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Vocabulary Banking

**A strategy for boosting vocabulary
and reading comprehension at KS3**

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About IEE Innovation Evaluation Grants

The first four IEE Innovation Evaluation Grants were awarded in February 2017. Funded by the Institute for Effective Education (IEE), these grants supported pilot evaluations of innovations of teaching and learning approaches based on the Research Schools Network's goal of improving the attainment of pupils by increasing the use of evidence-based practices.

Since then a further 26 projects have been successful in their application for an IEE Innovation Evaluation Grant, bringing the total number to 30. The applications we received included a wide range of interesting, school-led innovations – from after-school film clubs to improve the creative writing of Year 5 pupils, to the use of audio feedback with Year 12 pupils – and we were really impressed with the thought that applicants had put into how these innovations could be evaluated.

The evaluations are small-scale, and test the kinds of innovations that schools are interested in. This is very much a “bottom-up” exercise, allowing schools to get some indicative evidence behind real-world initiatives. Many evaluations are now coming to an end, and we are starting to publish reports on the findings. It is important remember that these are small-scale projects, often carried out in one school, so it is not possible to generalise their findings. In fact, the main benefit of the Innovation Evaluation projects may be in the process, rather than the findings.

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Executive Summary

Description of the innovation

Pupils were provided with A5 booklets called Word Banks in which to collect words that they thought they could reuse in other contexts and subjects across the curriculum. Each banked word secured a point, and pupils were able to secure a bonus point for each word that was successfully reused in another context or subject. Pupils used their word banks in English, history, geography, religious studies, and citizenship. Pupils were asked to underline reused words so that teachers could praise and reinforce the effort.

Summary of the evaluation

The evaluation took place in an urban co- educational Roman Catholic secondary comprehensive for two terms. Participating pupils were in Year 7 and 8 at the start of the innovation and Year 8 and 9 at the end, because the project spanned the summer holiday. Five high prior-attaining sets participated in the evaluation, with three in the intervention and two in the control group.

The Hodder Group Reading test was used as a pre- and post-test to provide a measure of reading comprehension progress. In addition, pupils completed a simple Likert scale survey before and after the innovation to measure attitudinal responses to vocabulary, active reading strategies and word banking.

Summary of findings

On average, the 80 high prior-attaining pupils in the intervention group improved their standardised scores by 7.5 points. In contrast, the 48 control pupils' scores increased by an average of 2.4 points. The overall effect size was +0.56, +0.76 for boys and +0.40 for girls. The 18 pupils who were deemed 'High participation' because they successfully managed to bank and recycle more than 500 words, increased their average score by 13.5 points. The findings suggest that high prior-attaining pupils who successfully develop the self-regulatory impulse to hone in on adjectives and verbs while making evaluative judgements on their transferability make rapid progress in their ability to infer or 'read between the lines' of increasingly challenging texts.

Introduction

The problem

Pupil independent reading is declining just as changes to GCSE assessment have increased literacy rigour in English and humanities subjects, with a premium on extended writing and inferential reading. Although some of the required literacy skills can be effectively taught, vocabulary acquisition – the key component of exam literacy – tends not to be taught systematically and is regarded as an ‘organic’, side-effect of reading. The new examination system is already beginning to expose this and the negative impact on progress is becoming disproportionately apparent for boys and disadvantaged socio-economic groups in particular. Secondary schools need to teach pupils active reading strategies that enable them to derive the largest possible vocabulary gains from the kind of non-fiction reading they are actually doing in school and, ever more frequently, online in their own time.

Review of existing research

Existing research has shown that “Vocabulary words should be those that the learner will find useful in many contexts” (Beck, McKeown & Kucan 2002). Structured active reading strategies have been shown to be very effective: “Once students know what is expected of them...they learn very rapidly” (Kamil 2004).

Active Banking is an offshoot of a humanities research project called Devil's Advocate, which we devised and led as a teaching school from 2012–2014. It was published by the National College for Teaching and Leadership as an exemplar case study (Nelson, Spence-Thomas & Taylor, 2015).

Innovation overview

Pupils in the intervention group were trained by English teachers to concentrate on words which had the most ‘transferable potential’ – typically adjectives and verbs – for two reasons. Firstly, these words harbour implicit subtleties of meaning, which if misunderstood prevent pupils from being able to ‘read between the lines’ or develop an inferential response to nuance, tone or atmosphere. Secondly, even cursory analysis of marked GCSE scripts shows that vocabulary choices in these word classes have more bearing on grade awards than sentence structure and punctuation. The intention was to equip pupils with a self-regulatory impulse to selectively bank useful words which they could use in the near future. Each page of the Word Bank had room for only 20 words. Although each word secured a point, pupils soon realised that the only way to secure the crucial bonus point for each word was to successfully reuse that word in another context or subject in the near future. Over the 18 weeks of the project, pupils built up points

which were monitored by English teachers each fortnight. Overall, leaders and 'highest climbers' were also celebrated in English lessons on a regular basis.

Research questions

What impact will the use of a Vocabulary Banking approach in all English and humanities lessons for eight months have on the reading comprehension of Year 7 and 8 pupils with above-average KS2 reading outcomes compared with normal teaching practice?

Within this broader evaluation we hoped to also answer the following questions:

1. Will training pupils to hone in on specific word classes (ie. adjectives and verbs) help them to infer implicit meaning more effectively?
2. Can the strategy be used effectively to shore up the reading comprehension of high prior-attaining disadvantaged pupils who tend to fall behind their high prior attaining non-disadvantaged peers at KS3?
3. Can strategies like this make vocabulary a tangible reward for reading?
4. Can the incentivising and competitive aspects of the strategy close the gender literacy gap that tends to open up at KS3?

Method

Description of the school and pupils

Bishop Challoner is a larger-than-average voluntary aided, urban Roman Catholic secondary school situated in Birmingham. 30% of pupils are eligible for pupil premium and that is a consistent proportion for each cohort. Pupils have slightly higher than average KS2 attainment on entry. Pupils are set on entry with performance in KS2 reading SAT used as the key defining performance indicator. Pupils are organised into seven sets per year group. The intervention group was a top set class and a fourth set class in Year 7 and a top set class in Year 8. The control group was a top set class in Year 7 and a fourth set class in Year 8. In terms of prior attainment, on average their Key Stage 2 reading raw scores were in line. In total, the project compared the fortunes of 128 pupils – 80 received the intervention and 48 formed the control group. The gender mix was 65 female and 63 male. Nineteen of the 128 pupils were eligible for pupil premium funding. Those numbers are proportionally replicated within both the intervention and the control group. In terms of ability, when the pupils sat their baseline tests in May 2017 the mean standardised score for the intervention group was 109.68 whereas for the control group it was 110.7. (On the test 100 represents an age-adjusted, national average.) So all pupils involved in the project were moderately high prior attaining relative to national norms, which reflects the nature of our intake and the timetable blocking of our highest academically attaining sets.

Although it was originally envisaged that the project would take in the full attainment range, timetable-blocking restraints necessitated that all pupils (treatment and control) involved in the project had to be taken from the highest attaining band covering the top four sets in each year group. In any case, in our Teaching School Alliance, high prior-attaining pupil achievement and preventing literacy 'slippage' had been set as a priority so there was keen interest in the project. Of particular interest to our alliance was the project's focus on the progress of high prior-attaining disadvantaged pupils because of their tendency to fall behind their non-disadvantaged peers at Key Stage 3. It had also been hoped to run the project simultaneously across two very different comprehensive schools but this was not practicable.

Description of the innovation

Pupils in the three randomly assigned intervention groups were provided with A5 booklets called Word Banks in which to collect words that they thought they could recycle in other contexts and subjects across the curriculum. Pupils were trained by English teachers to concentrate on words which had the most 'transferable potential', typically adjectives and verbs. English teachers **used quick-fire multiple choice quiz questioning strategies** to train pupils to identify these keyword classes with greater ease and dexterity. However, identification of 'candidate' adjectives and verbs was only the starting point. The cover of the Word Banks emphasised 'The Goldilocks Formula' – the decision-making process pupils needed to engage in to select the best words to be included in their Word Banks:

1. Too easy – (known it since primary school)

3. Too difficult – (I couldn't transfer that word for use in another context)
2. Just right – (probably a word you already know. You could confidently use it in another context soon, but perhaps not every pupil in this class could)

The intention was to equip pupils with a self-regulatory impulse to consciously bank undervalued **'just right'** words which they could easily recognise in spoken and written contexts but tended not to use in their own work. Each page of the Word Bank had room for only twenty words. Although each word secured a point, pupils soon realised that the only way to secure the crucial bonus point for each word was to successfully reuse that word in another context or subject within a fortnight. Pupils who chose words with limited transferable value could earn little more than 20 points per page. An effective selector and recycler could earn 40 points. Selection of appropriate transferable words was the key. Over the 18 weeks of the project pupils built up points which were monitored by English teachers each fortnight. Overall leaders and 'highest climbers' were regularly celebrated in English lessons. Over the 18 teaching weeks of the project, pupils would use Word Banks in the following subjects: English, history, geography, religious studies, and citizenship. For the intervention teaching groups, teachers of those subjects would simply remind pupils to add to their Word Banks when reading new texts and take words to reuse from the Word Bank when completing written work. Pupils were asked to underline recycled words so that teachers could praise and reinforce their effort. English and humanities subjects make up 40% of the curriculum and overall the innovation ran for the summer and autumn terms.

Length, duration, and additional expectations

The project began after initial training for English and humanities teachers attached to the three randomly-assigned intervention groups and baseline testing. It ran for the closing eight weeks of the summer term and the initial ten weeks of the autumn term. A brief booster session was given in September when new timetables meant that English and humanities teachers who picked up the three intervention groups required training. For the three intervention teaching groups, the innovation was to become an embedded daily routine. English teachers explained the expectations for the Word Banks and how running totals for each pupil would be aggregated each fortnight. Learning walks undertaken by staff ensured that intervention pupils were trained to have Word Banks on their desks in each English/humanities lesson. The senior vice-principal would pointedly praise pupils who were successfully banking points and humanities teachers would celebrate pupils' written work when words re-emerged in their subjects. Every fortnight English teachers would update scoreboards and celebrate leading points tallies and 'highest climbers' and the senior vice-principal would plan learning walks to recognise the achievement of individual pupils. Pupils' parents would receive praise texts to acknowledge their achievement. Care was taken to ensure that praise was only given within teaching groups so that control group pupils were not affected. So, for example, year-group assemblies could not be used to celebrate the ongoing achievement of intervention group pupils.

Training, ongoing support and educational resources

Staff whose timetables brought them into contact with the three intervention groups received training and 'seed' Powerpoint resources. English teachers were key to generating momentum for the project and primed intervention pupils in identifying the word classes (eg. noun, adjective, verb, adverb) of vocabulary and the administrative support of maintaining a running total for each pupil.

Humanities teachers were trained to use regular activities called 'screengrabs' where pupils were given 45 seconds to read a Powerpoint slide and then justify the selection of two appropriate words that would have transferable value. Regular learning walks ensured a uniformity of delivery and regular group emails to staff attached to intervention pupils clarified and reinforced expectations.

Control group

The control groups were not issued with Word Banks or alerted to any aspect of the methodology. They continued to experience the standard whole-school literacy policy.

Outcome measures

The Hodder Group Reading Test (3A&B) is a measure of reading comprehension at word, sentence and text levels. Items assess pupils' understanding of word meanings, culturally neutral sentence-completion questions and higher-level tasks that require pupils to both comprehend and reflect upon the content and the context of continuous text. The test provides reading ages and age adjusted standardised scores derived from word recognition.

The test was administered by English teachers within timetabled lessons but under strict exam conditions. All 128 pupils sat the 3A 'baselining' version of the test in May 2017 and then the 3B Impact version of the test in January 2018. The external teacher who marked the tests was unaware of the identity of the pupils and whether they were in the intervention or control group. The appointed marker followed the prescriptive mark scheme published by Hodder, which leaves no room for ambiguity or misinterpretation. Each paper is marked out of 50. The score equates to a reading age given in years and months. Of more value is the standardised score which is generated by cross referencing the score out of 50 with the age of the pupil at the time of the test's completion. Standardised scores incorporate an adjustment for differences in test performance which are attributable to differences in chronological age. Thus a pupil who earns a standardised score of 100 can be considered average in relation to other pupils of the same age in years and months. Standardised scores are on a normative scale so that for example a pupil who scores 100 initially and then 102 after the interim period of – in this case – eight months can be said to have made progress in real terms relative to national norms after the time that has elapsed between the two test points has been taken into account.

Process evaluation through pupil and staff voice surveys

The senior teacher in charge of the project oversaw the learning walks and ensured a uniformity of experience for intervention pupils. Intervention teachers were keen to contribute to the smooth running of the project. For example convenient strategies for aggregating point scores, starter booster activities and praising high performers all contributed to the success of the project. One key finding of the staff survey, for example, was that if the project was to convert into a whole-school literacy strategy the key resources – the Word Bank – should be incorporated into the pupil planner. This would make it convenient, easy to use, and address the biggest barrier that faced our low participation pupils, who repeatedly mislaid their Word Banks. A significant improvement to the process came from the pupils themselves. The most motivated pupils complained that there weren't always enough opportunities to recycle stored vocabulary in other subjects because of the range of required written outcomes. In response, pupils were invited to use their netbooks to write 'The Neverending Story', a loose open-ended narrative that would serve as an ongoing vehicle in which to recycle their new-found vocabulary and so secure all-important bonus points. The stories were regularly updated on the school's virtual learning environment (VLE) and English teachers provided feedback and recognition. High participation (HP) pupils who went on to secure more than 700 points and achieve very significant increases in their standardised scores attributed their success to this facility during the focus group interviews in February 2018. In general, the Likert surveys tracked changes in pupil agreement to the following seven statements:

Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	1	2	3	4	5
1. I feel that I have a good vocabulary compared to other pupils in my class.					
2. In written work, I tend to avoid using ambitious words if I am unsure of the spelling.					
3. The words in my exercise book probably don't reflect how strong my vocabulary really is.					
4. When reading, being more aware of word classes like adjectives and verbs helps me to understand texts.					
5. When writing, being more aware of word classes like adjectives and verbs helps me to use better vocabulary.					

6. Banking 'good' words that I should get a chance to use again soon is a good way to build vocabulary.					
7. Sometimes when talking to friends I deliberately edit or 'dumb down' my vocabulary because I don't want to appear 'stuck up'.					

Fluctuations in attitudinal responses from pupils and 'groups' of pupil made for fascinating reading, especially when cross-referenced with eventual outcomes. After the results had been processed the senior teacher in charge of the project conducted small 'focus group' discussions with a sample of pupils who fell into one of the following three categories:

- (i) *High participation (HP) pupils whose scores had gone up very significantly;*
- (ii) *Disadvantaged pupils in the intervention group; and*
- (iii) *Low participation (LP) pupils whose participation had been fitful, sporadic and rather reluctant.*

Outcomes: Data analysis methods

The progress of the 128 pupils involved in the project was tracked using an Excel spreadsheet which recorded their gender, pupil premium status, initial 3A test standardised score, and then 3B test standardised score eight months later. The difference between the standardised scores was recorded as a positive or negative differential.

In addition, each pupil received one of the following designations C, HP, MP, LP.

C indicated they were in the control group. HP, MP and LP stood for high participation, medium participation and low participation respectively and denoted the aggregated running scores accrued by the end of the project. These thresholds were established in September, at the project's interim half-way point when staffing and timetable changes necessitated a 'handover' relaunch. The participation designation was set as follows: HP pupils were deemed to have surpassed pre-agreed expected levels of engagement; MP pupils to have met pre-agreed expected levels of engagement. LP pupils were deemed not to have met pre-agreed levels of engagement.

	Points tally in September 2018	No. of intervention pupils (80)
High	400-650	18
Medium	150-399	50
Low	0-149	12

The spreadsheet could therefore be used to measure the performance of subgroups of pupils, generating an average numerical value for the differences in standardised scores.

Cost analysis

Evaluation costs

As might be expected the largest expenses incurred related to the evaluation costs inherent in a research project of this kind.

Cover costs for staff training	£600
Cover costs for booster staff training (September 2017)	£600
Reprographic costs	£300
Senior staff learning walks/development time	£1250
HGRT assessment materials.	£900
External marker fees	£750
Ongoing clerical, admin support	£ 600
Total	£4100

Intervention costs

In contrast the costs incurred by the operational and maintenance of the project itself were very slight and comparable to those schools might expect to incur when launching a whole-school literacy project. Only costs (b) and (d) from the table above would be likely to escalate if scaled up from sample to whole school size. As ever, literacy cross-curricular projects of this kind are really resourced by the invaluable qualities of teacher drive, enthusiasm and creativity which are difficult to quantify financially. We intend to run vocabulary banking as next year's whole-school literacy project and have estimated the per-pupil cost at £2.50 for the purposes of the school budget.

Results

Outcome findings

There were 128 pupils in the sample. 48 were in the control group. 80 were intervention group participants from three teaching groups.

	No of pupils	Initial 3A average	Retested 3B average	Difference	Effect size
All	128	110	115.45	+5.45	+0.56
Intervention	80	109.68	117.31	+7.6	
Control	48	110.7	112.35	+1.65	

Gender comparisons between treatment and control groups had the following results:

	No of pupils	Effect size
Girls	65	+0.40
Boys	63	+0.76

On average, pupils made progress in reading comprehension in real terms (+5.45) which perhaps isn't surprising given that all of these pupils are drawn from the highest attaining band in our cohorts. Even the pupils in this sample with the lowest prior attainment are moderately able and most could be characterised as well-motivated. Only four pupils secured less than 100 (national average) in the baseline tests.

Pupils who were in the vocabulary banking intervention group scored on average 7.6 points higher on the standardised test score after taking part in the innovation. Even more tellingly, though, when the intervention group is broken down into three subgroups denoting their levels of engagement with the project an even stronger pattern emerges.

	Points tally for whole intervention	No of intervention pupils (80)	Average difference
High (HP)	500-1000	18	+13.5
Medium (MP)	150-499	50	+7.3
Low (LP)	0-149	12	-0.6

Mean average shifts in standardised scores by gender are particularly interesting.

	No of pupils	Treatment	Control
Male	63	8.07	1.4
Female	65	7.0	3.39

Only 19 pupils in the sample were in receipt of pupil premium. This number is too small to allow a meaningful analysis of the impact of the intervention on disadvantaged pupils.

Process evaluation findings

Cross-referencing these quantitative findings with the Likert-scale survey and results from focus groups was particularly illuminating. Among the 18 HP pupils who progressed by an average of 13.5 points on their standardised scores and the 50 MP pupils who progressed by an average of 7.0 points there was strong agreement with the following statements:

4. *When reading, being more aware of word classes like adjectives and verbs helps me to understand texts.*
5. *When writing, being more aware of word classes like adjectives and verbs helps me to use better vocabulary.*
6. *Banking 'good' words that I should get a chance to use again soon is a good way to build vocabulary.*

The focus group discussion was also revealing. HP and MP boys particularly liked the competitive nature of the project and the games that were used by English teachers to test that their understanding of the words was secure. Pupils singled out the 'screengrab' techniques as effective motivation. As one Year 9 male pupil, who went on to score 750 Word Bank points, explained "It helps you see the reward for your reading". A Year 9 girl who made very strong gains in reading age and standardised score explained, focusing on word classes in her parents' tabloid newspaper made her realise how little of 'the news' was fact and how much was based on loaded and opinionated adjectives. 'The Goldilocks Formula' was generally positively received because, as one MP pupil noted, "It helps you grow your vocabulary at your own pace." A particularly motivated Year 8 pupil who eventually secured 1000 Word Bank points and increased her reading age by 18 months attributed her success to 'The Neverending Story' that she routinely updated to recycle her most recently banked words. Her submissions on the VLE spanned the entire length of the project. 'At the end, when you read it back, you could see the words improving from paragraph to paragraph.'

Only 12 of the 80 intervention pupils were deemed to be LP. They secured less than 150 Word Bank points over two terms. The key reasons for their inability or reluctance to engage tended to overlap: erratic attendance, homework evasion, organisational difficulties, and poor motivation. Their survey responses and focus group feedback were particularly illuminating. Although there were only 12 pupils in this category (9 boys, 3 girls) they were more likely to agree with the following statements:

2. *In written work, I tend to avoid using ambitious words if I am unsure of the spelling.*
7. *Sometimes when talking to friends I deliberately edit or 'dumb down' my vocabulary because I don't want to appear 'stuck up'.*

Repeatedly losing Word Banks was a major bugbear for this group of pupils. Throughout the project intervention staff had circulated strategies to try to better engage them. Tellingly, in the focus group, when asked what teachers could have done to help them score more points one Year 8 boy replied: "If you give me the choice to do something or not to do it, why would I do it?"

Discussion/Conclusion

The outcomes are very encouraging. In a climate where reading for pleasure seems to be on the wane, schools need to find ways of maximising the nutritional value of the sort of reading pupils are actually doing. We feel vocabulary banking is a practical solution that has had a positive impact. The correlation between participation levels and outcomes appears to be strong and implies that this strategy has distinct merit. The effect size of +0.76 for boys is particularly encouraging and chimes with the focus group responses of boys who liked the competitive, point-scoring aspect of the project. When high prior-attaining pupils are trained to develop the self-regulatory impulse to 'store' useful adjectives and verbs, by making evaluative judgements about their transferability, their reading comprehension develops very rapidly. Staff and pupil voice chimes with the quantitative results. For the next academic year we intend commit to vocabulary banking as a whole-school literacy policy supported by training for staff and pupils because we have shown that the strategy boosts outcomes for the following groups of pupils:

1. Pupils with high prior reading-attainment
2. High prior attaining girls
3. High prior attaining boys

Limitations

The fact that timetable blocking restrictions made it impossible to extend the focus of the sample to teaching groups with lower prior attainment was frustrating. So far we have only established the strategy's viability for high prior-attaining, well-motivated pupils. The fact that the project's sample size was also smaller than originally intended reduces generalisability to other contexts and prior attainment groups. The small sample of pupil premium pupils makes it difficult to reach a meaningful judgement on the efficacy of the strategy for this key group of pupils. Even so, this finding is of interest in a city where the performance of high prior attaining male pupils has been flagged as a concern.

Implications for further evaluation

Many of our partner schools in our Teaching School Alliance (TSA) across the city have expressed an interest in the project because they face similar literacy challenges in the light of changes to the examination system. We will attempt to secure funding for a larger version of the project that evaluates impact across all prior attainment groups, with a larger sample of pupil premium pupils and possibly with older pupils in a broader range of educational contexts. A future version of the project will also attempt to quantify progress made in vocabulary choices in written work.

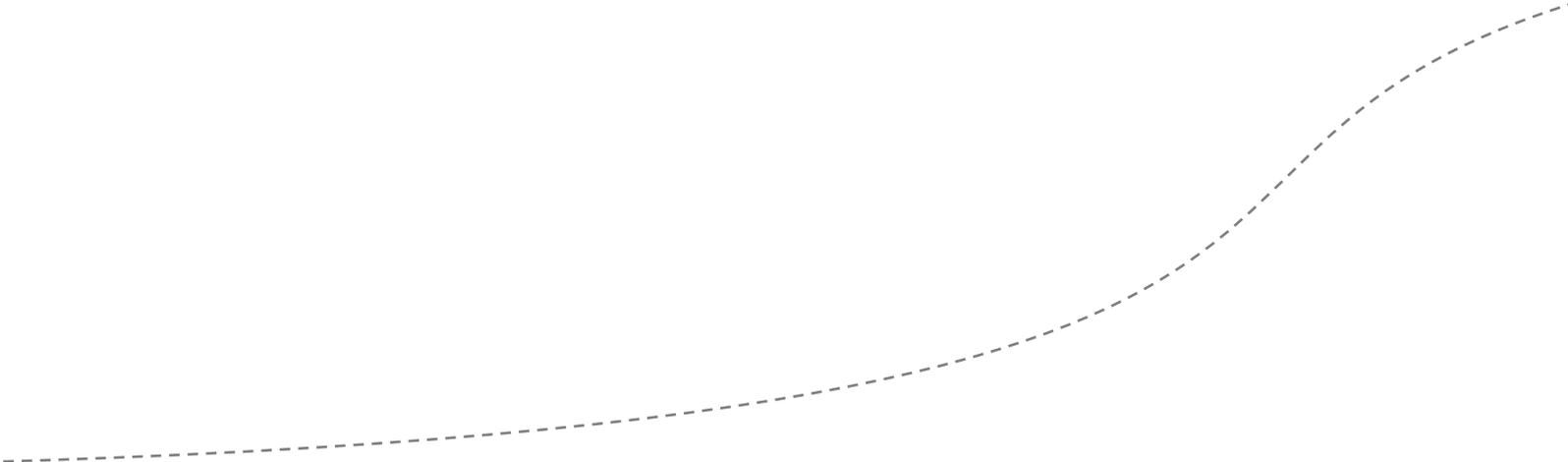
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