



Curriculum Planning and Resources: implementing Google Classroom and the use of student Chromebooks in order to streamline resources and assessment at department level.



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PURPOSE OF RESEARCH

Over time, Parmitter's School aims to incorporate greater use of ICT in lessons in order to improve efficiency of staff working practices to reduce workload. A second aspect of the project is to investigate the use of Chromebooks as a strategy to narrow the effort gap between our male and female students. Our internal data collection for effort in lessons shows there is a distinct gap between male and female effort during classwork. Reducing teacher workload is desirable as it may help to improve teacher retention and well-being (Department for Education, 2018; Geiger and Pivovarova (2018); Foster (2019))

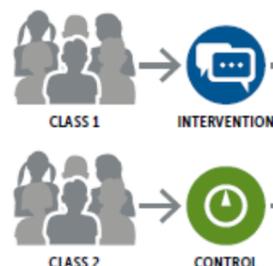
THE RESEARCH DESIGN

A post-test only non-randomised matched-pairs design was used. To define the independent variable (use of Chromebooks and Google Classroom), two existing groups of participants were case-matched across two conditions: **Control condition** (IV Level 1) - 5 of 8 teaching groups will use the same teaching methods as in previous years. **Intervention** (IV Level 2) - 3 of 8 teaching groups used Chromebooks in lessons with resources on Google Classroom.

Dependent variables

The following measures were used:

- DV1 (attainment) - post-intervention only
- DV2 (teacher perception) - IPIP questionnaire, pre and post intervention
- DV3 (teacher time) - post-intervention only
- DV4 (student effort) - post-intervention only



The design allowed for the testing of the following hypotheses:

- H1 - Teachers' perceptions of workload will improve as a result.
- H2 - Teachers will spend less time planning and preparing resources.
- H3 - Pupil attainment as measured by department assessments will not be negatively affected by reducing use of physical textbooks and exercise books
- H4 - Student engagement and subsequent effort will be improved.

LIMITATIONS

The small sample size in this pilot means that the results must be treated with caution. This was a pilot that demonstrated clear results, although further research would be necessary to validate these outcomes. Future research may wish to explore the same conditions in other subject areas.

The 'novelty factor' of using new technology in the classroom should also be kept in mind, particularly when considering effort grades.

METHODS

Participants and sample size

3 teachers
 78 students (3 out of 8 teaching groups: 33 females, 45 males)

Procedures

A non-randomised matched pairs design was used. Two conditions were compared:

Control condition: existing practice whereby there are shared electronic resources, exercise books and textbooks.

Intervention: workload reduction through use of technology to streamline the sharing of resources and assessment of student work.

Attainment: a comparison of student results' between those in intervention and control groups

Teacher well-being/perception (pre- and post-test): IPIP
Teacher perception of potential for time-saving

Materials (and apparatus)

Chromebooks and access to updated electronic resources
 IPIP questionnaire
 Attainment data
 Exercise books and textbooks

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The integration of chromebooks and Google Classroom will undoubtedly have long-term benefits for teaching staff. The school plans to roll their use out from 2021, beginning with Year 7. This has been planned in order to provide enough time for staff to collate resources and ensure they are confident with the new technology. Although the approach has so far not had a major impact on reducing teacher time, due to the need to set up chromebooks and resources, discussions with staff and observations of teachers carrying out this new practice suggest that it will save a significant amount of PPA time in the future.

RESULTS

Teacher Well-Being

Teacher	pre-Intervention						post-Intervention					
	SCALE A: Working too hard	SCALE B: Optimism	SCALE C: Self-efficacy	SCALE D: Enthusiasm	SCALE E: Love of learning	Total Well-Being score	SCALE A: Working too hard	SCALE B: Optimism	SCALE C: Self-efficacy	SCALE D: Enthusiasm	SCALE E: Love of learning	Total Well-Being Score
ALC	2.2	4.25	4.1	4.13	4.4	3.82	3.6	3.88	4.7	4.38	4.6	4.23
NLI	2.4	2.38	3.7	3.38	3.6	3.09	2.6	2.88	4	3.38	4.1	3.39
SHA	2.4	4.25	4.4	4	4.2	3.85	2.8	4.13	4.2	3.75	4.4	3.86

Increased teacher well-being

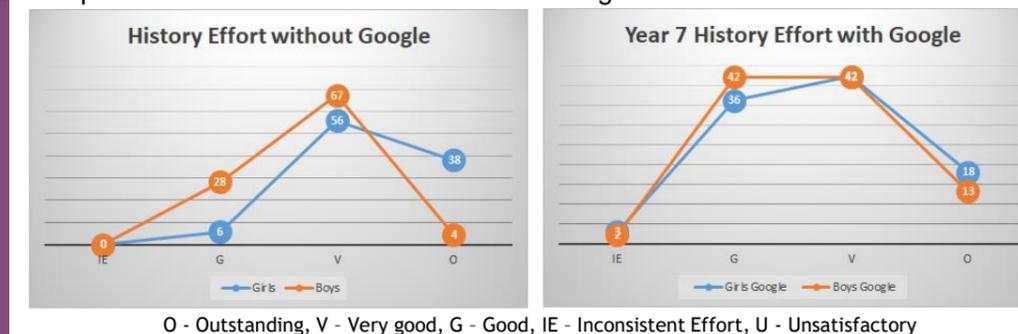
Attainment data vs other groups :

	7a	7b	7c	7d	7e	7f	7g	7h	all
Avg. level	4.19	3.69	4	4	3.8	3.96	4.35	4.52	4.1

No negative impact measured.

Effort grades

This data clearly shows in History that the gender gap between effort attainment is clearly reduced by the use of Google and One to One devices. There is a clear lowering of variation between Google classes compared to their counterparts not using Google. At the top end the gap closes to a 0 variation using Google in comparison to a difference of -11 with non Google classes.



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