



Final Report

Evaluation of Greater Manchester Higher

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1 Background to the report

1.1 Greater Manchester Higher (GMHigher)

Greater Manchester Higher is a collaborative network of 17 universities and further education colleges. Its purpose is deliver a high-quality programme of impartial information, advice and guidance to young people in Years 9-13, across electoral wards in the Greater Manchester region that report lower than expected progression to higher education. Funded by the Office for Students (OfS) as part of the UniConnect programme, the partnership is coordinating, running and funding practitioners across the region's colleges and universities to deliver a set of core outreach activities such as campus visits, summer schools, 1-2-1 guidance, subject-specific workshops and mentoring. In addition to common core activities, regional hubs are encouraged to provide targeted interventions to tackle local gaps and needs for their respective target schools.

In its second phase of funding under UniConnect, GMHigher is expanding its initial focus on outreach activities to also on create more collaborative elements with local communities, such as raising awareness of available outreach activities among local teachers; increasing support for schools and colleges to access their available outreach activities; and the establishment and promotion of an online platform to highlight and support local collaborative activities.

Since its launch (under the AimHigher network) in 2011, the partnership has expanded gradually and is now seeking to commission an evaluation to understand the evidence underlying its core and local outreach activities and isolate the impact it has had on regional Higher Education participation since its launch almost ten years ago.

1.2 Project scope

The 2018 evaluation into UniConnect identified revealed complex, intersectional challenges requiring a multi-faced approach for the regional partnerships¹. These findings require an in-depth review of studies of similar outreach activities to establish whether the activities (and their individual elements) are working as intended. However, the complexity of working with many institutions, following different operational mechanisms, further amplify the complexity of building a robust and comparable evidence base. Resources that individual partner

¹ For example: Tazzyman et al. (2018). National Collaborative Outreach Programme. Year one report of the national formative and impact evaluation, including capacity building with NCOP Consortia. [Online]. Available at: http://shura.shu.ac.uk/19105/1/2018_ncopyear1.pdf

organisations can allocate to building and testing robust evidence on the effectiveness and impact of their programmes has been promising but evaluation methods providing, where possible, robust comparable evidence of impact have largely been missing from current research into UniConnect's network activities. GMHigher has commissioned the Evidence Development and Incubation Team (EDIT) in April 2020 to conduct research to strengthen the evidence base of its local provision across Greater Manchester.

In this capacity, EDIT conducted two strands of research, which are outlined below.

► **Evidence Synthesis**

This strand consisted of an exhaustive literature review into the current evidence base supporting activities delivered by GMHigher and its local providers. Within this strand, the following research questions were of particular importance:

- What evidence is there to support the delivery of campus visits, in-school IAG workshops, subject-specific activity, 1-2-1 guidance, mentoring and summer schools as part of a strategic approach to widening participation?
- What impact does research suggests can be attributed to such activities, and what features/content are most likely to demonstrate such impacts?
- What are the benefits to institutions of collaboratively gathering evaluation and impact evidence of outreach?
- Is there any evidence that students engaged in HE outreach activity have a better continuation rates once in HE than those from similar backgrounds who have not been engaged?

► **Historic Data Analysis**

This strand will investigate public and organisational dataset to answer the following evaluation objectives:

- Looking at historical data, what is the picture of participation in Higher Education across Greater Manchester?
- How does this compare to the National picture over that time and, where possible, a group of matched comparator schools across the UK?

This report provides the findings from both strands of research along with recommendations GMHigher can take to review their current activities in regard to their underlying evidence base as well as to inform their future provision in the light of progression trends within their areas.

1.3 The Evidence Development and Incubation Team (EDIT)

EDIT is a team within the Policy Institute at King's College London. It draws on the expertise of economists, public policy specialists and experienced higher education evaluators to deliver evaluation activities falling into three categories:

- Supporting organisations, professionals and communities to build their evaluation capacity and expertise, to raise the base level of evidence produced in organisations
- Supporting early stage interventions to develop an understanding of implementation, feasibility, and fitness for scale of their programme, with a view to providing concrete recommendations, for example in the form of behavioural science or design thinking, to maximise the likelihood of future success.
- The intervention being evaluated, or the environment in which it is to be implemented, is complex, and hence requires a higher degree of expertise and co-development of evaluation.

We also have partnerships with organisations and experts within and beyond King's, including members of the What Works movement, and are working with Nottingham Trent University and the Behavioural Insights Team to establish the Centre for Transforming Access and Student Outcomes in Higher Education (TASO). This ensures we have access to the methodological and subject experts needed to deliver successful evaluations in a range of contexts.

2 Literature Review of evidence base in WP outreach provision

2.1 Introduction

To identify and summarise key publications relating to the widening participation (WP) activities conducted within the Greater Manchester Higher UniConnect partnership we conducted a review of relevant literature including peer-reviewed academic journal articles, policy reports, chapters in relevant WP-focused books, briefs and general “grey” literature produced by non-academic experts, such as WP delivery staff and/or third sector organisations active within the UK WP sphere. To make effective use of the available time we used a rapid evidence review methodology. This approach gave our work some of the structure and formality of full systematic review, whilst also enabling the review to inform the subsequent quantitative analysis of historic data.

The evidence review had the following objectives:

- to synthesise existing literature on the type of outreach activities coordinated and/or conducted by GMH in terms of widening participation and promoting informed decision-making in higher education.
- to identify strength of evidence, evidence types and impact of these collaborative outreach interventions according to the criteria applied to the Office for Students (OfS)².
- to understand the overall effectiveness of GMH's portfolio of outreach activities, and which elements make the most difference to key success measures for recipients.

² For more information on the promoted types and standards of evidence, please visit: <https://www.officeforstudents.org.uk/advice-and-guidance/promoting-equal-opportunities/evaluation/standards-of-evidence-and-evaluation-self-assessment-tool/>

For our conclusions and recommendations to be of most use and applicability for the programme team, our analysis looked at the literature through the lenses of these additional questions:

- How is this literature relevant to the context of programme delivery within Greater Manchester?
- How do these findings translate to the findings from the quantitative analysis of historical data conducted as part of the other strand of the research?

2.2 Scope of the literature and inclusion/exclusion criteria

This literature review looks at outreach activities aimed at widening participation in higher education for students from disadvantaged or underrepresented groups as targeted by the Greater Manchester Higher team. These criteria include students eligible for free school meals, those from disadvantaged postcodes (using proxies such as IDACI, POLAR and ACORN³), carers and care-experienced students as well as first generation learners and intersectional groups matching multiple of the above criteria of disadvantage.

Mapping the targeted year groups of GMHigher, the review covers interventions taking place with school pupils in Years 9 – 13 and considers a range of widening participation outcomes that align with the core activities of the Greater Manchester Higher programme portfolio, which includes Information Advice and Guidance (IAG) sessions, 1-2-1 guidance on higher education, subject-specific taster days, mentoring activities, summer schools, parental engagement, and professional development activities via conference and workshops for teachers⁴.

We therefore included a range of widening participation outcomes that align to GMH's Regional Progression Framework, such as increased awareness and attainment; better understanding of processes of applying to higher education, the financial support available to support young

³ These are all commonly used indicators of disadvantage within the UK education sector. Acorn is a UK wide sociodemographic classification providing information on different types of people according to where they live. It encompasses social components, population and consumer behaviour divided into 6 categories and 18 groups. The POLAR (participation of local areas) classification is formed by ranking 2001 Census Area Statistics (CAS) wards by their young participation rates for the combined 2005 to 2009 cohorts. This gives five quintile groups of areas ordered from '1' (those wards with the lowest participation) to '5' (those wards with the highest participation), each representing 20 per cent of UK young cohort. Lastly, the IDACE (Income deprivation affecting children) Indices provide a relative national ranking according to small area geography (Lower Super Output Areas - LSOAs) levels of deprivation. The LSOA ranked 1 is the most deprived and that ranked 32,844 (for England) is the least deprived.

⁴ For more information, please visit: <https://GMH.ac.uk/events-and-activities/>

people in their transition experience progression to higher education and high-tariff institutions. We looked at both peer-reviewed literature and “grey” literature published in English and kept the main focus on UK interventions with particular relevance to the delivery of GMH (either because of similarities in programme delivery, target groups or outcome measures). International studies are included if the evidence was considered particularly robust and/or of particular relevance to the context of the GMH partnership.

After discussion with the GMH team, it was agreed to include quantitative, qualitative and mixed-methods evidence, with a particular focus on well-designed impact studies. Each study was classified according to three distinct types of impact evaluation: narrative, empirical enquiry and causality. This enhances further applicability as these types align to the sector types of evidence promoted by the Office for Students⁵. It was also classified according to whether the methodology was quantitative, qualitative or mixed-methods and according to the target population.

These inclusion and exclusion criteria were established before the search process and were developed to focus on the characteristics of interest in terms of population, interventions, outcomes, study design and timeframe⁶.

2.3 Data collection and analysis

The literature search was conducted using Google Scholar and Google search. We relied on both of these search functions as it not only enables us to cover peer-reviewed academic outputs (via Google Scholar) but also to simply search in the ‘regular’ Google search box and identify relevant evidence that may not have gone through peer-review but that provides useful “grey” evidence compiled by non-academic experts such as WP staff and third sector organisation within the UK educational sector. Major student finance reforms were implemented in September 2012, we focussed on studies published after that date and excluded those before 2012, to ensure relevance to the current context.

The collection and compilation of search results consisted of a three-stage process. First, a search and filtering process was discussed and agreed with the GMH programme team to identify the most relevant literature for this review within the scope described in the previous

⁵ For more information please visit: <https://www.officeforstudents.org.uk/publications/standards-of-evidence-and-evaluating-impact-of-outreach/>

⁶ Please refer to the Scoping Document for further details on the inclusion and exclusion criteria and defined scope of the literature review.

section. Given the quantity of literature, we performed this search by title only. We initially performed three broad searches which returned many results. Then, we implemented a more restricted search aimed at identifying robust evidence according to the OfS typology applied. We also searched for specific programs, such as government-funded projects (by OfS or its predecessors HEFCE and OFFA), that had been implemented in the UK. In doing so, we relaxed the timeframe constraint to include all relevant results. This first stage returned 4,902 sources.

Second, we reviewed the abstracts of the arising results. Search results that did not particularly target the types of outreach activities the GMH partnership is conducting or studies where a particular focus on increased participation of disadvantaged groups was not specifically mentioned were excluded. This left us with 197 sources to analyse. We then used snowballing and reverse snowballing techniques through those works to identify further results. This left us with a total of 233 sources.

Finally, we applied the inclusion and exclusion criteria set out previously to identify those studies to be included in the literature review. A database, in the form of an Excel Spreadsheet, was developed to summarise each source in terms of the intervention implemented to widen participation, the population targeted, and the outcomes considered. Ultimately, the analysis in this report is based on a total of 100 final sources.

2.4 Analysis of the research

After the sources were selected, they were categorised according to: the year of publication; type of evidence (narrative; empirical evidence; causality); provenance (peer-reviewed article; non peer-reviewed article; book/chapter; report); methodology (primarily quantitative; primarily qualitative; mixed methods); target education phase (e.g. pre-16 and post 16 learners, mature learners); outcome; type of intervention (e.g. Information, Advice & Guidance); target population (e.g. POLAR quintile 1 students) and strength of evidence (weak evidence; developing evidence; best evidence).

This information was used to create an Excel database where the search results of our literature review were stored and coded. The arising matrix allows an easy identification of arising evidence patterns and gaps across the selected sources in terms of type of research, methodology used and research findings, as well as to identify potential evidence gaps.

The 100 sources analysed varied considerably in regard to the methodology used. Overall, 55 of the analysed studies had a quantitative focus, 21 were qualitative and 24 were mixed-methods studies. The search results were then broadly split between the three types of evidence-

narrative, empirical enquiry and causality - with 25 narrative studies, 47 empirical enquiries and 28 causal studies.

Table 1: Studies by methodology and evidence type

Evidence type	Methodology			Total
	Primarily quantitative	Primarily qualitative	Mixed-methods	
Narrative	3	19	3	25
Empirical enquiry	24	2	21	47
Causality	28			28
Total	55	21	24	100

Note: Literature reviews are included in this table. They are classified as “narrative”, while their methodology refers to that of the studies they summarise.

2.5 Findings

The below interim findings are categorised by the type of interventions that the GM Higher partnership is promoting and/or facilitating. These include black-box interventions; financial aid and IAG on finance and budgeting; positive role models and guidance on higher education; information, advice and guidance; summer schools; subject-specific campus visits and taster days; and others.

► Black box interventions

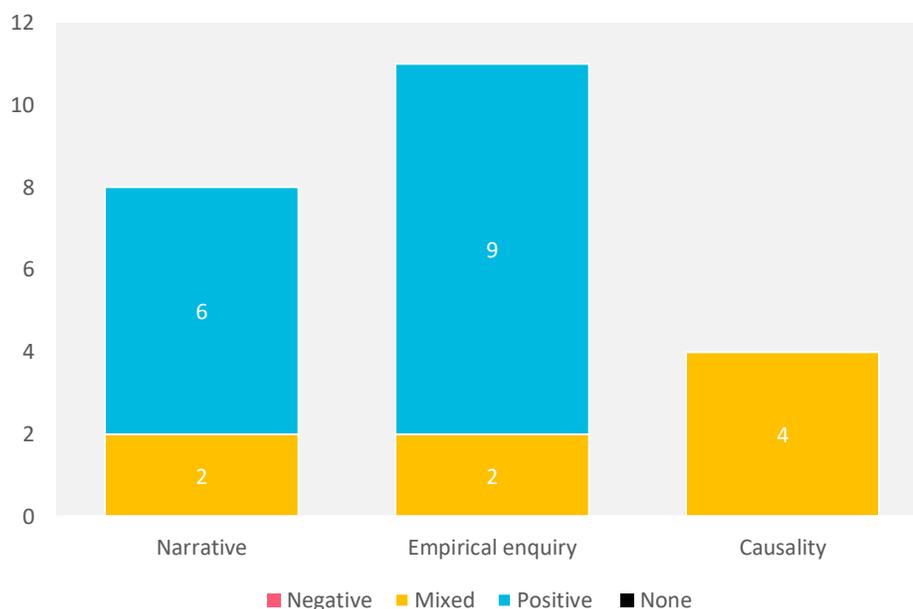
The majority of the programmes included in our search results and promoted by GMH can be described as ‘black box’ interventions - that is, interventions that combine multiple components of outreach types. Black box interventions are of particular interest in the GMH context as the team’s programme delivery acknowledge the complexity of disadvantage in the region and outreach activities therefore rarely focus on a single approach to raising participation. These programmes typically span extended periods of time with the most common components for GMH being information, advice and guidance sessions. Short-term campus visits and longer summer schools are also frequently included. The black box interventions included in this review were all made up of several components and complex in their delivery (and sometimes delivering consortium); it is therefore not possible to infer from these studies which elements of the programmes may have been instrumental in causing any identified effects.

The target population vary substantially, from students eligible for free school meals (FSM), to care leavers, carers, first generation students, mature learners, and some intersectional groups (such as white working-class boys). While several types of evaluations and strength of evidence are considered, very few studies are able to uncover the causal impact of the interventions they evaluate.

Table 2: Black box interventions: evidence type and strength of evidence

Strength	Evidence type			Total
	Narrative	Empirical enquiry	Causality	
Best evidence	4	5	1	10
Developing evidence	5	11	3	19
Weak evidence	5	1	1	7
Total	14	17	5	36

Figure 1: Black box interventions: impact by evidence type



► **Financial aid and guidance on financial support and budgeting**

Financial aid and guidance on available financial support and money management is widely used as a tool to promote higher education participation and dismantle misconceptions around

financial support and costs of university among students from disadvantaged groups. GMH runs several information sessions on budgets, perceived costs and informed financial decision-making. Interventions aimed at lowering the cost of attending university (either through bursaries, grants or scholarships) or the perceived misconceptions of costs (via IAG sessions and budgeting advice) are especially widespread in the US and UK, where the financial burden can be perceived as insurmountable for certain target groups.

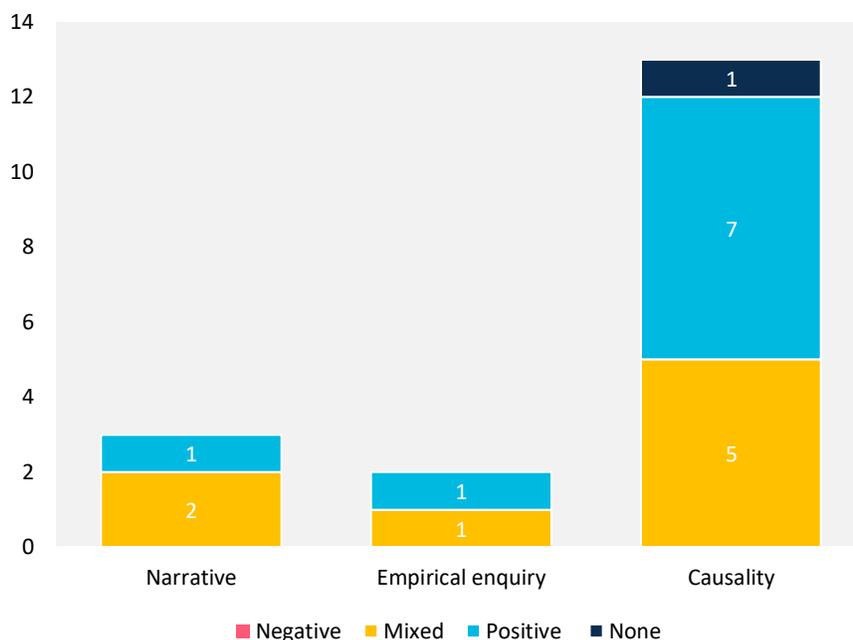
The studies analysed for this section are rigorous, causal evaluations that find positive, albeit in some cases small, effects of financial aid on enrolment. In addition, the most impactful studies have shown that financial support is most successful when it is paired with IAG sessions. Facilitating beneficiaries to understand what and how to apply for financial aid. Studies who focused on efforts made to raise awareness amongst potential beneficiaries are promising.

The majority of analysed search results was international, with a focus of studies from the US and Australia, but also included one UK-based study. Nevertheless, how findings from these studies can translate to the Greater Manchester context needs to be considered with caveats. On the one hand, the process for applying for financial aid in the United States, and in many other countries, is more complicated. On the other hand, the UK system is becoming increasingly complex, as each higher education institution has its own rules for the allocation of bursaries and scholarship, and the level of support available can vary greatly between institutions. Therefore, interventions aimed at supporting students and families to navigate the financial aid landscape and how to budget once at university, such as the budgeting skills workshop promoted within schools, may have a positive impact.

Table 3: Financial aid: evidence type and strength of evidence

Strength	Evidence type			Total
	Narrative	Empirical enquiry	Causality	
Best evidence	3		9	12
Developing evidence		2	3	5
Weak evidence			1	1
Total	3	2	13	18

Figure 2: Financial aid: impact by evidence type



► **Positive role models and mentoring**

The GMH partnership is aware that barriers to university progression among under-represented groups is not just a question of attainment but can also relate to a misaligned perception how young people from these backgrounds may fit into a campus environment and their corresponding confidence in being able to navigate an academic system that none of their immediate peers or family may be familiar with. Unbiased guidance on higher education options, often delivered via positive (peer) role models are thought to be a valuable way to raise aspirations to attend higher education, foster a sense of belonging and support students in dealing with the barriers specific to their disadvantage.

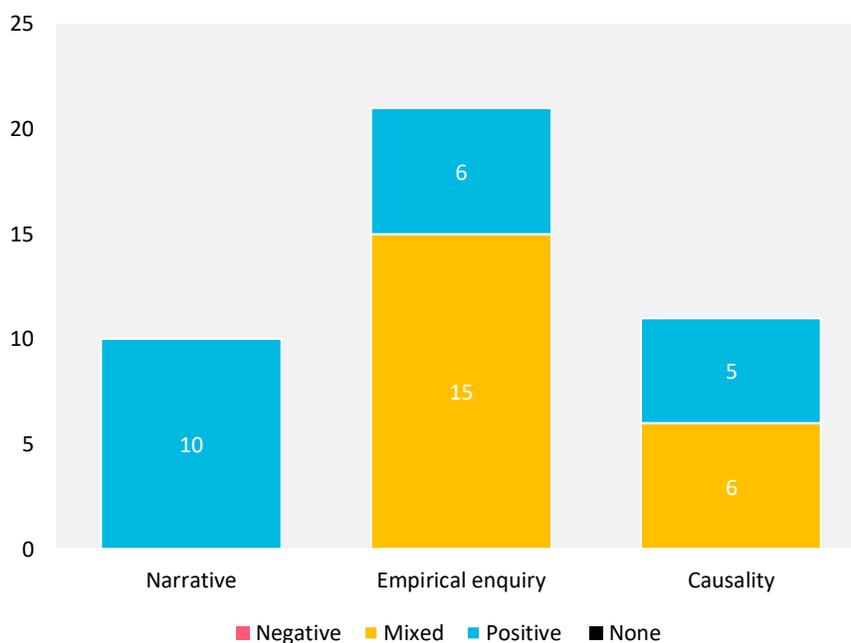
The majority of search results within this category broadly indicated a positive impact on the targeted outcome measures. Qualitative evidence in this section suggests that positive role models and guidance on higher education pathways, such as GMH’s GoFurther project or the array of projects co-delivered with Brightside, result in an increase in students’ confidence to succeed in higher education and a better understanding of the world of university. Quantitative studies within this section also indicate that participants report higher aspirations and application rates to selective institutions. However, causal evidence of the effectiveness of these interventions is very limited.

The majority of the literature analysed were UK-focused, however, the few causal studies included for selections are studies conducted within a US context. Nevertheless, the context seems of relevance for the GMHigher context and found that the interventions considered had positive effects on aspirations, confidence and enrolment rates of students. Almost all the interventions analysed were targeted at socio-economically disadvantaged students.

Table 4: Mentoring, counselling and role models: evidence type and strength of evidence

Strength	Evidence type			Total
	Narrative	Empirical enquiry	Causality	
Best evidence	5	5	4	14
Developing evidence	7	14	5	26
Weak evidence	6	2	1	9
Total	18	21	10	49

Figure 3: Mentoring, counselling and role models: impact by evidence type



► **Information, advice and guidance**

In the context of this evidence synthesis, ‘information, advice and guidance’ is used as an umbrella term that refers to a wide range of activities and interventions that help students to make informed decisions about their future. Within the context of GMH’s delivery portfolio this includes, both, IAG in partner schools and/or on-campus of partner universities. Given the intersectional nature of disadvantage, IAG session may also include elements of other outreach types mentioned in this report, such as black box interventions and/or mentoring. However, while such interventions are intended to increase aspiration and awareness and provided on a one-to-one basis, IAG interventions usually aim at filling a specific information gap. Since disadvantaged students might have a less clear understanding of the opportunity costs arising when choosing to go or not go to higher education, a growing body of research have focused on overcoming this information barrier by implementing low-cost IAG interventions.

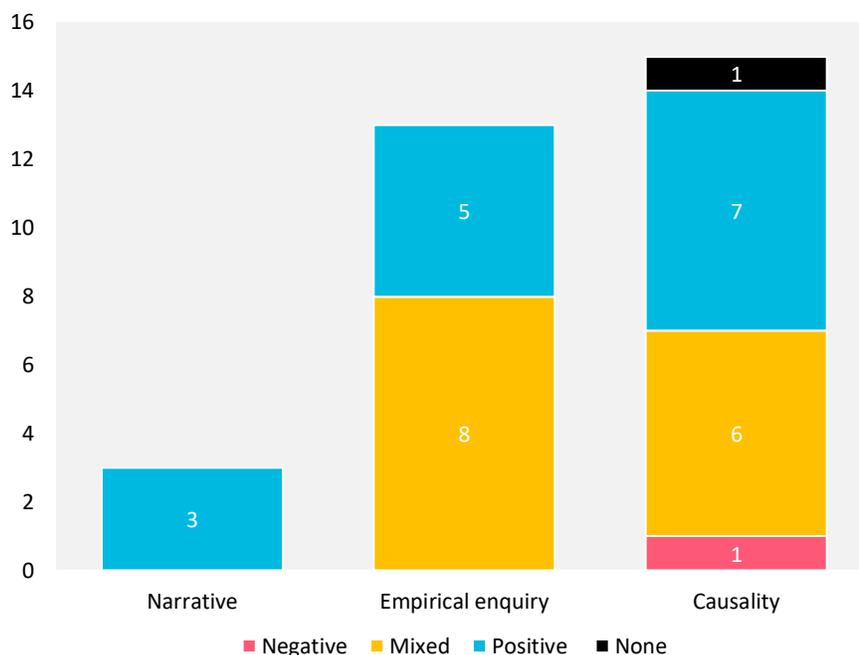
Much of the literature derives from US-based randomised controlled trials, where information on costs and benefits of higher education, application process and financial aid is provided to a randomly selected group of students. Results are mixed. The evidence analysed show that simply providing information is not enough, and that light-touch interventions, such as those based on booklets or websites, have often limited effect.

The most successful IAG interventions for underrepresented groups appear to be those that are tailored to the students (such as GMH’s 1-2-1 SACU work), interventions that start early and are integrated into other forms of support. The majority of the studies analysed relate to interventions implemented in the UK and are targeted at socio-economically disadvantaged students.

Table 5: Information, advice and guidance: evidence type and strength of evidence

Strength	Evidence type			Total
	Narrative	Empirical enquiry	Causality	
Best evidence	4	3	6	13
Developing evidence	3	10	8	21
Weak evidence	4	1	1	6
Total	11	14	15	40

Figure 4: Information, advice and guidance: impact by evidence type



► **Summer schools**

Summer schools are a popular and commonly used activity for widening participation in UK higher education. Within the GMH portfolio, Uni:4U aims to demystify universities and to provide participants with the knowledge and insight to submit informed, successful applications to higher education institutions via UCAS. Summer schools, within our sample of evidence, are usually targeted to young people from underrepresented group, who are given the chance to meet academic staff and students, attend university-style lectures, take part in workshops and projects, and experience university life. However, research into the causal effect of summer schools on progression to higher education is limited.

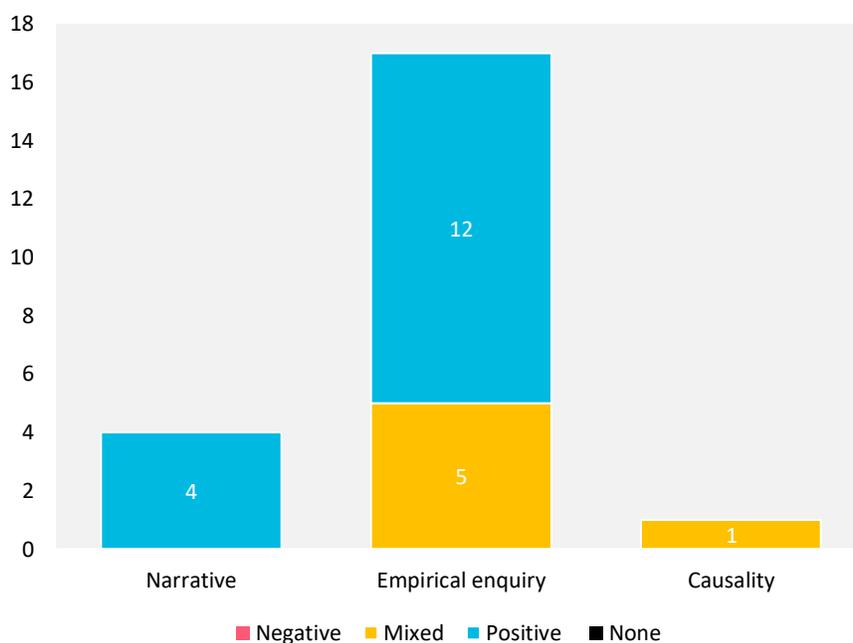
The evidence, as outlined in the table below, indicated that attendance of summer schools is positively correlated with an increase in sense of belonging and confidence among participants, however, effects on actual application to and enrolment at university is mixed. Some studies, focusing on more selective universities (such as the UK Russel Group) also show that summer schools can play an important role in progression to more selective institutions. However, none of the selected studies moved beyond correlations to estimate the causal effect of attending a summer school on aspirations or participation outcomes.

The interventions included and analysed in this section were mostly UK-based and targeted at a wide range of underrepresented groups, including low-income students, disabled students, student from area-based disadvantages, carers and care leavers.

Table 6: Summer schools: evidence type and strength of evidence

Strength	Evidence type			Total
	Narrative	Empirical enquiry	Causality	
Best evidence	2	3		5
Developing evidence	3	14	1	18
Weak evidence	2	2		4
Total	7	19	1	27

Figure 5: Summer schools: impact by evidence type



2.6 Conclusions

The extensive literature review highlighted that the evidence-base of outreach activities delivered by the GMHigher network varies in depth and rigour. However, several areas of promising and established research findings are worth highlighting.

Firstly, the review highlighted that barriers to university progression among under-represented groups is not just a question of attainment but also of misaligned perception. Positive role models and guidance on pathways, such as GMH's GoFurther project or the array of projects co-delivered with Brightside, have shown to result in an increase in students' confidence to succeed in higher education and a better understanding of the world of university.

Secondly multi-partner activities, which rely on the collaboration of several delivery partners have been highlighted throughout the review as useful mechanisms to strengthen relations between stakeholders across the educational lifecycle. Multi-partner collaborations seem to facilitate data linkage for longitudinal tracking and monitoring purposes whilst also upskilling staff as informal CPD opportunities. The most successful interventions in this category represented groups appear to be those that are tailored to the pupils (such as GMH's 1-2-1 SACU work), interventions that start early and are integrated into other forms of support.

In general, the review found that there are few causal studies investigating the efficacy of outreach in the UK. Further research is needed into what activities do not just increase attitudes (e.g. feeling confident about HE) among target groups but actually influence behaviours (e.g. attending HE). The second part of this final report will therefore apply secondary quantitative analysis to investigate potential impacts of schools' engagement with GMHigher on historical progression rates between the academic years ending in 2011/2012 to 2017/2018.

3 Historical Data Analysis

3.1 Research objectives

As outlined in the above sections, many of the initiatives that form part of the GMHigher outreach package are supported by the best available evidence. However, due to the complex nature of evaluating social mobility, the available evidence is oftentimes only correlational and doesn't take account of the Greater Manchester context. The objective of the quantitative analysis is therefore to develop a more granular, longitudinal understanding of the trends of higher education participation across Greater Manchester. To answer the research objectives outlined in the original bid, the quantitative analysis will be structure into two strands.

(i) Matched comparator analysis

This strand will collate several years of public progression data in order to identify and analyse the progression trends for schools engaged with GMHigher in comparison to a well-matched set of comparator school that did not engage with the network. By compiling public datasets, such as the Department for Education's School Performance Data⁷, this strand will aim to investigate a causal link between changes in local progression trends across the Greater Manchester region and schools' subsequent engagement with the programme.

(ii) Benchmarking regional and national data

In addition to the predictive data model above, the second strand of the analysis will use publicly available data sources on local authority's progression trends to identify long-term patterns of progression within Greater Manchester. By compiling public datasets, such as the Department for Education's Key Stage Destination Data⁸, this strand will aim to investigate regions that may over- or under-perform in comparison to the regional average; and to predict future progression trends in order to inform realistic operational targets for the GMHigher network up to 2025.

3.2 Description of the Data

The following section will describe the relevant data sources that have been used to inform the two evaluation strands. Apart from internal activity data provided by GMHigher, all data

⁷ For further information please visit: <https://www.compare-school-performance.service.gov.uk>

⁸ For further information, please visit: <https://www.gov.uk/government/collections/statistics-destinations>

sources are publicly available, and the below sections are meant to provide transparent steps and details on how to easily replicate the analysis once future iterations of the same public data sets become available. The code, which was used for the analysis is part of the final deliverable, and was written in the analytical package R, which is available for download free of charge⁹.

► Data sources and final dataset

To compile a relevant dataset that include all schools within the Greater Manchester Area as well as school-level characteristics and educational attainment factors, a number of national datasets have to be combined. The data sources in table 7 below are therefore cleaned and merged to form the final data set containing all relevant factors and outcome measures of interest.

Table 7: Description of public and organisational data sets and sources and their respective years of coverage.

Used in analysis	Data Provider	Data Source	Year
Strand I	Department for Education (public)	School Performance Data	2013/14 to 2017/18 ¹⁰
Strand II	Department for Education (public)	Key Stage Destinations Data	2011/12 – 2017/8
Strand I	Ofsted (public)	Ofsted Ratings	2016 ¹¹
Strand I + II	GMHigher (organisational)	School-level activity	2016/17-2018/19

Outcome data on higher education progression can be sourced from the Department for Education’s School Performance Data. This annual dataset provides consistent school-level data on institutional progression rates to higher education as well as contextual data on a variety of school-level factors that are generally predictive of entering HE (see the confounding variables section for further details on these factors). To control for quality of teaching across the sample, this also includes the latest Ofsted rating of schools in the analysis via the relevant Ofsted Report as of 31st March 2016¹². Ofsted ratings have their limitations, but nonetheless serve as a

⁹ For further information on the R software package and a link to download the software can be found here:

<https://www.r-project.org/about.html>

¹⁰ The data provided by the DfE labels academic year data according to the school year a student leaves Key Stage 5. This means that the schools year 2013/14 to 2016/17 translate to the academic years of entry to university in 2014/15 – 2017/18, respectively.

¹¹ This is to enable us to match on Ofsted Rating as at the beginning of GMHigher.

¹² For further information and download of the raw data for each year, please visit:

<https://www.gov.uk/government/statistics/maintained-schools-and-academies-inspections-and-outcomes-as-at-31-march-2017>

reliable proxy for our purposes. The third dataset is an organisational compilation of activity data collected across the GMHigher network over the academic years 2016/17 – 2018/19. The dataset includes school-level engagement with the variety of activities that GMHigher offers to their network.

► **Outcome and confounding variables**

The outcome measure for this analysis is determined as the proportion of Key Stage (KS) 5 students who progress into higher education. As per the DfE's dataset, this variable shows the number of pupils going to or remaining in an education and/or employment in the academic year after completing KS 5 studies. Pupils who have completed Level-3 qualifications¹³ and have consequently spent six consecutive weeks in higher education are counted within this variable.

To standardise the variable across different cohort sizes in schools, this needs to be recoded into percentage to reflect the proportion of the eligible KS 5 cohort that progressed into higher education in each year.

To capture factors that are known to have an impact on higher education entry¹⁴, it also includes the proportion of pupils in receipt of free school meals (FSM) as an indicator for the proportion of disadvantaged students within schools in the sample. FSM eligibility is often used as a proxy for financial hardship and, as outlined in the previous evidence review, has been shown to have significant impacts on the educational attainment and thus HE aspiration and progression rate^{15 16}. For the purpose of this analysis, the disadvantaged student variable is used as a continuous variable indicating the proportion of pupils receiving FSM support within each school in the sample.

All proxy measures for, both, outcome and confounding are also outlined in more detail in Table 8 overleaf.

¹³ For further information on Level 3 qualification types please visit: <https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels>

¹⁴ For a discussion of how such factors influence the likelihood of an individual entering HE see, for example, Crawford, C., & Greaves, E. (2015). Socio-economic, ethnic and gender differences in HE participation.

¹⁵ Chowdry, Haroon, Crawford C., Dearden, L. Goodman, A. and Vignoles, A. (2013). "Widening Participation in Higher Education: Analysis Using Linked Administrative Data." *Journal of the Royal Statistical Society: Series a (Statistics in Society)* 176 (2): 431–457

¹⁶ St Clair, R., Kintrea, K., & Houston, M. (2011). *The influence of parents, places and poverty on educational attitudes and aspirations*. York: Joseph Rowntree Foundation. Available at: <https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/young-people-education-attitudes-full.pdf>

Table 8: Description of used variable, their coding for the analysis and respective data source they were taken from.

Variable	Coding	Source
Proportion of students progressing to HE	Continuous	DfE
Proportion of students eligible for FSM	Continuous	DfE
Ofsted Rating	Categorical	Ofsted
LAESTAB for all providers with sixth forms	Discrete	DfE
Engagement with GMHigher	Binary	GMHigher

3.3 Matched Comparator Analysis

Following the compilation and cleaning of the datasets, the data can now be linked to establish a more robust claim on the potential impact of schools’ engagement with GMHigher by identifying non-engaged schools that are similar in characteristics to those involved in the project. In order to do this, a matched difference-in-difference (DiD) will be applied.

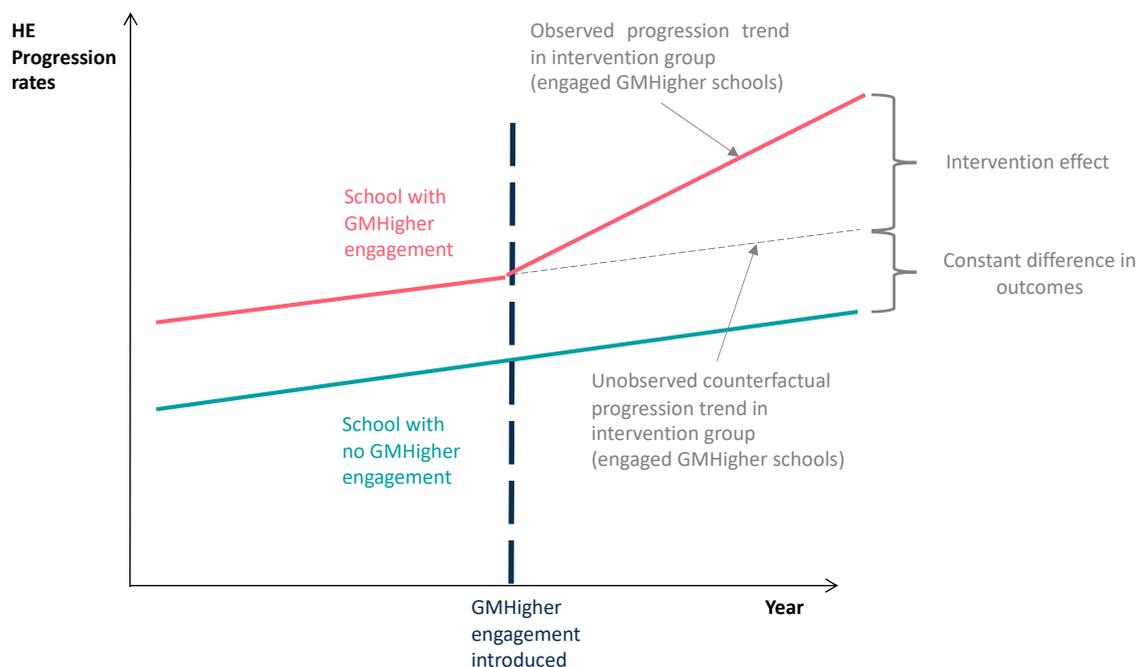
A DiD is a quasi-experimental methodology, which means that individuals are not actually randomised into control and treatment group but, instead, the DiD aims to develop a non-random comparator group whose outcomes can be reasonably expected to parallel those of the treatment group if they hadn’t been treated.

To do this, the DiD requires two groups of individuals - those who have been exposed to an intervention (the ‘treatment group’) and those who have not (the ‘comparator group’). To take into account existing differences between the groups, the DiD uses historic data to map out the trends in the two groups (see the ‘constant difference in outcome’ in Figure 6 below).

Rather than simply measuring the difference in outcomes between the two groups post-intervention, we are interested in the additional difference on top of the pre-existing difference in outcomes (see ‘intervention effect’ in Figure 6 overleaf). As randomisation of outreach interventions within UK WP practice is oftentimes not possible due to a variety of complex

reasons, quasi-experimental methodologies are an EEF- recommended approach to evaluate complex, whole school interventions¹⁷.

Figure 6: Visualisation of the DiD design¹⁸



► Identifying treatment schools

To identify a unique list of schools that engaged with GMHigher, we’ve used an internal activity dataset provided by GMHigher, based on HEAT¹⁹ output data. This was merged with public data sources to link the school identifier in the internal data to the unique Local Authority Establishment Number (LAESTAB) in the public datasets. Using the LAESTAB as a unique school identifier across all sources allowed for linkage between the institutional data held by GMHigher and publicly held data on schools’ characteristics (as outlined in more detail in

¹⁷ Anders, J., Brown, C., Ehren, M., Greany, T. Nelson, R., Heal, J., Groot B., Sanders, M., & Allen, R. (2017). Evaluation of Complex Whole-School Interventions: Methodological and Practical Considerations. Education Endowment Foundation. Available at: https://educationendowmentfoundation.org.uk/public/files/Grantee_guide_and_EEF_policies/Evaluation/Setting_up_an_Evaluation/EEF_CWSI_RESOURCE_FINAL_25.10.17.pdf. Pg. 22-29.

¹⁸ Adapted from and for further information on DiD, please visit: <https://www.publichealth.columbia.edu/research/population-health-methods/difference-difference-estimation>

¹⁹ The Higher Education Access Tracker, known as HEAT, is a shared, central, online repository and reporting tool that has been developed collaboratively with universities to provide a web-based data-capture system that tracks student engagement in widening participation outreach activities delivered by each university.

Section 3.2). The data was then cleaned for duplicate LAESTABs and excluded schools who had no KS 5 provision or where the number going to HE was low enough that it was suppressed for confidentiality. This process identified a final set of 44 schools that had engaged with GMHigher via at least one outreach activity from 2016 – 2018.

► Identifying comparator schools

We used nearest neighbour matching to identify the comparison group. Nearest neighbour matching is more tolerant than exact matching (in which cases are only matched if they are the identical on all characteristics used in the match), and hence yields a greater number of potential matches, and minimises the likelihood that a treated school cannot be matched in the comparison group. It is more demanding than propensity score matching, which collapses the match into a single dimension but can lead to non-sensible comparators.

For each school that had engaged with GMHigher, Mahalanobis distances²⁰ were used to identify schools (either within or outside Greater Manchester) that had not engaged with any GMHigher provision but that were most similar to the schools engaged with GMHigher, across the following variables:

- Proportion of pupils known to be eligible for free school meals in 2015/16 (i.e. pre-treatment, with the mean proportion imputed where this was missing);
- The average A-Level attainment at the school in 2015/16 (with the mean proportion imputed where this was missing);
- The school's recent Ofsted rating (as of 31st March 2016) with a separate code for missing – exact matches were required for this variable;
- Establishment Type – exact matches were required for this variable; and
- Total pupil headcount in the school.

We did not match on past progression rates or past progression trends as this can introduce bias to the analysis where there is strong autocorrelation within units, as there are with HE progression rates for schools across years²¹.

We used one-to-one matching with replacement, meaning that the same school could be identified as a good comparator for multiple treatment schools.

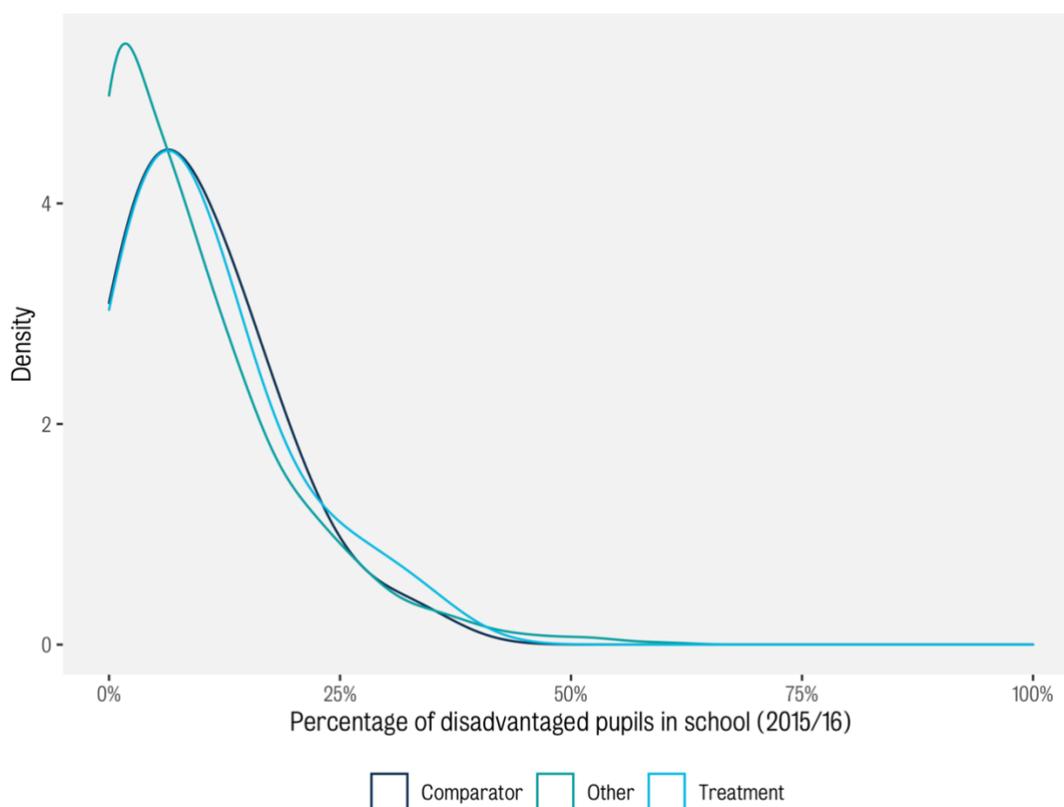
²⁰ Mahalanobis distance is a method of quantifying the distance between two points, across multiple dimensions, which takes account of the point's placement relative to the centre of the distribution.

²¹ Daw, Jamie & Hatfield, Laura. (2018). Matching and Regression to the Mean in Difference-in-Differences Analysis. Health Services Research. 53. 10.1111/1475-6773.12993.

► **Quality of the match**

This matching procedure generated a comparator group of 42 schools. Two comparator schools were matched to multiple treatment schools, so there are slightly more treatment cases (44 schools) than comparator cases (42 schools). Treated and matched units showed good balance on all covariates. **Error! Reference source not found.** below plots the distribution of percentage of pupils known to be eligible for free school meals across GM Higher schools, matched comparator schools, and all other schools. This indicates that the matching has delivered a substantially more similar comparator group on this key measure than the non-matched schools ('Other' in Figure 7 below). The match also delivered balance between treatment and comparator schools on all other measures included.

Figure 7: Comparison of distribution of percentage of disadvantaged pupils in the school, by GM Higher, matched comparator, and all other schools



► **Assumptions required when using matching for causal inference**

The crucial underpinning assumption for the DiD's estimation of the potential effect on progression rates for our treatment vs comparator group is the **parallel trends assumption**.

This assumes that the treatment schools, without receiving the intervention, would have instead followed the same path in progression trends as the identified group of comparator schools. The DiD therefore enable us to rule out influences that are affecting the trends of both treatment and comparator schools similarly. Of course, due to the lack of a counterfactual, this assumption is inherently unobservable: We have no data to know how the progression rate in treatment schools would have changed over the years had they not had the GMHigher engagement, or whether there was some other factor that influenced treatment schools' outcomes but not those of comparator schools.

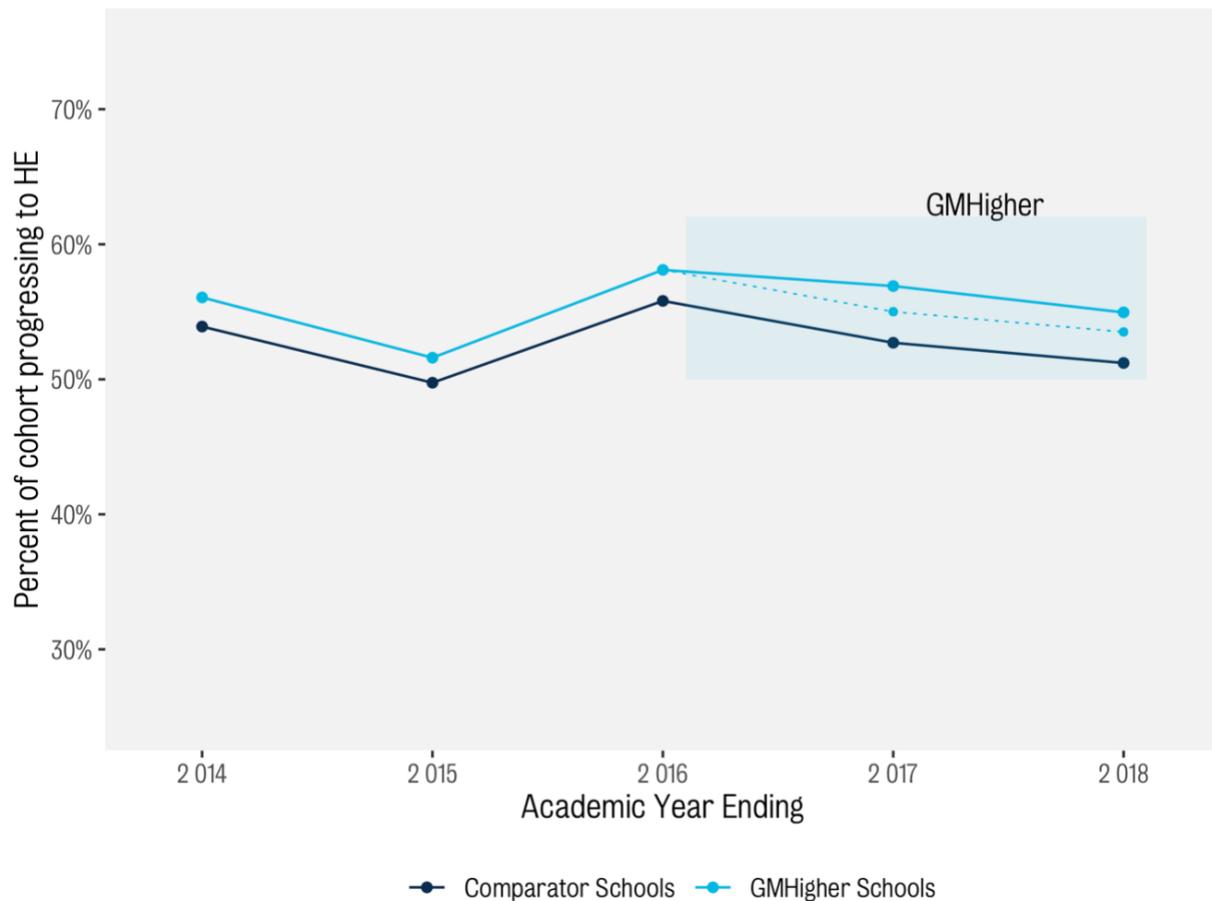
The closest we can get to testing this assumption is testing whether it holds in pre-treatment periods: if the treatment and comparator schools have similar trends before the intervention is introduced, that strengthens the case that they would have had similar trends in the post-intervention period. Therefore, we significance-tested both the average progression rates for 2013/14, 2014/15 and 2015/16, and the trends across these years and find no significant difference between treatment and comparator. This is encouraging for the validity of our assumption that the matched comparator provides a valid counterfactual for the trend in GM Higher schools in the absence of treatment, but as noted earlier, this assumption is inherently unverifiable.

► **Analysis of impact of GMHigher on engaged schools**

Figure 8 **Error! Reference source not found.**overleaf provides a graphical representation of the time trends in GM Higher schools vs. the matched comparator. As can be seen, although GM Higher schools have a higher progression rate in the pre-treatment period, the trends year-on-year are almost identical from 2013/14 to 2015/16, satisfying our check for parallel trends pre-treatment periods.

The dotted line represents what we would expect the trend to be in GM Higher schools from 2015/16 to 2016/17, if the trend in these schools had continued to track with the comparator schools. Instead, we can see that despite an overall decline in progression between 2015/16 and 2016/17, the decline in GM Higher schools was less than the comparator schools.

Figure 8: Progression rates of comparator schools vs progression rates of treatment schools



To check this trend for significance, we analysed the outcomes using a panel regression with pooled standard errors indexed to school and year, as the data takes the form of a time-series of cross-sectional samples of Year 13 finishers.

In this specification, the coefficient of interest is the interaction term between the variable indicating that a school is treated (*Treatment*) and the variable indicating that the treatment has started (*Time*) (this is noted as β_3 in the equation below, where *s* varies at the school level and *t* varies by year).

$$Y_{st} = \beta_1 Treatment_s + \beta_2 Time_t + \beta_3 (Treatment_s * Time_t) + \beta_{4:n} Covariates_s + Error_{st}$$

This coefficient tells us whether the trend of the treatment group changes significantly compared to the comparator in the time period(s) after the treatment has started – in other words, it tests whether the gap between the solid blue line and the dotted blue line **Error!**

Reference source not found. is statistically significant. We conduct this analysis with the covariates outlined in the previous section, and present the findings in Table 9 below.

Table 9: Results of difference-in-differences analysis

Coefficient	Estimate
(Intercept)	0.63(0.03)***
Treatment (School involved with GMHigher)	0.02 (0.03)*
Time (Year is post-2015/16)	-0.01 (0.02)
Treatment Effect (Treatment x Time)	0.02 (0.03)
School size	0.00(0.00)
Proportion of students known to be eligible for FSM	-0.01 (0.00)***
Establishment Type	<i>Included</i>
Ofsted Rating	<i>Included</i>
R^2	0.33
Adj. R^2	0.30
<i>Number of observations (Number of schools x number of time periods)</i>	440

Consistent with **Error! Reference source not found.**, the regression shows schools involved with GM Higher to have an overall significantly higher (2 percentage points, $p < 0.01$) rate of progression to HE than the comparator schools, suggesting that there are differences between the two groups, and a straight comparison of progression rates is likely to be biased by unobservable differences in approaches between the schools.

The coefficient on the Treatment Effect post-2015/16 is positive but not significant. A significant result here would give us some confidence that although the trends between the two groups were similar up to 2015/16, from 2016/17 the progression trend in GM Higher schools was better. The direction is promising; however, at the moment we do not have sufficient evidence to determine that this is a significant treatment effect.

► **Limitations**

The DiD analysis sets a strong foundation for future analysis once more data is available and GMHigher's activities have embedded more in schools. Further, even if a significant effect is observed, it must be borne in mind that we can only make an informed judgement that it results from GMHigher activities; there remains the real possibility that it could arise from other unobservable factors causing the trend between the treated and comparator schools to diverge; for example, schools that signed up to work with GMHigher are clearly motivated to support the progression of their pupils. They may be undertaking other activities arising from this motivation that are driving the divergence; or in the absence of GMHigher they may have taken another equally effective approach.

There are also further limitations around the completeness of the available datasets. Firstly, the internal dataset on GMHigher provision is mostly capturing activity data provided by hub members to the HEAT database. This data is collected locally by HE providers and there may be some inconsistency in how activity is coded and recorded, and/or providing the appropriate data sharing consent to share school/pupil data with HEAT. As a result, the data set for our analysis is likely to have missing variables that are not missing at random²². For the purpose of this analysis, we have taken the data as provided, but this is an issue that has already been identified within the GMHigher network and data provision has become more consistent and exhaustive as a result.

Moreover, there are restrictions on the robustness of findings due to the lagged release of data capturing progression trends post-2018. We are aiming to investigate trends between activity that was provided to school group as young as 13 years old between the years of 2016-2018 and schools' respective progression trends in the same years. Due to the lagged nature of our indicator, students who attend Year 8 in the school year 2017/18 will not enter higher education until, the earliest, 2022/23 five years later). Continuation of this analysis for future school cohorts (2018/19 onwards) is recommended to test and strengthen the findings of this analysis. This longitudinal re-analysis would potentially show stronger differences between the progression trends of treatment and comparator groups emerging as we can assume that cohorts who have been directly benefitting from the GMHigher activities will enter higher education in the upcoming years.

²² In this situation, there are probably underlying reasons why data is missing for some individuals and not others, meaning that there are likely to be systematic differences between these students. In technical terms, we say that this data is 'missing not at random'.

The credibility of a causal claim here would require a strong and consistent divergence of treated and control units, a tighter link between engagement with GMHigher at a particular intensity and particular year-group with the observed outcome for that year group, and ideally qualitative investigation with the GMHigher schools to understand what other strategies they might have pursued or might be pursuing that might cause their outcomes to diverge from other, similar, schools. However, the analysis conducted here establishes the foundation for that ongoing work, and for the feeding in of further data as this becomes available.

3.4 Benchmarking of regional and national progression trends

Following the inferential analysis of progression data, the next section sets out to answer the remaining research questions - as outlined below - via descriptive analysis of additional public data. Looking at historical data, what is the picture of participation in Higher Education across Greater Manchester since the ending of the AimHigher programme (2011)? In particular,

- How does this compare to the national picture over that time?
- What areas of Greater Manchester have seen the greatest change over the period?
- What is the current participation rate in Higher Education in Greater Manchester – and what would be a realistic target for increasing this participation rate by 2025?

Similar to the previous evaluation strand, this section only uses public data, made available via the Department for Education, to inform the analysis. In combination with the provided code, this should allow for an easy replication of the below analysis and data collation and cleaning.

► Historical picture of progression trends since 2011

To plot regional and national progression rates, the annual report of Key Stage 5 Destination Data²³ was cleaned to only include progression rates for the local areas defined as the Greater Manchester area²⁴ as well as the corresponding national rates for each year.

Due to the limitations of this data set, this variable only includes state-funded mainstream schools and colleges so will not cover, for example, independent schools. However, given that

²³ For further information on the annual Key Stage Data report and to download the raw data please visit: <https://www.gov.uk/government/collections/statistics-destinations>

²⁴ These include the following regions and their respective LA area codes (in brackets): Bolton (350), Bury (351), Manchester (352), Oldham (353), Rochdale (354), Salford (355), Stockport (356), Tameside (357), Trafford (358) and Wigan (359).

GMHigher's target groups of disadvantaged learners are much less likely to attend private schools due to their fee-charging nature, this was not considered to be a significant gap in the data for the purpose of this analysis.

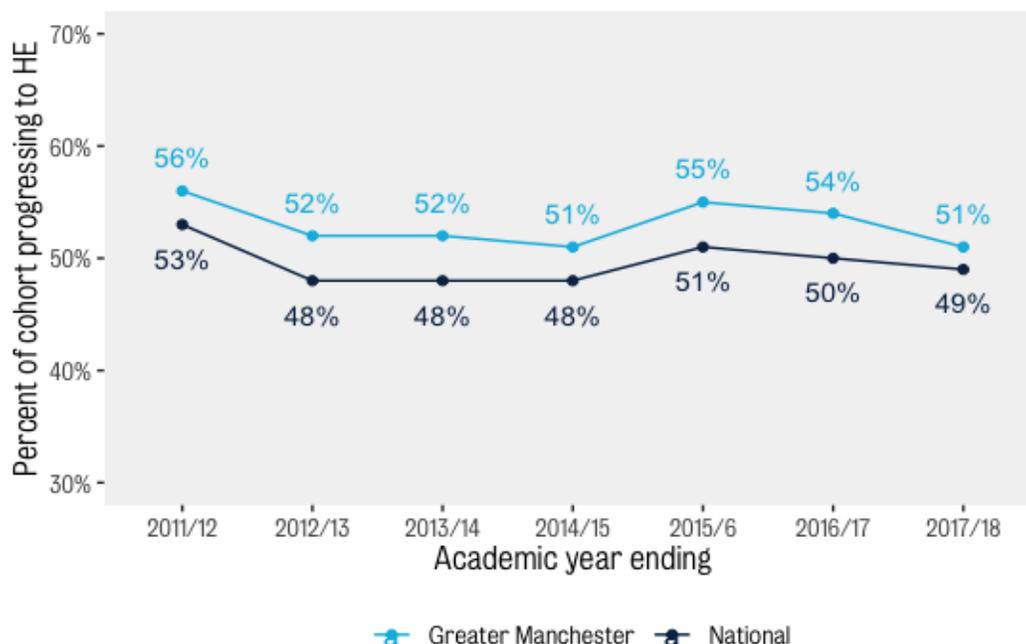
Figure 9 below outlines the plotting of average progression rates across Greater Manchester in comparison to the national average for all years under consideration in this time period. The Figure shows a sharp decline in progression rates across, both, schools within the GMHigher outreach region and the wider national landscape from 2011/12 to the subsequent year(s). However, schools within Greater Manchester steadily perform above the national average across all seven years under analysis.

Following the decline in progression rates between 2011/12 and 2014/15, a small incline in progression rates can be observed in 2015/16. However, neither the national nor GMHigher progression rates reach their earlier peak from 2011/12.

The latest year of regional progression data in 2017/8, indicates a further drop from 54% to 51% of learners completing their Level 3 qualifications²⁵ entering higher education or further training. Further interpretation of the data and potential causes for the decline and/or increase of progression rates across these years needs to be done with caution as the above analysis is solely descriptive and does not control for any variables that might have impacted progression rates of learners across or within each year.

²⁵ For further information on Level 3 qualification types please visit: <https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels>

Figure 9: Average progression rates across Greater Manchester and England (2011/2-2017/8)

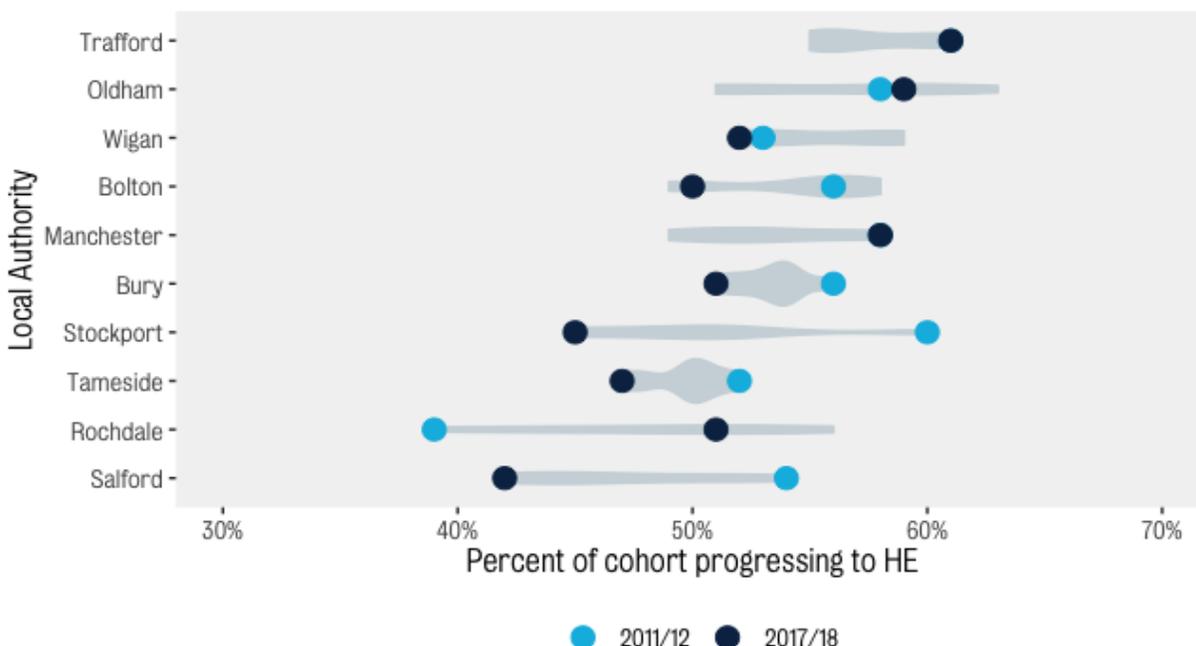


► **Under-/over-performing areas of progression since 2011**

To understand the progression trends across Greater Manchester in more granular detail and to investigate if and/or which areas of Greater Manchester have seen the greatest change over the period, we plotted the annual progression rates for the local authorities situated within Greater Manchester (see footnote 24) below. Figure 10 shows the 7-year distribution²⁶ of the progression rate for each local authority.

²⁶ The body of the violin plot represents the interquartile range of each distribution, which is defined as the difference between the upper and lower quartiles of a data set. This range is used as a measure of data spread: spanning 50% of a data set and eliminating the influence of outliers (the highest and lowest quarters of a data set are removed and plotted on each side of the plot’s ‘body’).

Figure 10: Violin plot of progression rates between 2011/2 – 2017/8 per local authority within Greater Manchester



The ‘body’ of each violin plot includes the distribution’s interquartile range whilst the narrower ends on the sides of each ‘body’ indicate the lowest and highest progression rates recorded between 2011-2018. For simplicity of interpretations, a narrow body indicates a wide distribution (i.e. larger variation in progression rates across the years), whereas more dense bodies indicate a narrower range of progression rates within a local authority between 2011/12 to 2017/8.

For our purposes of analysing variations in progression rates across regions, the violin plot is especially useful for indicating whether the distribution of progression rates is particularly skewed and whether there are potential unusual observations in the data set. It highlights that Salford has seen some of the biggest declines in progression rates since 2011/12 and progression rates consistently falling below 50 per cent with an absolute low of 42 per cent in the most recent data return in 2017/18. In contrast, Trafford has shown steady and high progression rates across all seven years under observations; reporting the highest progression rate of 61% in the latest data return in 2017/18 and never falling below 55 per cent progression rate between 2011/12 – 2017/18.

Detailed progression rates for each local authority by year are also listed for further reference in Table 10.

Table 10: Progression rates in each local authority per year

Local Authority	Academic Year						
	2011/12	2012/13	2013/14	2014/15	2015/6	2016/17	2017/18
Bolton	56%	49%	55%	56%	57%	58%	50%
Bury	56%	54%	53%	54%	54%	52%	51%
Manchester	58%	52%	50%	49%	53%	54%	58%
Oldham	58%	52%	51%	51%	63%	60%	59%
Rochdale	39%	50%	46%	42%	56%	54%	51%
Salford	54%	52%	49%	45%	45%	43%	42%
Stockport	60%	50%	52%	49%	45%	52%	45%
Tameside	52%	51%	50%	50%	50%	48%	47%
Trafford	61%	56%	55%	56%	56%	59%	61%
Wigan	53%	52%	58%	59%	59%	55%	52%

► Realistic progression targets for 2025

Lastly, to identify realistic future progression targets for the Greater Manchester area, we've used a linear progression model to predict future progression rates for the academic years 2018/19 to 2023/24. To provide more accuracy in regard to actual admissions trends across the wider UK higher education landscape, we've included a weighting to account for the observed entry rates as per UCAS' End of Cycle Reports from the admissions cycles 2017-2019²⁷ for, both, the North-West of England and the wider UK. We've included this additional data to account for a variety of actual and potential changes in admission rates:

Firstly, the latest admissions cycle has already seen a record-high of disadvantaged students securing a place at university²⁸. Given GMHigher's target of supporting students from under-

²⁷ For further information and to download the data please visit: <https://wwwucas.com/data-and-analysis/undergraduate-statistics-and-reports/ucas-undergraduate-end-cycle-reports/2019-end-cycle-report>

²⁸ UCAS (2020). *More students from the most disadvantaged backgrounds across the UK are set to start degrees this autumn*. [Online]. Available at: <https://wwwucas.com/corporate/news-and-key-documents/news/more-students-most-disadvantaged-backgrounds-across-uk-are-set-start-degrees-autumn>

represented backgrounds to aspire and progress to higher education, the 2020 uptake in HE progression among so-called Widening Participation groups is therefore also going to affect progression rates for GM Higher in a positive direction.

Moreover, the ongoing disruption of students' teaching and learning experience due to COVID-19 is expected to affect future cohorts' (current Year 10 -12) academic attainment. The negative mid-to long-term effect of COVID-19 on pupils' attainment may therefore lead to a decline in obtained A-Level grades in the admissions cycles of 2021 onwards. This would, consequently, provide further incentivisation for higher education providers to relax admissions standards and increase the number of students admitted to their courses.

Lastly, predictions on the impact of COVID-19 on the UK economy forecast a 14% reduction of GDP for the year 2020/2021²⁹. Previous studies have found that university enrolment rates often increase as the unemployment rate grows. This is especially the case among sixteen- to twenty-four-year-olds as the lack of otherwise available employment opportunities reduces the foregone costs of attending school^{30,31}.

Taken all of the above into account, Figure 11 overleaf models the estimated progression rates for Greater Manchester up until the academic year ending in 2023/24.

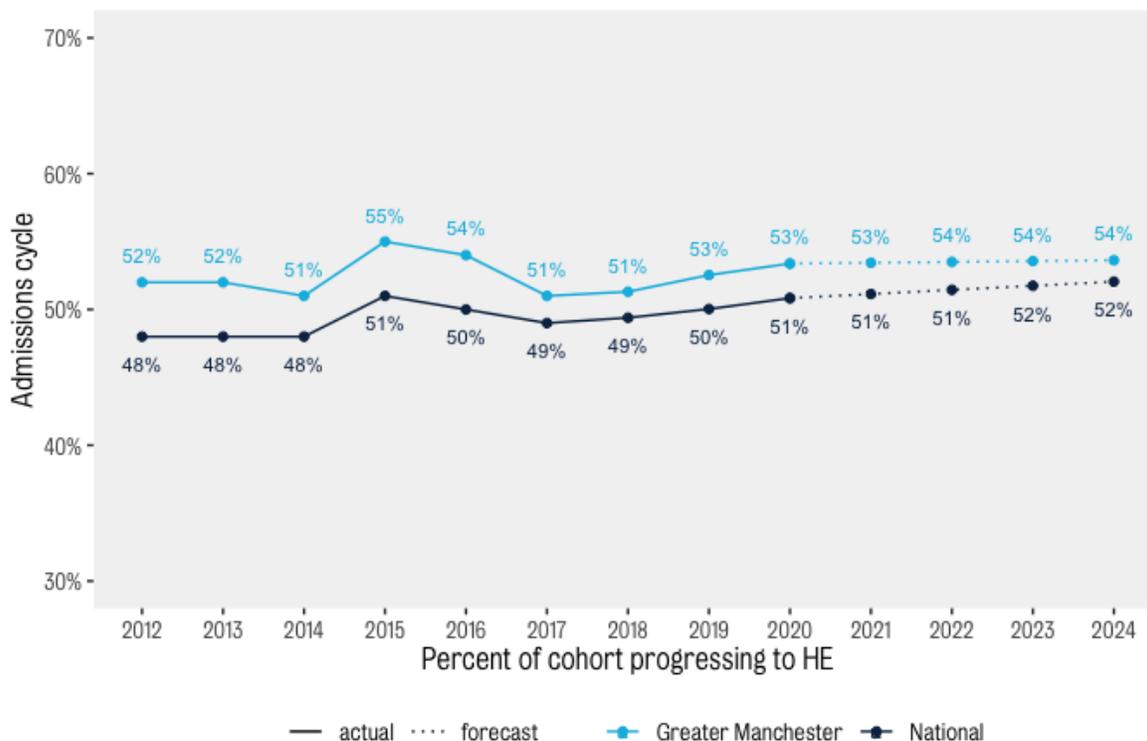
This predicted trend chart plots a slow but steady increase in application rates across both Greater Manchester and England with regional figures steadying around the 54% mark, slightly above the national average.

²⁹ OECD (2020). *OECD Economic Outlook. June 2020*. [Online]. Available at: <http://www.oecd.org/economic-outlook/june-2020/>

³⁰ Long, B.T. (2004). "How Have College Decisions Changed Overtime? An Application of the Conditional Logistic Choice Model." *Journal of Econometrics* 121 (1-2): 271-96. [Online]. Available at: <https://doi.org/10.1016/j.jeconom.2003.10.004>

³¹ Bell, D. and Blanchflower, D. (2011). "Young People and the Great Recession." *Oxford Review of Economic Policy* 27 (2): 241-67. [Online]. Available at: <https://www.jstor.org/stable/43744473>

Figure 11: Predicted progression rates up to 2025 across Greater Manchester



However, these predicted rates need to be interpreted with caution for a variety of reasons: Firstly, it does not account for underlying characteristics or how these may change (for example, a change in the proportion of disadvantaged students per local authority). Therefore, factors who might mitigate or exacerbate a decline in progression rates across the region cannot be accounted for in this simple linear modelling of progression rates.

Moreover, the data used for this analysis only provides proportion of progression rates per local authority rather than absolute numbers of students and their underlying cohorts. Therefore, it is not possible to apply weightings of progression rates according to varying cohort sizes across the Greater Manchester authorities, which further weakens the accuracy of the predicted data. Nevertheless, the above progression trends are helpful in establishing a data-driven approach to identify future progression in the region.

For this purpose, we therefore assume two possible scenarios:

- (i) In the optimistic scenario, we observe an increase in progression rates for treatment schools due to a higher impact resulting from engaging within GMHigher activities. As future iterations of DfE data will be a naturally better fit to measure the lagged

outcome measure of progression to higher education, we expect any impact trends due to engagement with GMHigher to solidify in the following two years. Assuming a lift-effect of 2% higher progression rates than schools with similar characteristics, we would assume progression rates to defy the downwards trend settle at approx. 55% -57% of young learners within the area to progress to higher education in 2025.

- (ii) In the pessimistic scenario, we observe an increase in progression rates for treatment schools due to a higher impact resulting from engaging within GMHigher activities. However, due to external shocks on progression rates within Greater Manchester and the wider country, the regional/national progression rates remain flat, or depending on the strength of the shock, may fall. The mitigating effects of GMHigher will buffer some of the declines in engaged treatment schools in the following two years and, following normalisation of progression rates at a lower average overall, Greater Manchester's progression rates area is assumed to be between 52% -54% of in 2025.

3.5 Conclusion

The historical data analysis has shown tentative (albeit non-significant) evidence that the engagement with GMHigher may lead to a small lift-effect in the rate of change in progression rates for engaged schools in comparison to non-engaged comparator schools.

Applying a Difference-in-Difference design estimates the difference in pre/post changes in progression rates by comparing the engaged schools, as identified by internal GMHigher data, with a well-matched group of non-engaged school. The outcome change in the comparator group estimates the expected change in the treatment group had the group been, counterfactually, unexposed. By subtracting this change from the change in the treatment group (the so-called "difference in differences"), the effects of background secular trends are removed. In the DiD model applied for this research, each school therefore served as its own control, removing bias by known and unknown individual factors associated with the school-level progression rates. Thus, the DiD can generate a causal estimate of the change in progression rates associated with engagement with GMHigher while controlling for biases due to continuous trends and confounders.

However, limitations in regard to data consistency and completeness and timely availability of public data to link cohorts of engaged students with their respective years of expected progression rates limit the robustness of the arising findings and future iteration of the analysis

in this report are recommended to solidify arising findings with better-matched outcomes data and larger sample sizes.

4 Recommendations and next steps

The combination of an exhaustive evidence review alongside a thorough quantitative impact analysis of GMHigher's activities provides a thorough mixed-methods research report that highlights current gaps in and opportunities for research in the WP sphere. As highlighted in the first strand of this research, robust studies employing causal method to evaluate the actual impact of outreach activities is limited and the commissioned work between EDIT and GMHigher aims to contribute to widen the understanding on the actual impact of GMHigher's collaborative activities and the progression rates of schools they engage with.

Considering the findings from both strands of the research, we would recommend the following future steps to improve, both, the robustness of impact analysis conducted within GMHigher and the wider evaluation capacity of the team in regard to monitoring and analysing the efficacy of their activities to improve educational outcomes for disadvantaged students in the area:

- To apply more consistent and detailed data collection processes across hubs. The evidence review has shown emerging trends and differential findings depending on the sub-groups of interest (i.e. pupils from BAME groups, pupils with no family background in higher education, etc.). The inclusion of individual-level demographic factors in the quantitative analysis would allow for a more nuanced analysis of the differences in progression trends across these sub-groups.
- To establish an engagement indicator (similar to the intensity indicator already in-use on the HEAT database) that can be applied to the comparator analysis. At the moment, the comparator analysis treats engagement with GMHigher as a binary indicator -i.e. a schools has engaged with the network or not. It would be useful to categorise schools according to the intensity of their engagement as we can assume that schools that take more advantage of the GMHigher offer by, for example, engaging multiple times over the academic year, would also show stronger progression trends.
- To build on these initial, tentative findings it is highly recommended to replicate the data analysis once future public data on progression trends are released by the Department for Education. As mentioned in the analysis section, the linkage of the current activity data with progression of cohorts in future academic years might provide



more interesting insights into the potentially diverging rates of progression between the matched set of comparator and treatment schools as more cohorts who have benefitted from the GMHigher outreach activities will finish schools and, potentially, enter university.