



A randomised control study looking at the impact of live marking in KS4 science

Study – reduction in written feedback

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PURPOSE OF THE RESEARCH

Our school feedback policy was created from an essay-based subject starting point and then applied to the whole school. The feedback policy expects written, specific targets every 6 lesson for all students in each subject. Evidence from the teacher workload review suggested that providing written feedback on pupils' work is disproportionately valued with quantity being confused with quality (Elliot et al, 2016). The aim of the research was to investigate whether live marking and verbal feedback would provide effective feedback to students whilst reducing teacher workload around marking. Written feedback is given often to meet marking policy expectations rather than help progress the students.

THE RESEARCH DESIGN

Matched pairs designs (non-randomised)

A pre-and post-test non-randomised matched-pairs design was used. To define the independent variable 'feedback strategy', two existing groups of participants were case-matched across two conditions:

- Control condition (IV Level 1) – Normal practice
- Intervention (IV Level 2) – Live marking in front of students work.

Dependent variables

The following measures were used:

- DV1 (attainment) – end of unit test scores
- DV2 (teacher time) – time spent marking outside lessons

The design allowed for the testing of the following hypotheses:

- H1 – Pupil attainment as measured by percentage test scores will not be negatively affected by new marking procedures.
- H2 – Teachers will spend less time marking

LIMITATIONS

The design was non-randomised and the pairs were matched using KS2 data. The students under test were year 10 meaning the pair matching data was 4 years old. The tests were undertaken with 90 students, by the time the data was collected and the students case-matched as closely as possible the number of students whom we could take data from dropped to 66.

METHODS

Participants, sample size and case-matching

90 students in year 10 from a state secondary in south London participated in the study. The participants were case-matched using KS2 prior attainment and gender. The students are split into two equal groups in the school for timetabling purposes (hence the two existing parallel groups).

Procedures

This was a **single-blind trial** – teachers were aware of whether their group was a control or intervention group. Pupils were however unaware of whether they were in a control or intervention group.

Control groups were taught and given feedback in the normal way for science. Marking homework and feeding back to students by written communication in the class book.

Intervention group were taught and were given specific tasks during the lesson that allowed the teacher to circulate and live mark the pupils work.

All pupils were tested before and after the intervention with a GCSE exam style test.

Materials (and apparatus)

Pre- and post-tests altered from purchased materials (OUP)

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The results show a non-significant positive effect for live marking on student attainment overall. Live marking did not negatively effect the progress of students compared to students whose books were marked by the classroom teacher. Girls experienced a significant moderate positive effect compared to a negligible non-significant negative effect for the boys.

The average time spent per week marking books (monitored over a 4 week period for the control teachers) was 80 minutes, excluding examination marking. The intervention teachers spent no time marking outside the lessons.

The intervention teachers had to adjust some of the tasks that were set in class to allow adequate time to circulate the class and live mark.

Live marking allows the teacher to give feedback directly to the student. The student can then act upon the feedback immediately whilst the work is in progress. The teacher can see that the feedback is being acted upon and the student can ask questions back to the teacher. We will be recommending that science teachers use live marking for all of our GCSE classes in the future.

RESULTS

Table 1

Time spent marking outside lesson for year 10 per week	Control	Test
	80 minutes	0 minutes

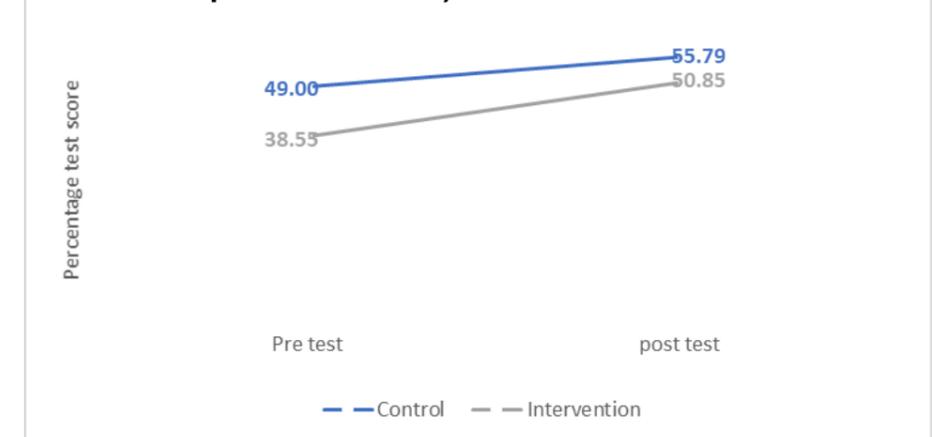
Gain scores were first calculated from pre- and post-test scores

Separate Wilcoxon signed-ranks tests were conducted to compare control and intervention scores for all pupils, boys, and girls (Table 2). There was a non-significant ($p = 0.064$) positive effect for live marking ($d = 0.393$) compared to the control condition.

Table 2

	Effect size (r)	CI (95%)	P-value	[d]
All	0.193	-0.782 – 1.167	0.064	0.393
Boys	-0.035	-0.873 - 0.803	0.881	-0.070
Girls	0.526	-0.766 – 1.817	0.005	1.267

Comparison of intervention against control (pre- and post-test results)



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