The Efficacy of Interventions on Pupil Attainment in GCSE Mathematics

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Abstract
This project seeks to answer the question of which intervention practices are most effective for raising the academic attainment of GCSE maths pupils in England. The findings will have the potential to alleviate teacher workload and to raise pupil attainment by refining the intervention schemes employed in schools. The results will therefore also be useful to school policy makers as they plan their investment in interventions as well as teacher educators and their students in noting the importance of addressing pupil needs immediately and reflecting on their practice to assess its efficacy.

The research was undertaken in a secondary school in the North West of England, following the progress of 185 pupils in year 11 from the beginning of the year to the end of the course through a series of mock exams in line with school practice. This was then refined to a group of 65 pupils who were all taught by the same teacher to reduce the impact of the teacher as a variable. The intervention schemes in question are: form time support sessions, one-to-one tutorials, after school sessions, holiday classes and a past paper programme. The project took a positivist approach, using effect size (a standardised measure of a pupil's improvement compared to the average score and standard deviation) to identify the efficacy of each scheme.

Overall it was found that no single intervention scheme was successful on its own and it is not sustainable in terms of the investment of teacher resources to continue to provide all programmes to all pupils. A possible solution could be to employ a mastery focussed syllabus that ensures all pupils are confident and competent in basic skills from the very start of secondary education, thus removing the need for extensive, last minute intervention schemes.

Key words
GCSE Maths; Educational interventions; Effective practice; Secondary school practice; Teacher workload

Introduction

The current shortage in Maths and Science teachers in England has been attributed in part to the strenuous workload of the profession (Busby, 2016). With so many conflicting demands on teacher resources it is worthwhile investigating which burdens could be potentially removed to enable teachers to fulfil their duties more effectively (DfE (Department for Education), 2017). Increased public attention on quality of teaching and school results has led to the extensive use of intervention programmes in a bid to boost results. Extra lessons after school, at weekends and during holidays are among the factors contributing to the high rates of overtime work in the teaching profession. This study aims to determine whether the investment in interventions are matched by a significant increase in pupil progress by quantifying the effectiveness of the involvement of pupils with the varying programmes against the output of their grades. The root of this research is to answer the question: Are additional teaching interventions effective in improving pupil progress in GCSE maths? The final results will uncover which interventions are worth the investment of teacher resources as well as those which support pupils to make the progress they are capable of, not just to boost the school's performance in league tables but to provide pupils with the best possible education.

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This study, undertaken in a school in the North West of England during the 2015-16 school year, seeks to examine the efficacy of five types of intervention in the maths department: form time support sessions, one-to-one tutorials, after school sessions, holiday classes and a past paper programme. The cohort of year 11 students consists of 185 pupils in total, all of whom are involved with the intervention programme, but the study will focus on a group of 65 pupils who were all taught by the same teacher with the aim of reducing the effect of the teacher as a variable. Pupils were graded during the course of the academic year through periodic mock tests concluding with the final GCSE (General Certificate of Secondary Education) exams. These results were cross-referenced with the interventions that each pupil received, looking at type and duration of support. Whilst some interventions were available only by invitation - form time support and one-to-one tutorials - the whole cohort were able to attend after school and holiday sessions. Those pupils who opted out of joining in any activities and so received no additional support outside of the regular classroom provide an interesting group with which to compare the results of the intervention sets.

Whilst interventions are in wide use throughout the school this research focuses on the maths department where their use is are most prevalent and where most pressure is placed by Senior Management due to its new double weighting as an indicator of progress (Cassidy, 2014). It is hoped that the results will be useful for all departments and will help inform school decision makers as they plan future interventions. The outcomes will also be beneficial for teacher educators and their students in demonstrating the importance of reflecting on practice to determine how best to meet pupil needs.

Literature Review

Educational intervention can cover any form of additional support provided for pupils beyond regular classroom teaching. It should seek to overcome underperformance quickly through regular and focussed guidance (McCormack, 2013) and assist those pupils who are at risk of falling behind (NCETM (National Centre for Excellence in the Teaching of Mathematics), 2011). The most common interventions include targeted homework, one-to-one or small group sessions, and extra-curricular activities (Welsh Government, 2012). Whilst researchers agree that there is no single solution for supporting pupils (Dowker, 2009), there is agreement that any successful intervention must incorporate: accurate identification of pupils' strengths and weaknesses; continuity between lessons; and positive engagement (Ofsted (Office for Standards in Education), 2009).

It has been suggested that offering interventions actually distracts from high quality teaching (Cassidy, 2014) but others highlight the necessity of their use for supporting pupils who are not able to access the curriculum in a standard classroom with as many as 20% of pupils requiring additional support for specific reasons (Ulichnie, 2015). Common barriers to progress include: specific learning needs; low attendance; anxiety; misconceptions; and poor behaviour (McCormack, 2013). Intervention should be consistent throughout secondary education and not concentrated in the final year when it is often too late (Ofsted, 2009, Welsh Government, 2012). Many schools are now trapped in a cycle of focussing all support on pupils closest to their final exams so there is none to spare for other year groups. By leaving intervention until the last minute, schools are developing "home-grown" underachievement (Ofsted, 2009). Looking at years seven to eleven as a whole would seem to be a more efficient use of a school's resources.

The majority of research in educational interventions takes place in primary schools and is predominantly descriptive, focussing mainly on literacy (Villarreal et al., 2013). Recent research based in secondary schools focuses on the attainment of pupils with special educational needs and disabilities (SEND) or those in receipt of pupil premium funding (Macleod et al., 2015). The present study differs in that it took a quantitative approach to address the progress of all pupil groups after

undertaking five specific interventions: form time support, one-to-one tutorials, after school sessions, holiday sessions and a past paper programme. The scientific method was chosen here in an attempt to measure the efficacy of interventions and apply the findings to future practice as used by other educational studies (Cohen, et. al., 2011, Gray et al., 1993).

Form Time Support

Small group sessions for additional teaching in maths were used in 95% of 1,200 surveyed schools (Macleod et al., 2015) and have repeatedly been found to improve pupils' confidence and performance as teachers can address individual needs more readily (Fuchs et al., 2008; Hattie, 2012). The disadvantages of this strategy are that pupils miss out on pastoral time and there is no break for teachers (Ofsted, 2009). There is also an argument that low attainers are found to perform better when taught in large groups than small ones (Cockcroft, 1982).

One-to-One Tutorials

One-to-one maths tuition was used in 85% of 1,200 surveyed schools (Macleod et al., 2015) showing benefits for pupils' concentration and for overcoming specific misconceptions as pupils are unable to hide behind others (Ulichnie, 2015). It has been found to be essential for re-engaging vulnerable pupils with attendance issues (Ollerton and Watson, 2001). However, this assistance is costly both in terms of time and money and requires coherent planning between teachers to be effective (Dowker, 2009). The Education Endowment Foundation (Higgins, et. al, 2014) found no advantage from one-to-one tuition over small groups.

After School Sessions

Extra-curricular maths class was used in 67% of 1,200 surveyed schools in the UK (Macleod et al., 2015). The undoubted benefits of this intervention are: improved motivation and achievement; and consolidation of learning from earlier in the day (McCormack, 2013). However, this scheme stretches the limits of the working day for pupils and teachers and diminishes pupil motivation for independent study. These sessions are often not attended by the most vulnerable pupils who would benefit most from the extra support (Higgins et al., 2014).

Holiday Sessions

Perhaps surprisingly, pupils show a keenness to participate in classes during holidays, they have been found to encourage positive communication between peers and have the benefit of no added demands from other subjects. Higgins et al. (2014) note that summer schools work especially well for targeting specific pupil groups, such as able and ambitious pupils or those in receipt of pupil premium funding. The downside of this scheme is that they are mostly attended by high achievers who could be revising independently whilst the most vulnerable pupils are missing again it also requires teachers giving up their own time without compensation (Welsh Government, 2012).

Past Papers

Homework is widely regarded as the intervention with the highest impact (Borg and Gall, 1989) and Hattie (2012) notes an effect sized of 54% for practice tests as a study strategy. Teachers can track pupil progress regularly whilst pupils have the opportunity to respond to timely and meaningful feedback which has been shown to improve motivation (Higgins et al., 2014). However, incessant mock exams and the constant appearance of failure can be demoralising (Cockcroft, 1982). A survey of teachers viewed this extensive marking practise as "time consuming", "unnecessary" and "bureaucratic preparation for tests" (DfE, 2014, p.20). Non-completion of homework is also an issue but can be resolved by making pupils take responsibility for their own improvement, using online resources rather than relying on forensic analysis in class (Welsh Government, 2012).

Research Methods

This research took an objectivist approach to attempt to study the efficacy of intervention programmes and was chosen for being a "systematic, controlled, empirical and critical" method for investigating hypotheses with the aim of challenging current practice in a logical and unbiased way (Cohen, et al., 2011). This study will seek to quantify the efficacy of the interventions by analysing the effect size (the difference between the mean score of the pupils involved in the intervention and those who were not, divided by the standard deviation) observed in the final GCSE grades, an approach commonly adopted by research in schools (Hattie, 2011, Higgins, 2014). The quantitative data of GCSE grades was chosen for its validity and reliability and is the government's primary measure of success in secondary schools (Gomm and Woods, 1993). It is already required to be gathered and analysed by school policy and so does not present any ethical challenges and is widely understood by educational practitioners and the general public (Cohen, et al., 2011). The standardisation of GCSE exams makes them easy to apply consistently and the data is not subjective, helping to reach accurate and trustworthy conclusions (Crotty, 1998).

Data Collection

The research took place in a mixed gender academy for 11 to 16-year olds in the Northwest of England, charting the progress of pupils in year 11. Whilst there are 185 pupils in the year group, this study focused on a group of 65 pupils, all taught by the same teacher, so that the quality of regular classroom teaching was removed as a variable (Macpherson and Tyson, 2008). The data was collected from past papers completed under mock exam conditions in September, January and March, culminating in the final GCSE examinations in June. To minimise errors and bias, this research uses the nationally prescribed, and highly standardised, system of grades rather than observational data or a teacher's personal judgement of pupil performance. The data can therefore be viewed as reliable with results gathered in the same conditions consistently throughout the year (Hartas, 2010). The comparison with the group of pupils who declined the offer of in-school support presents evidence for whether a practice was successful or not by noting what occurred in its absence (DfE, 2017). Analysis of this group also allowed for the observation of the effects of maturation that affect all pupils regardless of additional intervention (Hartas, 2010).

Table 1. Brief description of the intervention schemes and their implementation.

Intervention Scheme	Number of Pupils	Number of teachers	Number of hours per week	Brief Description
Form Time Support	24	4	2	Pupils on the C/D borderline are removed from normal form time activities to work intensively on known barriers to maths.
One-to-One Tutorials	22	1	2	Used to target pupil premium students, higher tier pupils on the C/D or A/B borderline and pupils with prolonged absence.
After School Sessions	33	6	1	All pupils are invited to attend informal, weekly, after-school sessions.
Holiday Sessions	26	5	5 (1 week only)	An optional, intensive day of revision offered during the half term holiday between exams.
Past Papers	56	6	2	It is intended that all pupils will complete and review past exam papers on a fortnightly basis.

Data Analysis

The aim of this research being to determine the efficacy of an intervention it was important to identify what measures indicated improvement so interventions could be evaluated (DfE 2017, NCETM, 2011). The Education Endowment Foundation (Higgins et al., 2014) defined intervention effectiveness as an estimate of additional progress observed in pupils who participated in intervention compared to those who did not. Effect size was calculated by noting the improvement in performance by the end of the intervention scheme by a pupil who started at the fiftieth percentile, assuming no movement from other pupils. Effect size has been used in numerous investigations to quantify the benefits of interventions (Hartas, 2010). Analysing the effect size demonstrated whether an intervention was effective in raising pupil attainment over the year even if the pupil failed to reach their target grade. This provided evidence for whether an intervention was worth continuing for the benefit of the pupils even if it did not help meet government targets. Hattie (2012) calculated an average effect size of 40% for all the strategies he identified, deeming this to be a critical threshold for the efficacy, whilst Higgins, et al. (2011) state that interventions with an effect size of less than 33% have a low impact and should be re-evaluated.

Unfortunately, it was not possible to isolate variables external to school practice (DfE, 2017) and it is unknown what extra support was sought by pupils outside of school. Many students engaged in more than one form of intervention, presenting the problem of overlapping data (Teddlie and Tashakkori, 2006). To address this, the percentage of overlapping data was calculated and compared against the group of students who did not participate in any intervention, any programme with a value less than 50% was considered ineffective (Parker et al., 2007). As yet there is little evidence from research about the cumulative effect of combining different intervention programmes (Higgins et al., 2014) so it was interesting to address this aspect of their application.

The British Government acknowledges that it is important for every pupil to meet their full potential whatever their starting point, thus the main focus of new standards will be to measure progress of pupils in the categories of pupil premium, able and ambitious and SEND (DfE, 2016, Macleod et al., 2015). It was therefore important to analyse sub-categories of the population as some interventions appeared ineffective for the whole cohort whilst actually being of some benefit for specific groups (Gray et al., 1993). Pupil progress was evaluated here by calculating the average improvement in marks achieved by looking at the difference between pupils' starting and end points from mock exam data, homing in on pupil characteristics and any interventions they have been involved in. These methods are easily replicable and may be used as a template for repeating the investigation in coming years to continue to evaluate the efficacy of interventions and to test whether the outcomes are repeated with subsequent cohorts of pupils (Teddlie and Tashakkori, 2006).

Ethics

This study resides within the situated ethics of the teaching standards married with the ethical guidelines set out by the British Education Research Association (BERA, 2011, Macpherson and Tyson, 2008). Whilst some interventions were targeted at specific groups, there was equal opportunity for all pupils to participate in some form of intervention and support was not withheld from anyone. However, pupils had the right to withdraw from any of the interventions at any time (Hartas, 2010). In terms of data protection and consent, Borg and Gall (1989) point to the Family Educational Rights and Privacy Act of 1974 that was written to protect students' educational records. This states that where studies are carried out by the direction of a school for the purpose of improving teaching practice, the researcher is exempt from gaining informed written consent from each participant to use their test scores so long as individual identities are protected and are impossible to trace from the published findings.

Discussion of Results

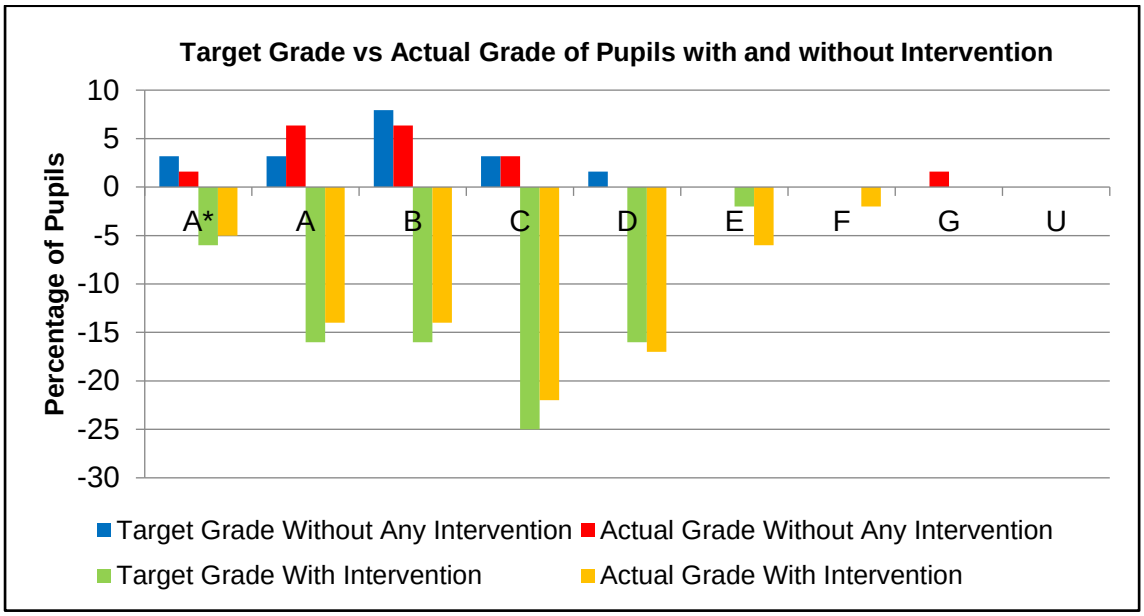

Figure 1. Pupils' targeted and achieved grades as a percentage of the population.

Figure 1 compares the target grades with the actual grades achieved by pupils involved in any intervention (negative axis), or not (positive axis). This graph shows that although interventions were targeted mainly at C grade students, a wide spread of pupils of all abilities were involved. There is a general trend that the number of grades achieved is below that which was targeted. The exception being that a higher number of grades A (without intervention) and D and E (with intervention) were achieved than targeted due to pupils narrowly missing out on the key targets of A* and C. This suggests that interventions were of little help in reaching target grades, with some pupils underachieving regardless of support. In addition, pupils with the highest target grades were just as likely to meet them with intervention as without.

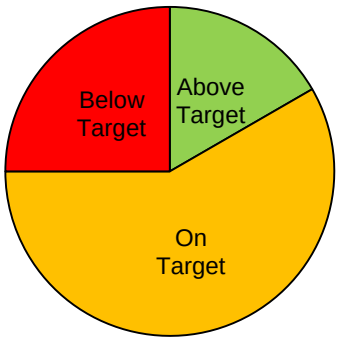

Figure 2. Pupils without intervention, above, on or below target.

Figure 3. Pupils with intervention, above, on or below target.

A slightly higher proportion of pupils who took part in interventions exceeded their target grade compared to those withdrew. However, a third of pupils involved in intervention still finished the course below target with the contrasting group being the more likely to achieve their target grade (Figures 2 and 3).

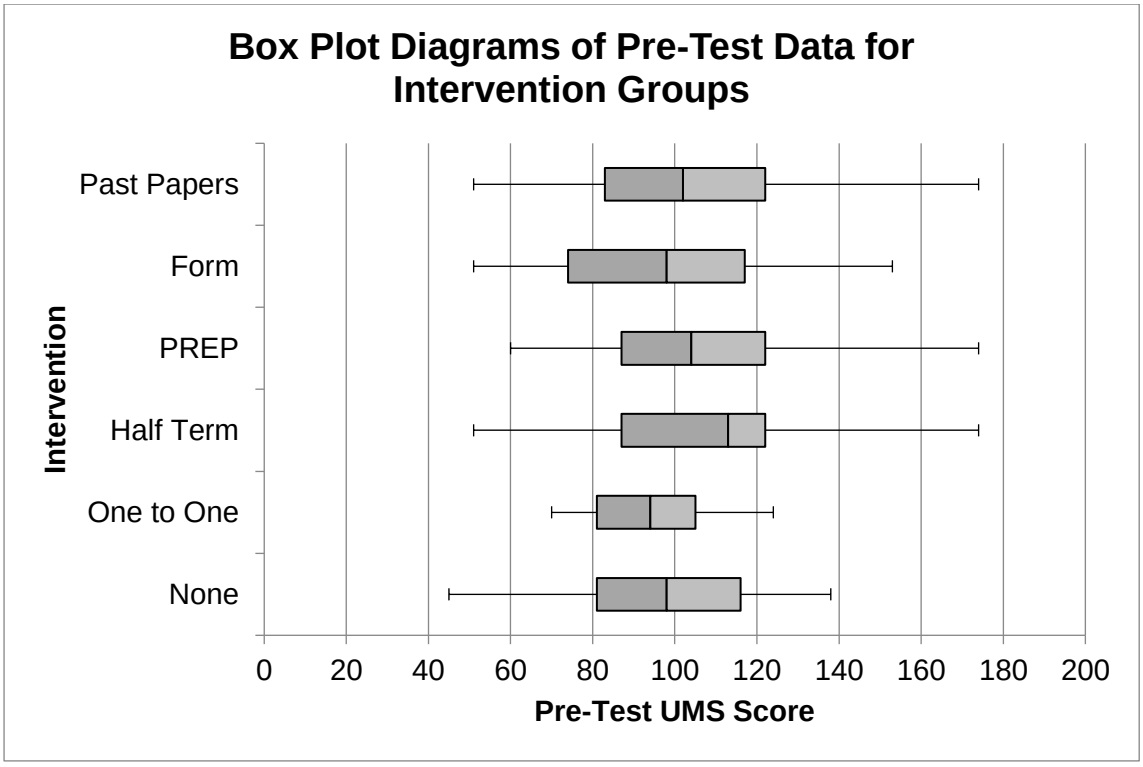

Figure 4. Box plot diagrams of pre-test data for intervention groups.

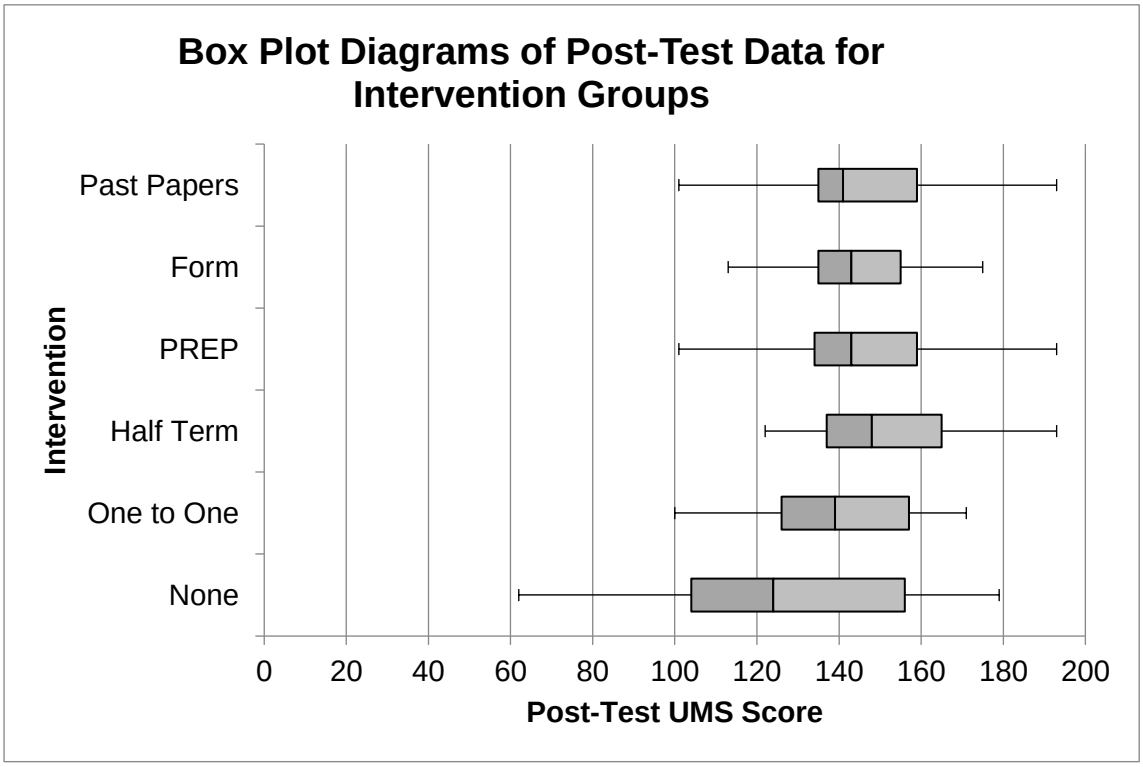

Figure 5. Box plot diagrams of post-test data for intervention groups.

As the most influential factor in determining results is yet to be found, it would be fair to assume that some forms of intervention must be more effective than others. Box plot diagrams of pre and post test scores for pupils in each intervention group clearly show that all pupils made progress from the

beginning of the year whichever intervention they took part in (Figures 4 and 5). The spread of data grew most in the group without intervention which shows that without additional support the gap between low and high achieving pupils will only stretch further (McCormack, 2013). The greatest contraction of extremes was experienced by those in form time support, however the highest score in this group underwent the least change showing that whilst this intervention is the most successful for narrowing gaps in understanding, it is not as effective for raising attainment overall.

The interquartile range grew for the one-to-one tutorial group indicating that it was useful for accelerating the progress of some pupils but not for others. The interquartile range was reduced for pupils attending after school sessions and holiday sessions that would suggest that the majority of pupils were taught to an equal standard during these sessions and so were able to progress together. The highest median score is to be found in the half term holiday group with form time and after school sessions in close second, which indicates that these interventions work best for pupils in the middle range of abilities rather than those at the extremes. All interventions attained higher median and minimum scores than the pupils who did not interact with the programmes and all but one-to-one and form time produced higher maximum scores, proving that all interventions were successful in raising attainment compared to regular teaching. This provides a case for interventions by enabling pupils to make progress over the course of the year and in helping to narrow the gap between pupils' achievement.

Table 2. Results from individual interventions including effect size and average improvement in marks.

Group	Number of Pupils	Effect Size (All Data)	Effect size (Non-Overlapping Data)	Above Target	On Target	Below Target	Average Improvement in Marks
None	12	75%	100%	39%	58%	25%	+25
Form Time	24	95%	33%	17%	42%	42%	+46
One-to-one	22	77%	40%	23%	32%	45%	+42
After School Sessions	33	72%	20%	21%	39%	39%	+42
Holiday Sessions	26	81%	0%	15%	58%	27%	+43
Past Papers	56	73%	16%	16%	45%	39%	+38

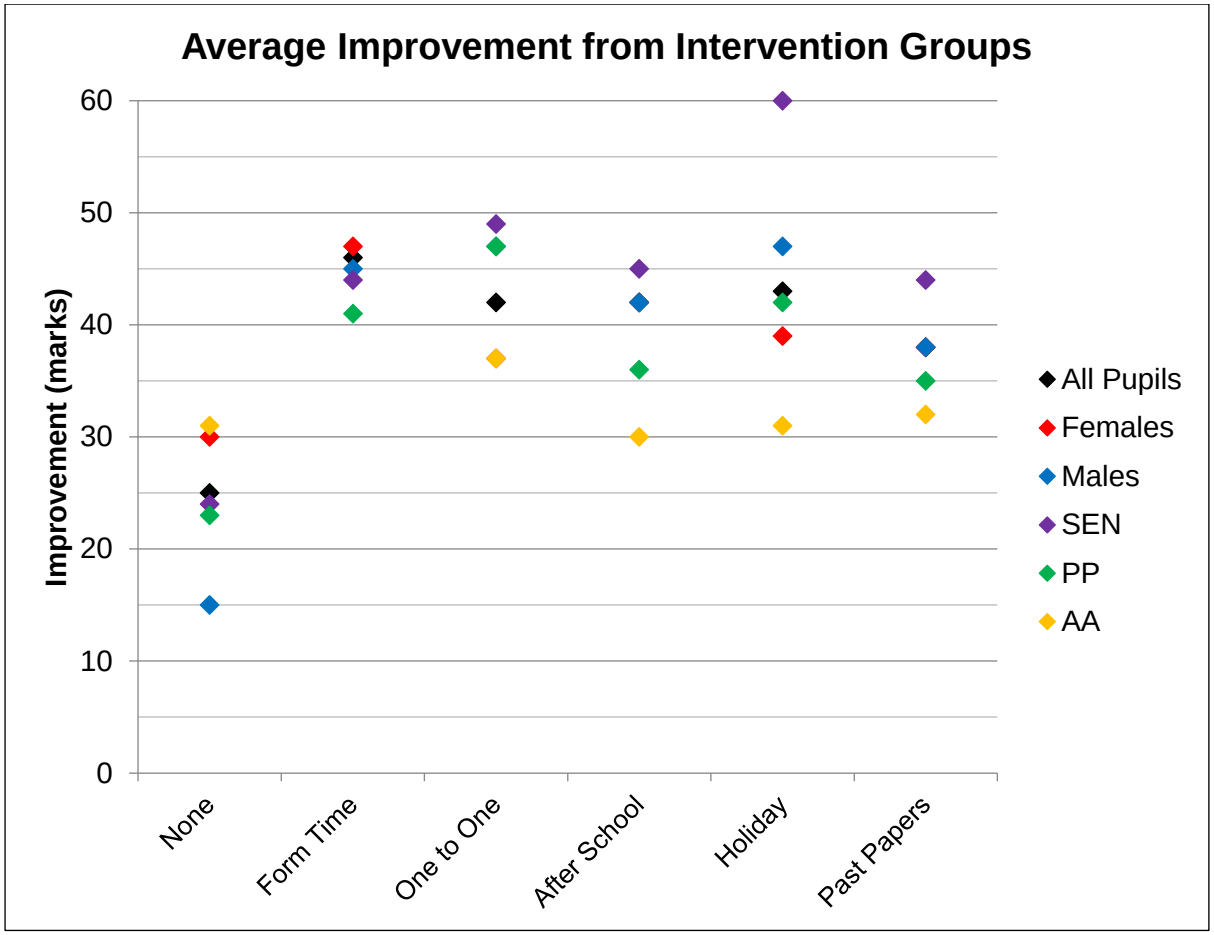

Figure 6. Average improvement of different pupil groups for each type of intervention.

With an effect size of 75%, all pupils who did not take part in school based intervention made good progress without it. And whilst a quarter of pupils in this group underperformed in their final exams, this is the lowest of all the groups, with the highest proportion of pupils ending the course on target (Table 1). However, analysing the average improvement in marks shows that pupils achieved better results at the end of the year following intervention than preceding it. Overall this suggests that intervention does have a positive impact on pupil progress even if this progress is insufficient to make up the difference needed to reach target grades. Perhaps intervention needs to start sooner to make up the gap between targeted and achieved grades (Welsh Government, 2012) or else other practices in teaching need to change to make less need for interventions (Cassidy, 2014). Looking at the average improvement in marks for form time support, this intervention appears to have made the most difference (Table 1) which agrees with the findings of Fuchs et al. (2008). However, C grade students were still underperforming after this intervention and equal numbers of pupils are below target as on it. Although form time achieved the greatest effect size, only a third of this was achieved by non-overlapping data, showing this to be an ineffective intervention overall as it was not able to produce results without input from other programmes.

Whilst pupils engaging in one-to-one tutorials achieved a greater improvement in marks than those pupils without any intervention, there is little benefit from this intervention over form time (Table 1) as found by Higgins et al. (2014) and Hattie (2012). However, SEND pupils seem to gain the most from these sessions (Figure 6). One-to-one tutorials resulted in the highest proportion of pupils above target so far but also represent the highest proportion below target, showing that they are not effective enough at helping pupils make the progress needed to meet their targets. Over three quarters of these pupils attending one-to-one sessions also participated in other interventions, they

are therefore ineffective on their own and should only be used in very specific cases to help pupils who have missed a lot of school, as advised by Ollerton and Watson (2001).

After school sessions caused a similar improvement in marks as form time and one-to-one support (Table 1). After school sessions present a similar profile to that of one-to-one tuition in that SEND pupils seem to gain the most from this support whilst able and ambitious and pupil premium students benefit the least (Figure 6). As eighty-five per cent of this data is overlapping, these could be the same pupils who are failing to be helped by either scheme. However, a greater number of pupils who attended after school sessions were able to attain their target grade than those in the one-to-one group which suggests this is the more successful of the two programmes. Hattie (2012) records an effect size of 40% for after school programmes (the critical threshold for efficacy) which, alongside my findings, suggests that they need to be re-evaluated in order to have more impact.

Holiday sessions have a large proportion of pupils on target, second only to the group of pupils who were not involved in any interventions (Table 1) with the highest improvement experienced by SEND and female pupils. However, male and able and ambitious students do not appear to have been helped by this intervention (Figure 6). This somewhat refutes the verdict of Higgins et al. (2014), that holiday sessions are most successful for pupil premium and able and ambitious students. Holiday sessions do appear to help pupils gain their targets over independent study and Hattie (2012) calculated a benefit from lessons during holidays for overcoming the negative impact of forgetfulness during vacation time. However, eighty-one per cent of these pupils also engaged in other interventions and no benefits can be attributed to non-overlapping data which means the positive improvement must also be credited to other programmes.

Past papers were completed by the largest proportion of pupils in this year group but show the least average improvement in marks compared to all other interventions (Table 1). Almost a third of these pupils were still performing below target by the end of the course. This contradicts the view that regular feedback on homework leads to an improvement in grades stated by Higgins et al. (2014) and Hattie (2012) who recorded an effect size of 70% for regular feedback and 54% for practice tests. Whilst practice papers are viewed positively by many schools, only 16% of the effect size is attributed to non-overlapping data which suggests that whilst the past paper programme is effective for helping pupils to become familiar with exam questions it does not lead to a great improvement in attainment. Therefore, the quality of feedback for these past papers needs to be addressed if this intervention is to become more effective.

Pupils with SEND made the greatest improvement in all interventions except form time support showing that the additional teaching helped raise the achievement of these pupils, as predicted by Ulichnie (2015) and McCormack (2013). At the opposite end of the scale, able and ambitious pupils seem to have made the least improvement across the board which indicates that intervention is not effective at helping them to make the last surge they need to reach the top grades (Figure 6). This verifies concerns that A/A* grade pupils are often overlooked when intervention is aimed predominantly at pupils on the C/D borderline (Ofsted, 2009). Other interventions show a variation in results for each pupil group so form time support seems to have the advantage of being universally successful. Interventions all caused a greater average improvement in marks than the pupils who did not interact with the schemes with form time appearing to be the most effective for all groups of students (Figure 6). This shows that whilst interventions were not always successful at helping pupils achieve their targets (Figures 1 and 3) they did lead to a notable improvement from their starting point (Figures 4 and 5).

Critique

It was of great benefit that a single teacher taught both a higher and a foundation class with a range of targets and educational needs as this allowed for the analysis of a snapshot of the year group as a whole without the additional variable of differing teaching styles. However, the number and type of pupils attending each intervention were out of the control of the researcher as they had to follow the plans of the school. A more accurate format would have been to manage the balance of pupils in each group to minimise the presence of overlapping data (Hartas, 2010).

Whilst this project focused on the maths department, many of the interventions are also used in other departments. Understandably, interventions will have varying effects in different subjects but this evaluation of their efficacy will hopefully inspire senior leaders to appraise what is working throughout the school in accordance with the school's aim for consistency across departments. There are so many lines of enquiry that this project could have taken that it would be worth investigating one in greater detail in future. This would most likely be the effects of intervention on pupil premium students with the aim of closing the gap for these children (DfE, 2016, Macleod et al. 2015). Other areas for future consideration could be the expenditure of time and money on each type of intervention.

Conclusion

The overall findings of this project suggest that GCSE maths interventions do not have a great enough impact on pupil progress to justify the continued expenditure of teacher resources at the current rate of investment. Although average marks were raised by intervention strategies, no single scheme was effective on its own. Too many students are involved in additional interventions when they should be reserved only for specific cases and flexible adaptation of classroom teaching should be sufficient for most (Dowker, 2009). The general trend of this cohort of pupils was to underperform their target grades but this was neither hindered nor supported by the presence of intervention schemes. This pattern was also evident when analysing data from the whole cohort of 185 pupils, regardless of teacher input. This agrees with Ofsted (2009) that despite the plethora of strategies used in schools across the UK, the number of pupils making expected progress has not seen a significant increase. The main advice from the Independent Teacher Review Group (2017) is that teachers and school leaders need to have the confidence to put an end to practices that increase workload with little return. Therefore, it is important that teachers have time to plan the interventions intentionally and evaluate their efficacy (DfE, 2016). Teacher educators should continue to instil the importance of reflection in their students so that it permeates practice in schools and new teachers do not feel obliged to follow prescribed programmes that are ineffective.

The positivistic approach seeks to generalise results to apply them to all schools, however, these findings show that there is no single most effective solution for maths interventions, an opinion shared by Dowker (2009) and Ofsted (2009). What has been established is that the key factor in determining the best support for the pupils is the professional discretion of their teachers (NCETM, 2011). Support needs to be offered on an individual basis and immediately at the time of need, not as a remedial effort at the last minute (Macleod et al., 2015). The benefits of this should be emphasised by teacher educators to their students in order to change the culture in schools. Where intervention is deemed necessary these results show that voluntary schemes, i.e. after school and holiday sessions are the most effective for helping pupils meet or exceed their target grades and show particular improvement in performance for boys, pupil premium and SEND students. One-to-one sessions are the least effective for supporting pupil progress but may be used to help able and ambitious students catch up on lessons they have missed. Form time sessions are most effective overall for closing the gap between a pupil's starting point and target grade. These findings are consistent with those of other larger studies that record the interventions studied here (small groups, tutorials, after school and holiday sessions) as having an average impact of 40%, a critical threshold for questioning their efficacy (Hattie, 2012).

The primary findings for teachers and school policy makers to act on are to regularly assess the efficacy of interventions and to be bold enough to put an end to schemes that are not succeeding, despite external pressures (Independent Teacher Review Group, 2017). Both teachers and pupils need to believe that pupils can succeed on their own, the strongest case for this being that 75% of pupils who were not involved in interventions were able to meet or exceed their target grade without help from school. Therefore, in future, steps should be taken with the aim of fostering independence (Cassidy, 2014). This change of mindset should be embedded within teacher training, changing attitudes towards large scale intervention schemes and stressing the importance of assessment for learning to address misconceptions straight away. This should lead to a lighter, more effective workload and an overall improvement in grades.

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