an approach (using digital technology) that is poorly studied at a time when many schools are investing significantly in new digital technology. Even for schools without tablet technology verbal and visual feedback can be given via video. Research suggests that marking times may also be reduced using this form of feedback.

Research Design

A between-subject design was used with a pre and post-test. To address the aims of the research the independent variable of intervention type was operationalised by creating two conditions:

- IV 1 (Control condition) – written feedback
- IV 2 (Intervention condition) – digital feedback



Method: Participants

Twelve classes from eleven rural school primary schools participated in the study. Pupils were able to be randomly allocated to a control and intervention group in each class. In total, 231 Key Stage 2 pupils (120 boys and 111 girls) took part in the study (113 in control and 118 in the intervention). The total of FSM pupils was 42 or 18.18% which is below the national average (NA) of 26.6%. The total of SEND pupils was 40 pupils or 17.3% which is slightly above NA which is 16.6%.

Procedure

The randomly allocated groups were both given a writing prompt, success criteria rubric and a standard video input delivered together with a short film as a writing stimulus. The pupils then had ten minutes planning time and 40 minutes writing time. The control group then received written feedback; the intervention group feedback digitally. Each group then had the same amount of 'fix it' time the following day. Pupils made corrections in the same format (written form); pupils also recorded 'what I have learnt' statements, either in written form or digitally (depending whether they were control or intervention). All pupils were then given another piece of creative writing (using the same genre) the following day. The procedure was repeated and rubrics/models used. The work was then marked against the two success criteria points given at the feedback stage and the gain scores recorded.

Materials

A rubric using success criteria for all pupils to use at the start of the trial; a model for use by all pupils was used; A standardised way of delivering written feedback was introduced and models of giving digital feedback via an ipad shared with class teachers to standardise this approach (through video); A format given to pupils regarding how to correct their work following feedback

Conclusions:

- The gains, although needing further research (due to small sub-group samples), match current research evidence around the impact of digital technology on closing the gap in attainment, which suggest digital technology may produce gains of +4 months; (<https://educationendowmentfoundation.org.uk/index.php/toolkit/toolkit-a-z/digital-technology/>);
- The data suggests that the intervention produces the greatest gains for disadvantaged and SEND pupils and may be an effective intervention for closing the gap;
- Surveyed perceptions of digital feedback indicates pupils, in general, feel they make better progress in their written work following digital feedback and this backs up the findings of this RCT.

Suggestions for Future Research:

- Our earlier research suggests the gains may be even more substantial in maths and it would be productive to research the effect in different subject areas;
- The results for SEND and FSM pupils show promise but the trial would require replication with greater numbers to produce a more secure indication of impact;
- The research suggests that boys may make greater gains using this intervention and further research could help clarify if and why this is the case;
- The effect of the intervention was greatest on SEND pupils. However, our data does not take into account the needs of these pupils; it would be useful to identify the effect on different groups of SEND.

Results

Disadvantaged Pupils (n=43; Intervention (I) =21 Control (C) =22)

Gain scores were not normally distributed. A Mann-Whitney U test was applied. This showed an impact on progress for the intervention (verbal and visual feedback) compared to the control (written feedback) $r = 0.308$ and $d=0.63$ ($p = 0.03$ (one tailed)); **this indicates +8 months gain - if r is converted to d and the EEF convention is applied.**

SEND Pupils (n=40; I =20 C =20)

Again, a Mann-Whitney U test was applied to gain scores. This showed a significant impact on progress for pupils who experienced the intervention $r = 0.37$ and $d=0.78$ ($p = 0.013$ (one tailed)); **+9 months gain**

All Pupils (n=231; I =118 C =113; Boys n= 120; I=58 C=62)

Finally, a Mann-Whitney U test assessed the data for all pupils. This again showed that the intervention impacted on progress, but with a smaller effect size $r = 0.186$ and $d= 0.38$ ($p = 0.004$ (one tailed)); **+5 months gain**. However, the results for all boys were slightly higher $r = 0.218$ and $d= 0.44$ ($p = 0.012$ (one tailed)) indicating a greater positive impact for boys with **+5 months gain**.



Pupil perceptions of written vs digital feedback (n=153)

I think my work gets better following written feedback from my teacher

I think my work gets better following digital feedback via an ipad from my teacher

