



National College for
Teaching & Leadership

Closing the gap: test and learn

**Teacher led randomised controlled trials
- Digital applications**

January 2016

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1 What is the early adopter strand of closing the gap: test and learn?

The delivery of comprehensive training for teaching schools participating in the closing the gap: test and learn programme covered rigorous and robust research methods appropriate for use in schools, including quantitative research methods such as RCTs, so that teachers gained an awareness of research methodologies (set-up, design and evaluation) and were able to contribute effectively to the trials. This also ensured that teachers in different contexts were able to deliver the interventions under trial in a consistent manner. The strand of work delivered through the RDNE events focused on training teachers in the delivery of small-scale RCTs (and other forms of experimental research) and immediately yielded school-level activity. In response to this, the NCTL made available 50 'early adopter' grants to support participating teaching schools and their alliances in delivering their own small-scale RCTs. A total of 48 of these studies were presented at a conference poster event at NCTL in Nottingham on 21 October 2015.

2 Research posters

This supplementary document to the main closing the gap: test and learn report contains examples of small-scale trials (micro-enquiries) that were designed and run by teachers, with support from the project team. The teachers running each trial produced a research poster to display at the dissemination event in October 2015, similar to the way that postgraduate researchers present their work at conferences.

50 schools were funded to carry out micro-enquiries as part of closing the gap: test and learn. 47 posters were produced in all. 2 studies were not completed as a result of factors outside the control of the teachers. 1 further study was completed but the school did not produce a research poster in the correct format.

The posters contained in this document all relate to interventions aimed at improving pupils' attainment by using digital applications.

A preliminary pilot study indicating a positive effect for the use of iPads in the improvement of phonological attainment.

by Gillian Harding gillian.harding@outwood.stockport.sch.uk

Introduction

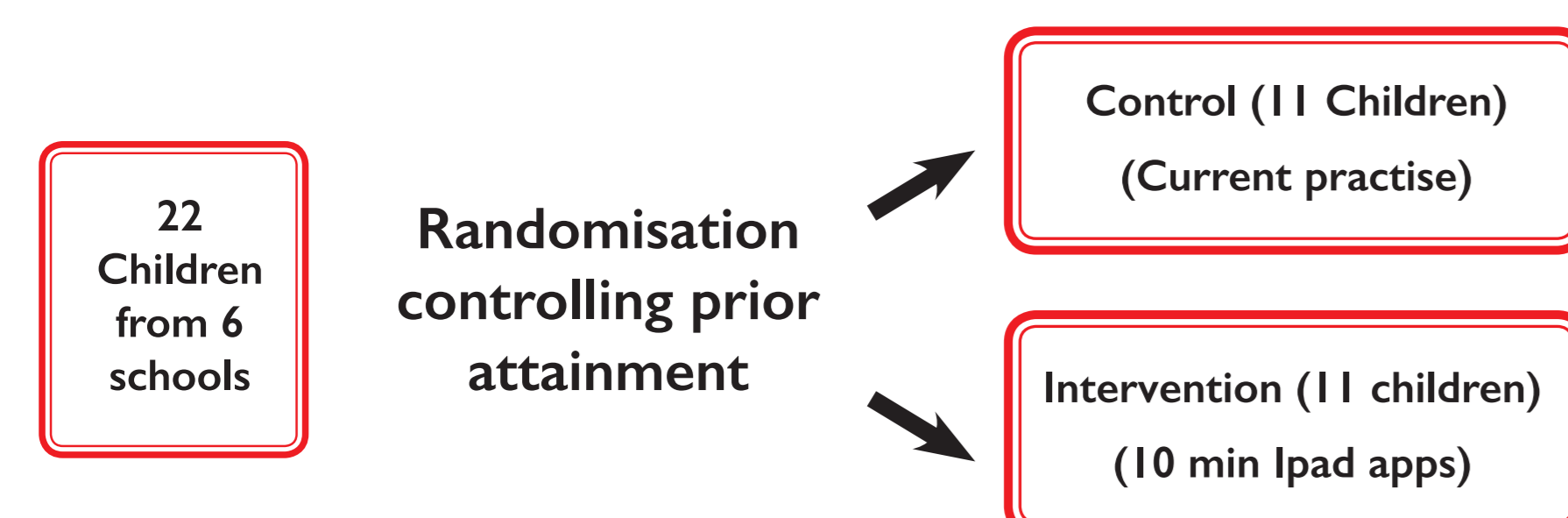
Teachers have frequently suggested that children who enter Year 3 having failed the phonics screening test at Year 1 and 2 continue to fail in phonics at Year 3. Whilst these children have continued phonic intervention in small groups, the materials used are largely the same as those from whole class teaching. This study sought to investigate whether giving a phonics intervention in an alternative way, i.e. through the use of phonics based app games, would have a positive effect on their progress in phonics.

Research Design

A matched paired design was used. Phonics screening test was used for pre and post tests. To address the aims of the research the independent variable (10 minutes iPad based phonic apps daily) was defined operationally by creating two conditions.

IV Level 1 – Children took part in phonics lessons in class as normal.

IV Level 2 – Children took part in phonics lessons in class as normal but had an additional TA led session (10 minutes) daily using iPad phonic apps.



Method

Participants

Four children in each class were identified from across 5 schools depending on prior low attainment in phonics screening results at the end of Year 1. Children were put into matched pairs and were randomly allocated to control or intervention groups. Each school had 2 control and 2 intervention children. There were 11 boys and 11 girls. Initially 24 children were selected but 1 matched pair was removed because of an extreme outlier resulting from external influences.

Procedure

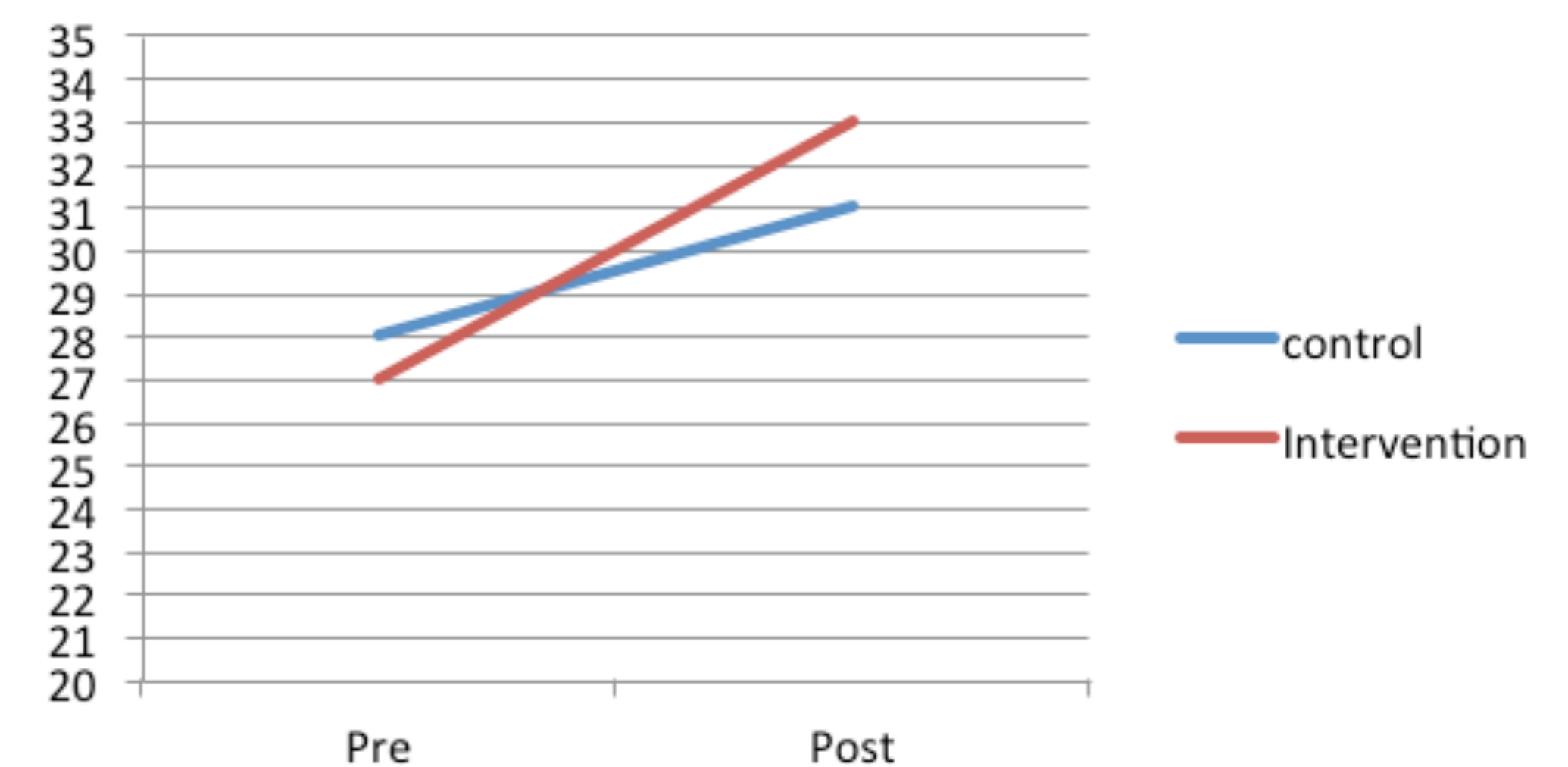
Control group children continued to take part in normal phonics sessions in school. Intervention group children had an additional 10 minutes using iPad phonic apps under the direction of a TA. They followed this programme for 4 weeks.

Materials

A range of iPad phonic apps and one iPad for each child to use.

Results

Gain scores were first calculated from data in the graph below.



A Wilcoxon signed-rank test (one tailed) was used. This indicated a significant ($p = 0.015$) differences between using a 10 minute daily intervention of iPad phonic apps ($Mdn = 6.00$) and not using a 10 minute daily intervention using iPad phonic apps ($Mdn = 1.00$). This represented a large effect size ($r = 0.524$)

Conclusions

This trial suggests that using a range of iPad based phonic games for 10 minutes per day over a 4 week period improves phonological awareness. This has been a small pilot study which will be continued next year with a larger number of children over a longer period of time to see if this intervention supports phonological awareness. As part of the continued study we will be assessing the impact this intervention has on writing.



The use of iPads and applications in GCSE Spanish raises attainment in Listening and Reading examinations. (Pilot Study)

Michael Graham
Weatherhead Teaching School Alliance

Introduction

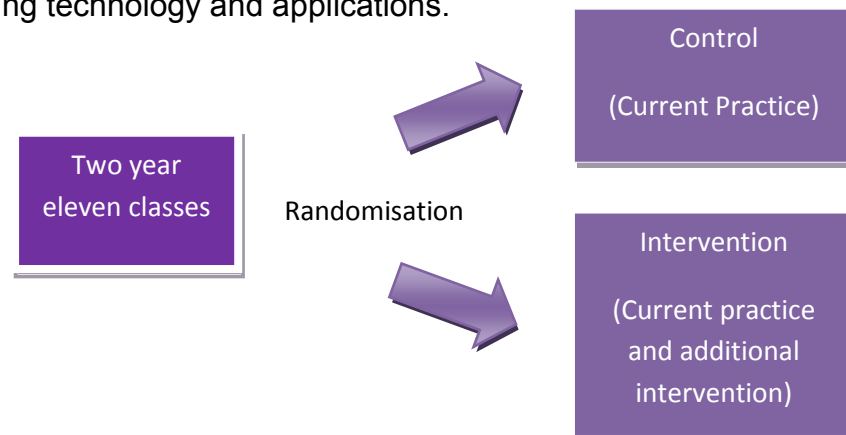
Many question how effective the use of technology is in the raising of attainment of pupils. The aim of this research was to see how a focused intervention plan can improve attainment in two key skill areas (listening & reading) in GCSE Modern Foreign Languages by using a variety of applications.

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 the use of technology in the classroom will be operationalised by creating two conditions.

IV Level 1 (Control condition): Usual class teaching.

IV Level 2 (Intervention): 15 minutes intervention twice a week using technology and applications.



Method

Participants

Students were randomised using simple randomisation. Two classes of similar ability were chosen based on mock examination results. Both teachers followed the same scheme of work and used common lesson plans in their delivery. One group had intervention. The other did not.

- All participants were similar levels of ability. Choosing a middle ability group allowed us to see if iPad and applications made things better or worse. By using similar ability pupils, we were able to more easily able to compare between the groups.
- All pupils did a mock examination in both listening and reading which served as a pre-test.

Procedure

All year 11 pupils completed a mock examination in Listening and Reading. These tests were marked and formed the pre-test score.

One randomly selected group of pupils followed an intervention plan using technology over a month for 15 minutes, twice a week during form time. The other group continued with their usual class teaching and did not come into contact with the technology over the month long period.

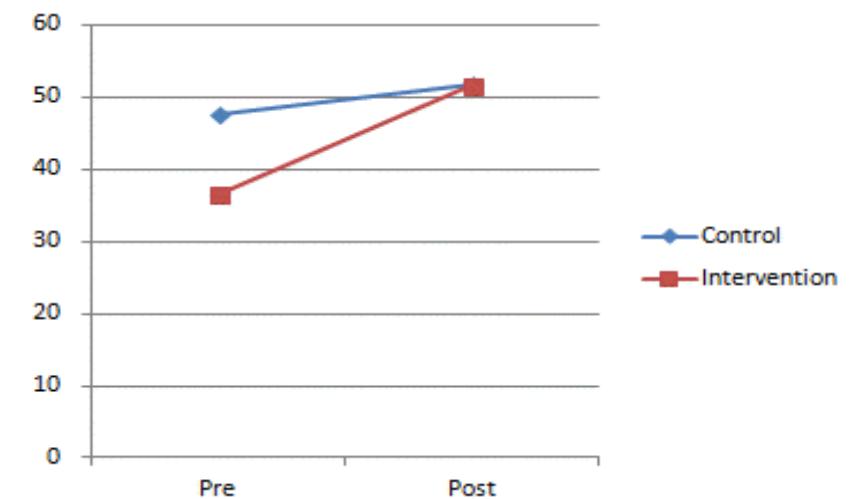
After the month, both groups completed another mock exam in listening and reading and their marks formed the post-test score.

Materials

- 10 iPad minis.
- Oxford University Press – AQA GCSE Spanish eBooks.
- Memrise App. (Free)
- Duolingo app. (Free)
- Linguascope app. (Initially free but subscription required for full access.)
- Pre and Post test. (Full examination papers)

Results

Gain scores were calculated from the data in the graph below. As the scores were not normally distributed a Mann-Whitney U test was used. This showed a significant ($p < 0.001$ (one-tailed)) difference between progress during the control condition (Mdn = 2.0) and progress during the intervention (Mdn = 17.0). This represents a large effect size ($r = 0.64$). Had the data been normally distributed this would have been equivalent to $d = 1.62$.



Conclusions

Despite randomising pupils to the two conditions in the present study the intervention group began with a lower mean than the control group. This said, the rate of progress made by the interventions group was sufficient to have closed the attainment gap for the intervention group pupils.

A small scale pilot study to establish whether the use of digital games based technology aids motivation, engagement and attitude to learning in the classroom with a year 9 mixed ability class.

Mark Dent and Giles Chapman on behalf of the East Kent Learning Alliance.

Introduction

Mark Dent and colleagues representing the East Kent Learning Alliance (EKLA) have developed a range of practical learning resources for use in teaching computer science. This research underpins some of the work undertaken by Prensky et al that indicate that the use of digital games in the classroom can have a positive effect on motivation, engagement and attitude to learning.

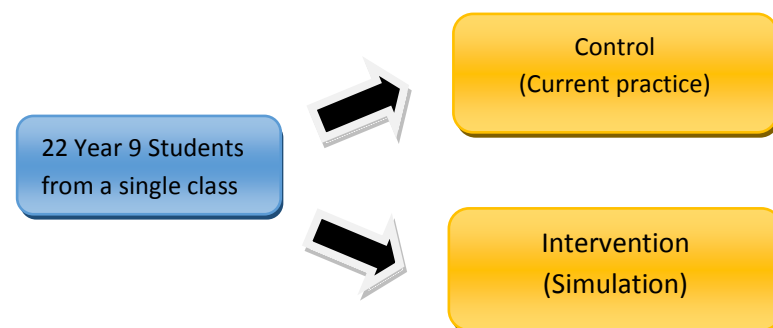
Previous action research at the school suggested that (from the perspective of computing teachers,) these strategies were likely to improve motivation, engagement and attitude to learning for mixed ability key stage 3 (year 9) students, where there was a visual element to the learning.

The aim of this research was to establish whether the delivery of practical activities improved motivation, engagement and attitude to learning compared to existing practice.

Research Design

A post-test within-subject design will be used. To address the aims of the research the independent variable will be operationalised by creating two conditions.

IV Level 1 – (Control) High/Low ability.
IV Level 2 – (Intervention) High/Low ability.



Method

Participants

One Academy secondary school class of 22 year 9 students, split into two groups. Stratified randomisation controlled for gender and prior attainment undertaken.

Procedure

Teachers were trained how to deliver networking systems both through the use of existing (current) practice and through the use of simulation software to achieve the same objective. For consistency, the teachers planned their lesson structure jointly and delivered those lessons in parallel.

Materials

Two classrooms were used with 11 students in each classroom. Students had access to computers, standard application software and networking simulation software.

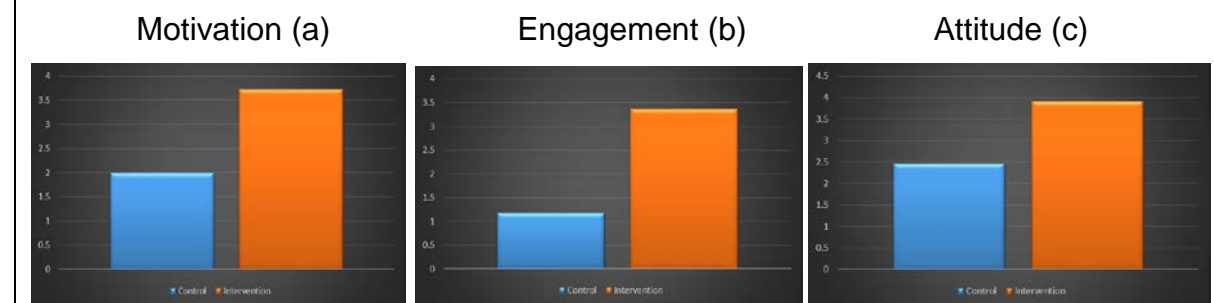
The two lessons took approximately 10 minutes to deliver and 30 minutes to practice with either the simulation software or via worksheets.

Students were asked to complete 3 questions that rated motivation, engagement and attitude to learning on a 7-point Likert Scale.

Results

Separate Mann-Whitney U tests were used on pupils' self-reported Motivation, Engagement and Attitude scores. Surprisingly, there was a significant difference ($p = 0.002$, two-tailed) between the motivation scores of pupils exposed to the intervention (Median = 4.00) compared to the control (Median = 2.00). A large effect size ($r = 0.65$).

The difference in engagement scores between control (Median = 3.0) and interventions groups was also a significant ($p < 0.001$ (two-tailed), $r = 0.87$), as were the differences between attitude to learning scores for children exposed to the intervention (Median = 4.0) compared to the control (Median = 2.0), ($p = 0.001$ (two-tailed), $r = 0.73$).



Graph (a) shows a 37% improvement in Motivation, Graph (b) shows a 64% improvement in Engagement and Graph (c) shows a 46% improvement in Attitude to Learning for participating students.

Conclusions

Surprisingly, despite the small sample size, the results show a significant positive effect for motivation ($r = 0.65$), engagement ($r = 0.87$) and attitude ($r = 0.73$).

Qualitative evidence from observing the students in class suggested that using simulation software improves understanding of the task and thereby students learning experience. Because students completed a self-reporting questionnaire, the findings may have been the result of demand characteristics. Future research may want to explore the use of different simulation and game playing methods across not only computing but a range of other curriculum areas. Contact email:

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Self-selected on line gaming stimulus improves boys' creative writing (The impact of using computer games to promote creativity in boys' writing to help bridge the attainment and gender gap.)

Author:
Helen Newcombe
The Heath Teaching and Learning Alliance

Purpose of the research:

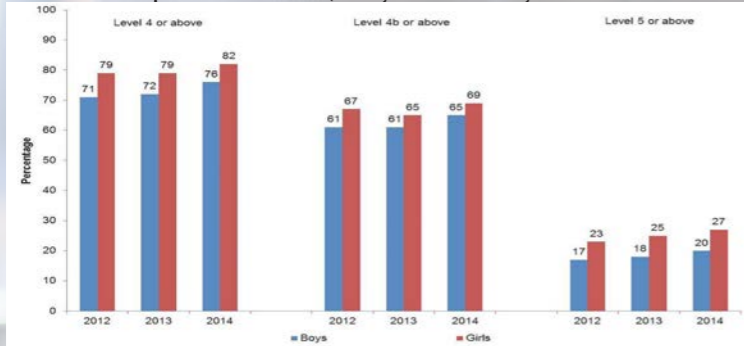
This is an important area to explore using a randomised controlled trial design because there is well documented evidence of boys' underachievement in English in both the key components of reading and writing. A great deal of research has already been conducted into promoting reading, there is a lack of research into the effect of incorporating computer games into lessons to encourage creative writing.

INTRODUCTION

National data from 2014 indicated that:

Girls continue to outperform boys at all levels –

- 82% achieved level 4 or above compared to 76% of boys,
- 69% achieved level 4b or above compared to 65% of boys
- 27% of girls achieved level 5 or above compared to 20% of boys
- Evidence suggests that boys perform less well than girls in writing.
- Research evidence has identified a range of factors behind their underperformance (Daly, 2003; Estyn, 2008; DfES, 2007).



These include:

- Factors related to the quality of teaching such as teaching grammar separately from contextualised writing, inappropriate use of interventions, misuse of writing frames and a lack of connection between oral and writing work.
- School-level factors such as not offering children an active and free-play environment which has been associated with more progress in reading and writing.
- Classroom-level factors such as ineffective use of ICT, setting and streaming. x Behavioural and social-level factors. x Factors related to the way lessons are conducted such as too much emphasis on story writing, not giving boys ownership of their writing, a discrepancy between boys' reading preferences and writing topics, using 'counting down' time strategies and a dislike by boys of drafting and figurative language.

Conclusion and recommendations for future research:

It appears that 3 lessons with computer games access might, given a larger sample size and longer treatment period, improve the relative attainment of girls rather than boys. There were, however, already more girls in the upper ranks at the beginning of the research. Therefore, the results may show the continued slowing down in progress of boys compared to the girls. More research will need to be conducted to determine whether the effects illustrated above are replicable and whether they would still apply to groups of boys and girls where there was a balance of rank order of attainment prior to treatment commencing. However, based on the present study evidence, it can be said that the use of computer games in class does not seem to benefit boys' writing skills.

METHODS

The Research Design

The study used a within-subject quasi-experimental design to assess the hypothesis that 3 lessons of group work improves the relative rank order in writing skills of either boys (IV1 - Level 1) or girls (IV1 - Level 2). With condition one (IV2 – Level 1), teaching sequence without computer games, condition two (IV2 – Level 2), teaching sequences including access to computer games and stimulus. The dependent variable was rank order in writing skills assessed by a blind tester.

Participants

Pupils from 4 English sets (middle ability groups) in year 8, participated in this study and all were taught the same sequence of lessons. Students were randomly allocated (with gender having been identified) to the order in which they experienced two conditions (using RAND in excel). Condition one, teaching sequence without computer games, condition two, teaching sequences including access to computer games and stimulus.

Materials

The teaching sequence for the 6 lessons was created, ICT access was enabled to ensure that the gaming hardware and software would work on the computer stations in the classroom and access to the computer games in school was also enabled. ICT support and also parental support was sort. Training for staff who will deliver the lessons to reduce variation was delivered. Two creative writing tests –for lesson 4 and 8 were also produced

Procedure

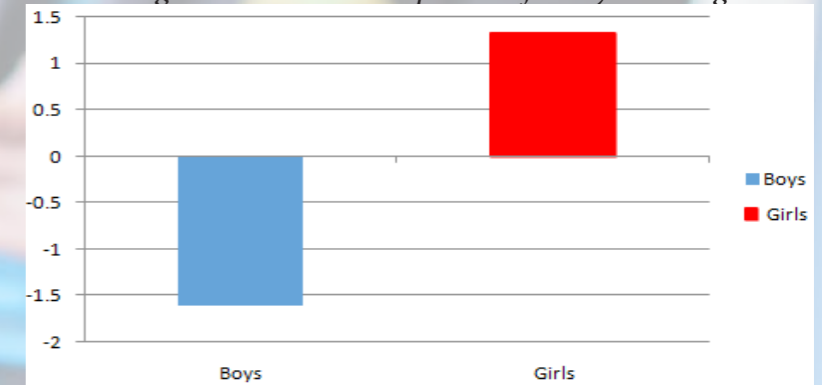
Once the year group and sets were selected and relevant permissions obtained. The students completed the 1st learning sequence and test, followed by the gaming stimulus lessons and test. Each test was rank ordered by a 'blind' English expert for creativity. The rank order of the tests was then compared and split between gender groups.

RESULTS

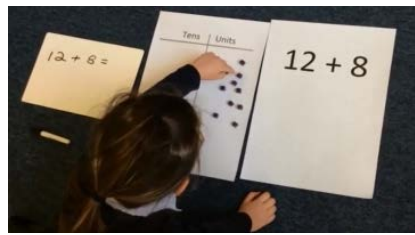
Results

Relative gain in rank order of boys and girls suggested that access to computer games improved girls writing compared to the boys. Because the study analysed rank order data across control and intervention the downward trend for boys should not be interpreted as a decline in attainment but instead represents the relative shift in position– in other words, more boys were now in the lower half of ranks post-test than pre-test.

Mean gain in relative rank position for boys versus girls

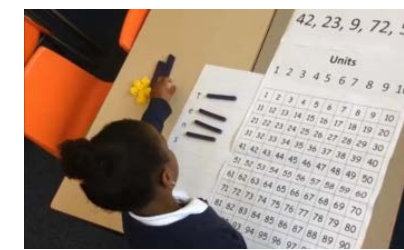


Quade's non-parametric ANCOVA (with pre-test scores as the covariate) was used to analyse the data further. The relative improvement in the girls' writing skills compared to the boys approached significance ($p = 0.087$) (two-tailed)). A moderately small effect size ($np2 = 0.035$ (partial eta-squared)) indicating that approximately 3.5% of the change was due to the way that different genders responded to the treatment.



Number Skills Video Project

Supporting The Oval Cluster Number Master Programme



The impact of creating and using short educational videos on the speed of progress for pupils participating in the Oval Learning Cluster Number Masters programme.

Introduction

As an ICT/Computing Subject manager I have created a wide range of video materials, both instructional and creative, to support and showcase pupil learning. I know that pupils feel a sense of pride when they see their work being shared with others in the school. I believe that there is much to be gained in harnessing this pride to motivate pupils in developing specific skills, in this case, with number and mental calculation strategies. The Number Masters is a KS1 intervention programme, run throughout the schools in the Lambeth Teaching Schools Alliance to help pupils secure their understanding of number and mental calculation strategies. The focus of the programme is to improve accuracy and speed of mental calculation by securing an understanding of number and mental calculation strategies.

Studies have shown that when pupils are given the opportunity to create digital content for use in school, the feeling of empowerment, ownership, and sense of purpose is much higher. This in turns enhances pupil motivation toward a particular subject. At present there is little evidence on the efficacy of pupil created video content as a tool to secure progress on number and mental calculation strategies at KS1. The aim of the research was therefore to see if pupil involvement in creating and viewing video support materials as an integral part of the intervention programme would have any positive impacts on progression of number skills.

For this research, a group 8 pupils were to co-created bespoke videos that support understanding of number and mental calculation strategies. The research had two areas of focus. Firstly, to see if using bespoke video content provides an effective teaching and learning tool that will help pupils in securing their understanding of number and mental calculation strategies more rapidly than the control group. Secondly, to see if the process of co-creating the content promotes higher levels of proficiency for pupils in numeracy, thus impacting on the speed of progression in the Number Masters programme.

Participants

- There were 3 groups of 8 pupils in each of the two participating schools. All children undertook an initial assessment based on the expected outcomes of the Number Masters programme. All participants were year 2 pupils, currently participating in the daily Number Masters intervention programme.

Procedure

To address the aim of the research the independent variable of intervention type was operationalised by creating three conditions.

IV 1 – group with no intervention

IV 2 – group supported by the use of videos

IV 3 – group to co-create video and supported by the use of videos

All the children were tested again at the end of the intervention using the same and assessment test.

The research lasted for a period of 15 weeks. The total number in the population was 43. Twelve pupils had the IV3, (initially this was to be 8 for each school), 15 the IV2 and the remaining 16 pupils were the control IV1 group. Teachers and Teaching Assistance were given training on how to access the videos using the tablets.

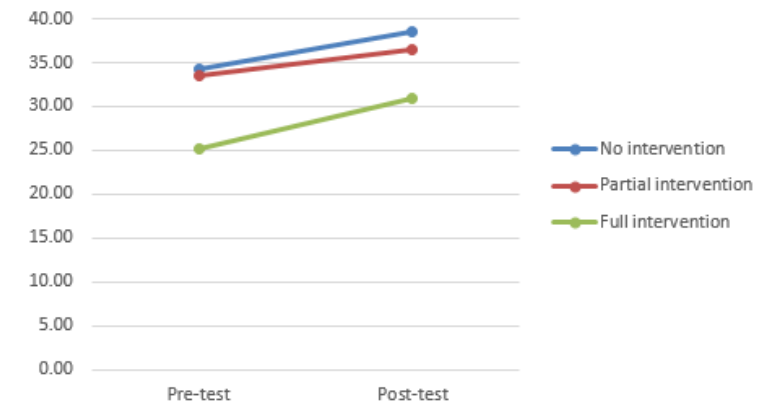
Materials

- An I pad was used to record, edit and upload the videos.
- A Vimeo account was set up to save videos for streaming onto the tablets, laptops and classroom PCs.
- A set of tablets was used to play the videos to the IV2 and IV3 groups.
- A variety of in school maths resources and ITPs were used to illustrate the concepts for each video

James Stewart
Lambeth Teaching School Alliance, The Wyvern Federation

Results

Gain scores were first calculated from the results in the graph below.

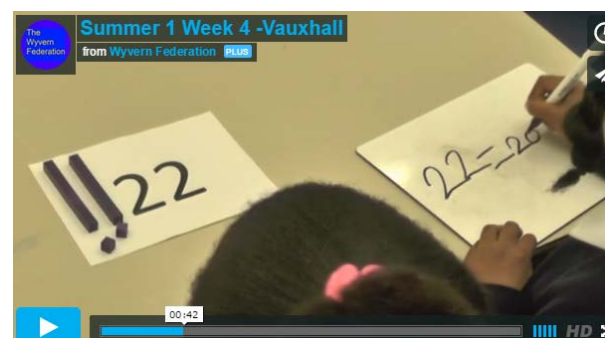
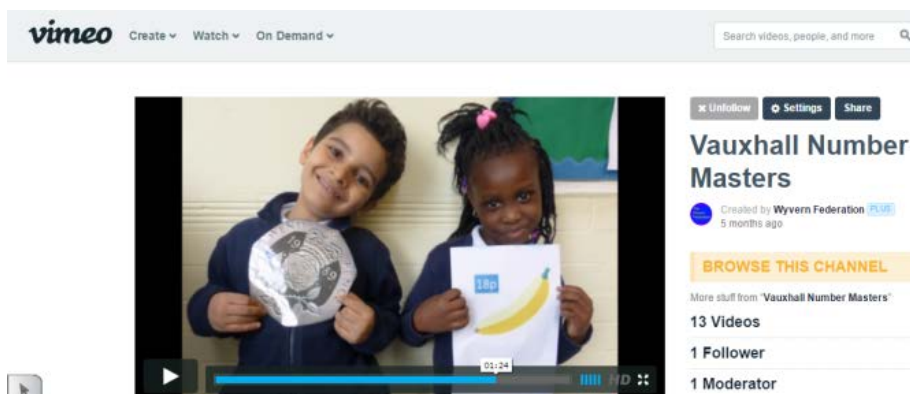


As expected with such a small sample size, all of the findings were non-significant. An initial Kruskal-Wallis ANOVA indicated a non-significant change across all three conditions ($p = 0.580$), with a small effect size ($w = 0.16$). This was followed by separate Mann-Whitney U tests comparing all conditions with each other. Results from these tests can be found in the table below.

	Condition 1	Condition 2	Condition 3
Condition 1		$r = 0.13$ $p = 0.275$ (two-tailed)	$r = -0.11$ $p = 1.000$ (two-tailed)
Condition 2	$r = -0.13$ $p = 0.275$ (one-tailed)		$r = -0.18$ $p = 0.525$ (two-tailed)
Condition 3	$r = 0.11$ $p = 1.000$ (two-tailed)	$r = 0.18$ $p = 0.525$ (two-tailed)	

Conclusions

The findings from this pilot study need to be interpreted with caution because of the small sample size. However, the effect sizes above suggest that where the full intervention may have similar effects to existing practice, and therefore may be a viable alternative treatment, partial implementation appears to have a negative effect on progress rates compared to full intervention or not intervening at all. A larger replication will be needed in order to validate the results. Based on the largest of the effect sizes above, this would need a study with approximately 280 participants (for a between-subject design (one-tailed)). However, similar levels of power could be attained from a within-subject design with a sample of approximately 80 participants. As the interventions were over a long period with four active intervention groups in total (2x IV2 and IV3), it was difficult to ensure the interventions were done consistently. Given the sample size needed to identify the effect of the intervention a future pilot would be best conducted as a within subject design with just two intervention groups, one at Wyvil and one at Vauxhall school. The significance of the IV3, I believe, is difficult to measure and does not allow the pupils to gain any greater understanding of the content during the process of creating the videos.





Verbal and visual-digital feedback on creative writing in rural primary schools improves progress rates compared to written feedback - a preliminary study

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Kyra Teaching
School Alliance

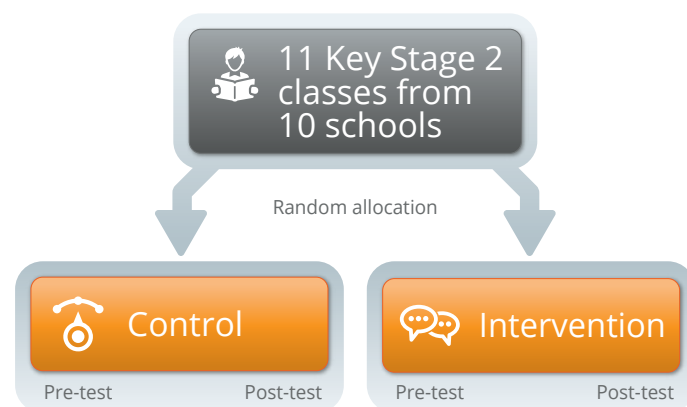


Purpose of the research: Research evidence suggests that effective feedback has a significant impact on pupil progress. Initial trials show the positive impact of digital feedback on outcomes in writing, and the impact may be greatest on SEND (Special Educational Needs and Disability) and FSM (Free School Meals) children. This is an important area to explore using a randomised controlled trial design because it is an approach that is poorly studied at a time when many schools are investing significantly in new digital technology. The study was conducted with the support of a grant from the National College for Teaching and Leadership as part of the Closing the Gap: Test and Learn programme.

The research design

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

- IV Level 1 (Control condition) – Written feedback, the school's normal practice
- IV Level 2 (Intervention) – Digital feedback



Methods

Participants, sample size and randomisation

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

Procedures

The randomly allocated groups were given a writing prompt, success criteria rubric and video, together with a short film as a writing stimulus. Pupils had ten minutes' planning and 40 minutes' writing time. The control group received written feedback; the intervention group received feedback digitally. Each group had the same amount of 'fix it' time the following day. Pupils made corrections and recorded 'What I have learnt' statements. Pupils were then given another piece of creative writing (of the same genre) the following day. The procedure was repeated. The work was marked against the two success criteria points and the gain scores were recorded. Blinded marking of approximately 10% of the work was then undertaken.

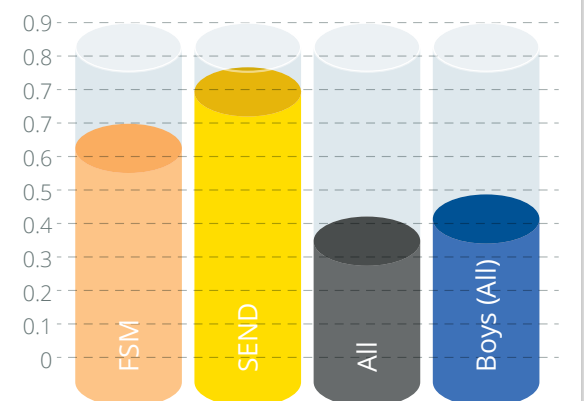
Materials (and apparatus)

A success criteria rubric was used along with a model text. Models of written and digital feedback (through video) were used to standardise marking. A format was given to pupils regarding how to correct their work following feedback.

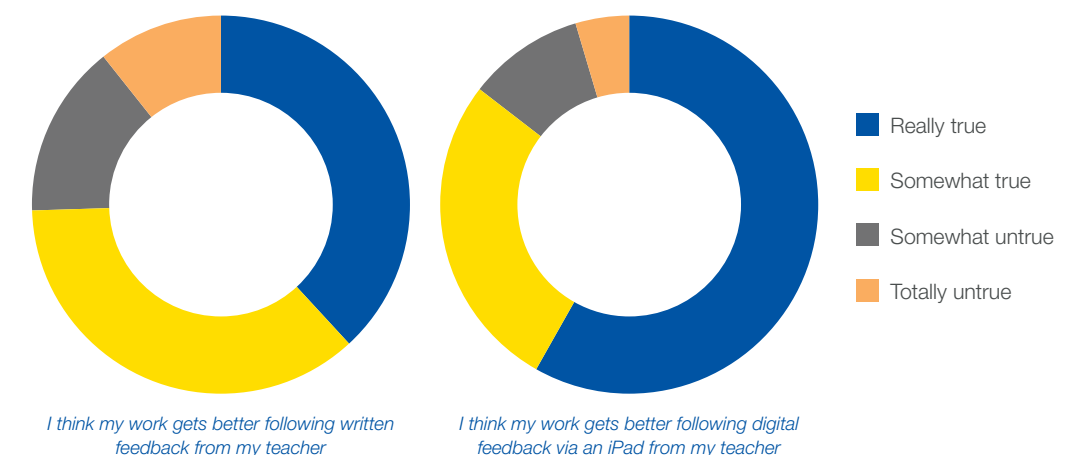
Results

Gain scores were first calculated. Mann-Whitney U tests indicated a significant improvement for all pupils who underwent the intervention compared to the control, and for sub-groups. There was a moderate positive effect size for disadvantaged pupils ($n = 43$, $p = 0.03$ (one-tailed), $r = 0.308$) and SEND pupils ($n = 40$, $p = 0.013$ (one-tailed), $r = 0.37$); and an overall small positive effect for all pupils ($n = 231$, $p = 0.004$ (one-tailed), $r = 0.218$).

Gain scores for all pupils and sub-groups



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



Limitations

The trial was limited by its relatively small sample size and therefore requires replication with greater numbers. Although the results suggest a greater impact on boys it is not clear why this is the case. Although the effect of the intervention was greatest on SEND pupils the trial did not take into account the specific different needs of these pupils.

Conclusions and recommendations for future research

The gains in the present study were similar to prior EEF research evidence, with regard to the impact of digital technology on closing the gap in attainment (which suggested that digital technology may produce gains of +4 months' progress over an academic year). In particular, the data suggested that the intervention produces the greatest gains for disadvantaged and SEND pupils. The survey that looked at pupil perceptions indicated that, in general, pupils feel they make better progress following digital feedback, evidence which backs up the findings in the RCT. Previous research has also suggested that gains may be even more substantial in mathematics; therefore a future study may wish to look at different subject areas. A future study may also wish to take into account different types of SEND pupils and any difference in effect depending on type of special need.

Kyra Teaching School Alliance is part of CfBT Schools Trust





Preliminary evidence that ‘in lesson’ feedback through OneNote may improve student progress

Introduction

As part of our ongoing investigation into finding effective ways to utilise technology to enhance learning, we wanted to measure the impact of constant, personalised feedback within lesson.

OneNote is a piece of software that allows a teacher to allocate each student an area where they can complete their work whilst enabling the teacher to read and attach written comments at all times.

The trial was set up to test these benefits:

1. Immediate feedback allowing revisions to take place as they happen.
2. An awareness of being monitored impacting the quality of student work.

Research design

The originally planned design was a pre-post test counter-balanced within-subject design, incorporating 4 teachers teaching 2 units of work:

Teacher	Order of work	
A	Unit 1 - Intervention	Unit 2 - Control
B	Unit 1 - Control	Unit 2 - Intervention
C	Unit 2 - Intervention	Unit 1 - Control
D	Unit 2 - Control	Unit 1 - Intervention

The original design controlled for order and intervention. Additionally, each student would submit a form conveying the impact of the research foci during that lesson.

Technical difficulties undermined this design and resulted in a within-subject design with no counter-balancing for either element, in which all classes completed the intervention after the control condition.

Method

Participants

Whole classes were originally allocated to condition orders, however, this counterbalance was not able to be sustained. Consequently, ability setting meant that the classes that were involved were not of uniform ability. The total number of participants in the study was 63 (28 boys and 35 girls).

Procedure

Control: students worked on paper as normal, with no technology. The teacher monitored progress through their normal practice of moving around the classroom.

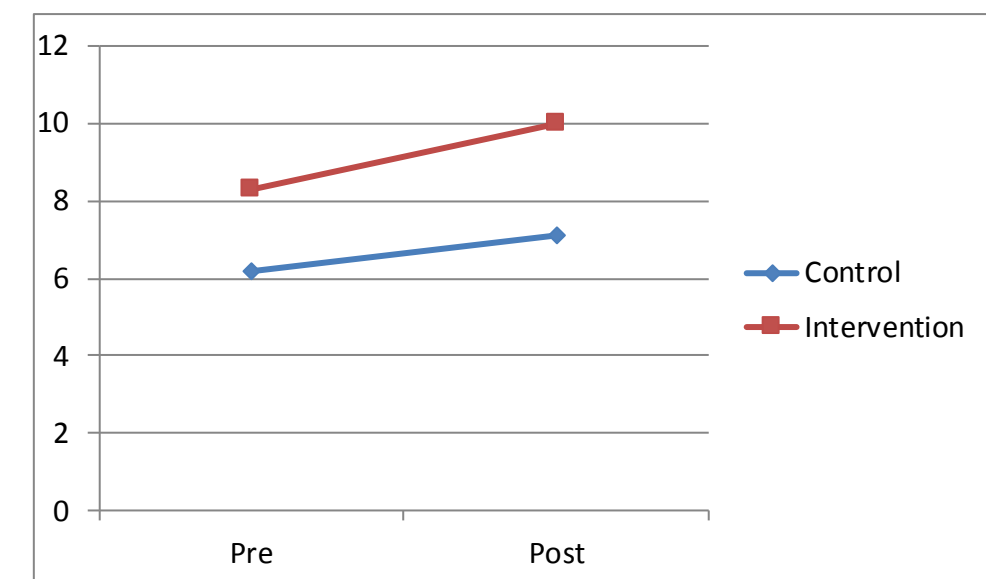
Intervention: students used a tablet and complete their work on OneNote. The teacher monitored progress through normal practice of moving around the classroom, but additionally accessing and annotating their work via OneNote.

Materials

The pre and post tests were the same test in each case. These were standard department assessments. There were no additional academic materials.

Results

Gain scores were first calculated from pre- and post-test scores, then outliers were removed. A Wilcoxon signed-rank test (one-tailed) indicated a significant increase in progress for the intervention compared to the control ($p = 0.002$ (one-tailed)) – a medium positive effect size ($r = 0.277$).



Conclusions

The outcome of the research ($r = 0.277$) showed a moderate positive effect on progress. However, the trial was not counterbalanced which means that although the trial was carried out with two separate sets of students, the topics and intervention took place in the same order with the same teacher. Carry-over or order effects may, therefore, have influenced the results.

Additionally, we did not try to control for technology, so the difference between the control and the intervention was not just the feedback.

Despite the problems, where the intervention took place, teachers reported very high levels of engagement with the intervention. The evidence shows that this kind of intervention may provide a way forward, but would need a more robust replication of the trial to establish the findings further.

Using an internet based homework calendar that tracks submissions encourage a higher rate of homework completion.

This research was carried out by Julie Nolan from Stamford Welland Academy. SWA is part of Cambridge Teaching Schools Network.

Introduction

For secondary aged students, a correlation between time spent on homework and achievement has been proven. Most schools have a homework policy that states that homework should be set regularly, however, teachers often report difficulty in managing the quality of the submissions and the submission rate. I believe that a system that allows teachers to track homework submission and quality that open to parents will improve these issues. We bought an internet calendar with this functionality called Show My Homework.

Research design

A counterbalanced within-subject design was used with a pre- and post-test in order to assess the effect of Show My Homework on progress. To address the aims of the research the independent variable (homework type) was operationalized by creating 2 conditions.

IV Level 1 (Control condition): Usual homework style and tracking method which is unavailable to parents.

IV Level 2 (Intervention): Homework is set and submissions made available to parents using 'Show my homework'.

Method

Participants

Students were selected randomly for the intervention from the year 11 students that I teach and match paired with like students from a previous cohort. In total there were 21 matched pairs. 13 boys and 8 girls. They were matched for gender, age, ability and SEND and then randomly allocated to the order in which they experienced the two conditions.

Procedure

The 21 students had homework set using the internet tool show my homework which tracks their tasks and submissions. This information was public to the class, their parents and form tutors. The paired students had homework set in the usual way and submissions were tracked using an excel spreadsheet that was only available to the class teacher. Submission rates were kept over the first 6 weeks of term and compared. Their progress during this timeframe were also measured by formal whole school data entry points that happen at the end of the previous year and during October of the following year. Their progress was measured in fine grade changes.

Materials

The intervention was the use of an internet based homework setting, tracking and feedback tool called Show My Homework. This site has open access for parents. They can view their son or daughters calendar that has details of homework set along with instructions and resources. They can also read teacher feedback and tracking in real time. Each homework is tracked as 'submitted', 'not submitted', 'absent' or 'resubmission requested'.

Results

Gain scores were first calculated then analysed as below.

Submission rates:

A Wilcoxon signed rank test (one-tailed) showed a significant improvement in submission rates ($p = 0.001$), with a large effect size ($r = 0.564$).

Fine grade progress:

A paired sample t-test (one-tailed) also showed an improvement in fine grade progress ($p = 0.01$). This time with a moderate effect size ($r = 0.285$).

Conclusions

I found that show my homework has a large effect on submission rates. I also found that the cohort of students that had homework set through Show My Homework had a small to medium sized effect on progress.

The sample was quite small and all of the students were taught by the same teacher and were all tracked for Science homework and progress. During this time the school was taken over by an Academy Trust who also made changes to curriculum and assessment which could have confounded the results. A larger sample size of varying age students and subjects during a more stable time period may give more reliable results.



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