

Medical
Schools
Council



Summer Schools Annual Report 2024

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Introduction

The Medical Schools Council summer school programme, which began in 2019 (and was later expanded to include dentistry in 2021), is designed to provide the opportunity for students from disadvantaged backgrounds to learn more about careers in healthcare, have an experience of a higher education setting and equip them with the skills to create a strong application for university.

This report will outline:

- Overview of the summer schools programme in 2024
- Analysis of summer school participants
- Evaluation of the students' attitudinal change before and after the summer school
- Qualitative analysis of the students' experiences on the summer schools
- Recommendations for future summer schools

Executive summary and recommendations

The MSC and DSC summer schools aim to provide insight into medical and dental careers, and support around the application process. The programmes prioritise students from the most disadvantaged backgrounds, including measures of socioeconomic deprivation and disrupted education.

In 2024, MSC recruited 462 participants to the summer schools against a target of 300, which is 54% over target. The summer schools were a mixture of residential, commuter and online. Eligibility criteria ensured that students from the most disadvantaged backgrounds were prioritised for places and a high proportion of participants met multiple eligibility criteria – 75% and 56% met 3 or more criteria for medicine and dentistry respectively.

Of the participants:

- Approximately two thirds of participants on both the medicine and dental programmes are from the most deprived geographical areas
- Around a half of participants on both medicine and dental programmes are eligible for free school meals
- There was a slightly lower proportion of participants on the medicine programme from cold spot areas (29% this year vs 37% last year)
- The programme continues to engage a high proportion of young carers relative to the population (8% and 12% of participants for medicine and dentistry respectively)
- The majority of participants were female, as in previous years and reflective of application ratios
- There were significantly more Asian and Black participants than the general population in England

The programme continues to engage a more diverse cohort of students than those applying to and entering medical school

The attitudinal survey delivered pre- and post-summer school, and the qualitative interview study explored the impact of the programme on those who attended.

The attitudinal survey found:

- The summer schools significantly increased participants' confidence in applying for medicine/dentistry, with a 13% and 18% increase for medicine and dentistry respectively
- The summer schools also increased participants understanding of healthcare careers more broadly, with 10% and 26% increase for medicine and dentistry respectively
- There were slight variations in outcomes by host institution (although the general trends were comparable), and further exploration of the differences between programme content may help inform best practice going forward

The interviews found:

- The summer schools helped participants visualise themselves within higher education and as future doctors/dentists
- In-person summer schools provide transformative experiences, whereas online programmes focus on information delivery
- Student ambassadors play a key role in encouraging participants
- Participants benefited from increased confidence in the university transition, but highlighted concerns around workload and stress on the course
- Some participants would like more flexibility with attendance policies and eligibility for contextual admissions offerings

Recommendations

As part of the MSC's efforts to continually improve upon the programme, a number of recommendations have been made:

Recruitment:

- Explore focused recruitment strategies and partnerships with local schools within cold spot areas for medicine
- Gather data on cold spots for dentistry for next year's programme
- Explore the use of a centralised application process for the summer schools programme in future years
- Continue to target priority groups, including engaging directly with teachers and advisers, and relevant charities

Evaluation:

- Undergo a review of the current evaluation process for the summer school programme to ensure that we are producing high quality evidence on what works in outreach
- Investigate ways of enhancing experiential aspects of the online summer school programmes
- Implement long-term evaluation of the outcomes of students on the summer schools programme through MSC and DSC's membership of HEAT

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Background

Since 2019, over 2000 students from disadvantaged backgrounds have attended the Medical Schools Council and Dental Schools Council summer schools, funded by NHS England. During this time, data has been collected on participants for the purpose of evaluation, to ensure that students from a wide range of demographics are being reached, and to ensure coverage of 'cold spots' (areas of the country which have few applicants to medicine or dentistry).

The purpose of the summer schools is to provide accurate, up-to-date information and advice to potential medicine and dentistry applicants, with activities designed to build confidence and a sense of belonging within higher education. Participants are provided opportunities to network with medical and dental student ambassadors, academic staff and healthcare professionals, to get a better understanding of what the career involves. Programmes with a residential component enable students to visit the host university and have a hands-on experience of what university life will be like, staying in halls of residence and socialising with other participants.

In 2024, summer schools for medicine were hosted by:

- Brighton & Sussex Medical School in partnership with Anglia Ruskin University (residential)
- Edge Hill University in partnership with University of Liverpool and University of Lancaster (residential)
- University of Leeds in partnership with University of Sheffield and Hull York Medical School (online)
- Queen Mary University of London in partnership with King's College London, St George's University of London and University College London (online)

For dentistry, summer schools were hosted by:

- Liverpool University (residential)
- Newcastle University (residential)
- Queen Mary University of London (commuter)
- Plymouth University (online)
- University of Leeds in partnership with University of Sheffield (online)
- Manchester University (online)

Host universities were responsible for recruitment and delivery of the summer schools, with a target of 300 students to be recruited. There was a mixture of online and in-person provision.

All summer school applicants had to meet defined eligibility criteria, to ensure that students from the most disadvantaged backgrounds were prioritised. A weighting system was used on each criterion. These criteria were defined from previous experience running the summer schools, alongside consultation with host universities and medicine and dentistry entry course entry requirements:

Eligibility criteria

Due to the way the programme is funded, students living or studying outside of England are not eligible for the programme.

To be eligible for the programme the students must be currently studying at a state school¹ and either be:

- In, or been in local authority care²
- An estranged student who is studying without the support and approval of a family network
- An asylum seeker or refugee

Or hold a minimum of two of the following:

- Studying in a state school that achieved below the national average Attainment 8 score at GCSE. If this is not available for applicants previous school information can be used where they had attended to the age of 16³

1 Students who attended selective state schools were not eligible for the programme, adopting the principle of focussing on students who have experienced social and educational disadvantage but recognising there may be exceptions to this.

2 Experience of local authority care defined as being looked after by a local authority, foster parents/other family members, at home with their parents under the supervision of social services, in a residential children's home or in another residential setting such as school or secure unit, or someone who has experienced a period of three months in the care of the local authority within the last ten years.

3 Using the England average score of Attainment 8 to be 46.2 out of 90 (2022/23 statistic - Available at (explore-education-statistics.service.gov.uk/find-statistics/key-stage-4-performance-revised) and used in compare-school-performance.service.gov.uk).

- Studying in a state school that achieved below or well below the national average Progress 8 score. If this is not available for applicants previous school information can be used where they had attended to the age of 16⁴
- From a school with a high percentage of students receiving free school meals⁵
- Living in a geographical area with low levels of progression onto higher education⁶
- Are a young carer aged under 18 who helps to look after someone in their family, or a friend, who is ill, disabled or misuses drugs or alcohol. To qualify as a young carer they must be caring above and beyond what is normally expected, there is no time limit on the amount of care they provide for their dependants
- From a family where the parents do not have a university degree from the UK or abroad
- In receipt of or eligible for free school meals or the 16-19 Bursary Fund or Discretionary Learner Support or Means Tested Benefit or Pupil Premium
- The specification also expects participants on the programme to have:
 - The potential to study medicine/dentistry and be capable of achieving the minimum grades required for entry (whether that is for standard entry programmes or programmes with a gateway year)
 - An interest in STEM subjects and be considering studying science in their post-16 studies and medicine/dentistry post-18

Whilst the delivery of each summer school was by each of the host universities independently, they were provided with the following framework for what to include within their programmes:

- Engagement from a range of medical/dental schools
- A simulated experience of what it is like to study medicine/dentistry (including a range of teaching methods) not only to consider their choice of medical/dental school but also aid their transition from sixth form study to university

4 Any school which gets below 0 (zero) as its Progress 8 score.

5 The percentage of students' eligible for free school meals is 23.8.% or above. If this information was not available for their current school, for example they were now attending a college, we used the school the free school meal data for the school attended at age 16.

6 POLAR4 quintile 1 and 2, available from www.officeforstudents.org.uk/data-and-analysis/postcode-search.

- The values and behaviours of doctors/dentists and medical/dental students
- Dedicated sessions that focus on the shortage specialties, especially general practice
- Confidence and social capital building activities (including meeting academics and medics)
- Opportunity for students to discuss their options and seek advice
- Overview of the range of medical/dental careers available (including other healthcare and non-patient focused options)
- Application and admissions advice and support, including preparation for interviews and admissions tests
- Social activities for the students to build a community and network amongst like-minded people

Participant characteristics

Headlines

- We recruited 462 participants to the summer schools. Our target was 300. This means we recruited 54% over target
- A high proportion of participants met multiple eligibility criteria – 75% and 54% met 3 or more criteria for medicine and dentistry respectively
- There was a slightly lower proportion of participants on the medicine programme from cold spot areas (29% this year vs 37% last year)
- Approximately two thirds of participants on both the medicine and dental programmes are from the most deprived geographical areas
- Around a half of participants on both medicine and dental programmes are eligible for free school meals
- The programme continues to engage a high proportion of young carers relative to the population (8% and 12% of participants for medicine and dentistry respectively)
- The majority of participants were female, as in previous years and reflective of application ratios
- There were significantly more Asian and Black participants than the general population in England

We analysed the demographic data of all of the participants on the programme. Data were collected by the host universities using information provided by the student, teacher references and review of national school data.

There were 250 participants on the medicine programmes and 212 on the dentistry programmes.⁷ Half of the medicine participants were enrolled on online programmes and half residential. Two thirds of the dentistry participants were enrolled on online programmes and a third residential/commuter. Demographics of those attending online and in-person programmes were broadly similar.

⁷ One medical and dental school had a number of students who did not want their personal data shared. This included 19 applicants to medicine summer school and 9 to dentistry, 1 dentistry no show and 4 attendees for medicine summer school and 1 to dentistry. Their information has not been included in the analysis. Data protection guidelines have been changed for future programmes.

Because the programme in 2023 recruited less than target by 19%, summer schools were overprogrammed in order to maximise the number on the programme in 2024. Summer schools targeting year 11 students were more difficult to recruit to, and as a result hosted fewer numbers. This may be due to the time of year clashing with exams and revision time.

Host	Medicine	Dentistry
BSMS/ARU	81	
Edge Hill	48	
Leeds	79	28
QMUL	42	33
Liverpool		27
Manchester		53
Plymouth		59
Newcastle		12

Table 1: Number of participants at each summer school

Criteria met

All participants had to meet eligibility criteria as outlined in the previous section. Each criterion was weighted so that priority was given to participants who met multiple criteria. The exception to this was specific target groups who face the most significant disadvantage - care leavers, refugees/asylum seekers and those who are estranged, who were automatically eligible by meeting one of these criterion.

For medicine, 74% of participants met 3 or more criteria, and 49% met 4 or more, which are similar proportions to last year. For dentistry, 55% of participants met 3 or more criteria, and 24% met 4 or more, suggesting that the medicine summer school programme is attracting more of the most disadvantaged students than the dentistry programme.

Number of criteria met	Medicine	Dentistry
0	0 (0%)	0 (0%)
1	2* (1%)	0 (0%)
2	63 (25%)	95 (45%)
3	62 (25%)	66 (31%)
4	67 (27%)	33 (16%)
5	40 (16%)	14 (7%)
6	15 (6%)	4 (2%)
7	1 (0%)	0 (0%)

Table 2: Number of eligibility criteria met by participants

*Participants are a care leaver, asylum seeker/refugee or estranged student

Geographical measures

The summer schools aim to recruit students from prioritised ‘cold spot’ areas. Schools in these areas are traditionally difficult to engage, with fewer resources and fewer students making successful applications to medicine. At the time of recruitment, data was not available on dental cold spots. In 2024, 29% of participants on the medicine summer schools were from cold spot areas, which is slightly less than last year (37%).

Area	2024	2023	2022
Non-cold spot	177 (71%)	148 (63%)	263 (63%)
Cold spot	73 (29%)	87 (37%)	156 (37%)

Table 3: Number of medical school participants from cold spots

Despite this, the majority of applicants for which postcode data were available were from IMD quintiles 1 and 2 (67% for both medicine and dentistry) and around half were from POLAR4 quintiles 1 and 2, which is similar to previous years. IMD refers to the Index of Multiple Deprivation, which is a geographic measure of relative deprivation using a combination of data which includes income, employment, education, crime, health

and housing amongst others. POLAR4 is a geographical measure which represents the proportion of young people who participate in higher education within a given area. Both measures demonstrate correlation with a household’s socioeconomic status and are widely available to higher education institutions. However, it should be noted that they are broad strokes measures which yield false positives and false negatives.

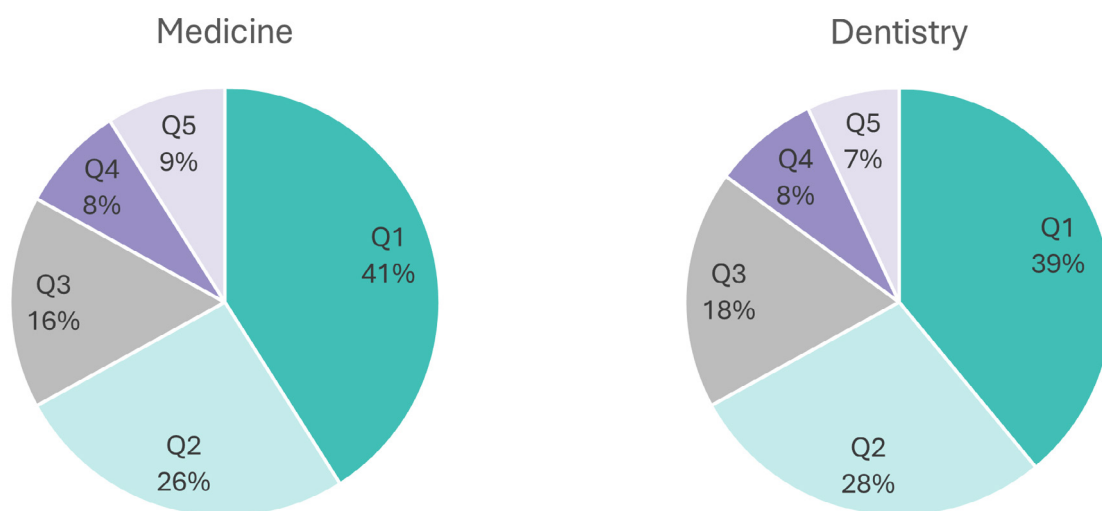


Figure 1: IMD quintiles of participants on the medicine and dentistry summer schools

Free school meals

The programmes continue to engage a high proportion of participants eligible for free school meals, with over half of the participants for both medicine (55%) and dentistry (52%). The current national figure for free school meal eligibility in state schools is 24.6%.⁸

Participants eligible for free school meals	2024	2023	2022
Medicine	138 (55%)	128 (55%)	198 (47%)
Dentistry	110 (52%)	78 (48%)	9 (35%)

Table 4: Number of participants eligible for free school meals

⁸ Department for Education, Schools, pupils and their characteristics: January 2024, published June 2024 available from <https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics>

Care experience

In 2024, 5 participants on the medicine summer schools and 3 participants on the dentistry summer schools had experience in local authority care. National estimates indicate that 0.7% of children in England are looked after children.⁹

Participants with care experience	2024	2023	2022
Medicine	5 (2%)	4 (2%)	22 (5%)
Dentistry	3 (1%)	3 (2%)	0 (0%)

Table 5: Number of participants with care experience

Estrangement

2 participants on each of the programmes (4 in total) were recorded as estranged (living without a relationship with, or support from family).

Participants with estrangement	2024	2023	2022
Medicine	2 (1%)	5 (2%)	18 (4%)
Dentistry	2 (1%)	0 (0%)	0 (0%)

Table 6: Number of participants who are estranged from family

Refugee/Asylum seeker

There were 9 participants on medicine programmes with refugee/asylum seeker status and 7 participants on dentistry programmes, which is similar to previous years.

Participants with refugee/asylum seeker status	2024	2023	2022
Medicine	10 (4%)	10 (4%)	18 (4%)
Dentistry	7 (3%)	4 (2%)	2 (8%)

Table 7: Number of participants with refugee/asylum seeker status

⁹ Department for Education, Children looked after in England including adoptions, published November 2024 available from <https://explore-education-statistics.service.gov.uk/find-statistics/children-looked-after-in-england-including-adoptions>

Young carer

The programmes engaged a high number of young carers - 8% and 12% for medicine and dentistry respectively - when compared with national estimates that 0.6% of all pupils are young carers.¹⁰

Participants who are young carers	2024	2023	2022
Medicine	20 (8%)	19 (8%)	37 (9%)
Dentistry	26 (12%)	22 (13%)	3 (12%)

Table 8: Number of participants who are young carers

School performance

For medicine, 51% and 40% of participants were from a state school which achieved below national average Attainment 8 and Progress 8, respectively, while 70% attended a school with a high percentage of students eligible for free school meals.

Participants on the dental programme went to higher performing schools, with 39% and 29% of participants from a state school which achieved below national average Attainment 8 and Progress 8, respectively, and 56% attended a school with a high percentage of students eligible for free school meals.

Medicine programmes – school criteria	2024	2023	2022
At a school with below national average Attainment 8	128 (51%)	97 (41%)	241 (53%)
At a school with below national average Progress 8	101 (40%)	107 (46%)	193 (43%)
At a school with high percentage of free school meals pupils	175 (70%)	117 (50%)	195 (43%)

Table 9: Number of participants meeting school criteria on the medicine programme

¹⁰ Department for Education, Schools, pupils and their characteristics: January 2024, published June 2024 available from <https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics>

Dental programmes – school criteria	2024	2023	2022
At a school with below national average Attainment 8	82 (39%)	62 (38%)	17 (65%)
At a school with below national average Progress 8	62 (29%)	58 (35%)	19 (73%)
At a school with high percentage of free school meals pupils	119 (56%)	109 (67%)	9 (35%)

Table 10: Number of participants meeting school criteria on the dental programme

Parental degree

Most participants are first in their family to apply to higher education, with a slightly reduced proportion than last year. National data indicates that 42% of adults in families with dependent children are degree-educated.¹¹

Participants without parental degree	2024	2023	2022
Medicine	167 (67%)	168 (72%)	175 (42%)
Dentistry	126 (58%)	128 (78%)	15 (58%)

Table 11: Number of participants without a parental degree

Gender

The majority of participants on the summer schools were female, with the highest proportion than any year previous for medicine (78%) and for dentistry (79%). These trends align with the differences in the medicine and dentistry applicant pools. Data were missing for one of the dentistry summer schools, which represented 25% of participants.

¹¹ Social Mobility Commission, Distribution of parental education, published September 2024 available from https://social-mobility.data.gov.uk/drivers_of_social_mobility/conditions_of_childhood/distribution_of_parental_education

Programme	Gender	2024	2023	2022
Medicine	Male	22%	25%	26%
	Female	78%	75%	71%
	Non-Binary	0%	0%	2%
Dentistry	Male	22%	29%	27%
	Female	78%	71%	71%
	Non-Binary	0%	0%	0%

Table 12: Percentage of participants by gender. Does not include % where gender is unknown

Ethnicity

Participants were from a diverse range of ethnicities. There were significantly more Asian and Black participants than the general population in England. Data were missing for one of the dentistry summer schools, which represented 25% of participants.

Ethnicity (grouped)	Medicine	Dentistry
Asian	119 (48%)	66 (31%)
Asian or Asian British - Bangladeshi	18 (7%)	16 (8%)
Asian or Asian British - Indian	26 (10%)	16 (8%)
Asian or Asian British - Pakistani	40 (40%)	22 (10%)
Chinese	11 (4%)	4 (2%)
Other Asian Background	24 (10%)	8 (4%)
Black	45 (18%)	25 (12%)
Black or Black British - African	39 (16%)	23 (11%)
Black or Black British Caribbean	2 (1%)	0 (0%)
Other Black background	4 (2%)	2 (1%)

Ethnicity (grouped)	Medicine	Dentistry
Mixed	16 (6%)	7 (3%)
Mixed – White and Asian	7 (3%)	2 (1%)
Mixed – White and Black African	2 (2%)	2 (1%)
Mixed- White and Black Caribbean	3 (1%)	1 (0%)
Other Mixed background	4 (1%)	2 (1%)
Other	13 (5%)	17 (8%)
Arab	9 (4%)	11 (5%)
Other Ethnic Background	4 (2%)	6 (3%)
White	56 (22%)	40 (19%)
White - British	47 (19%)	32 (15%)
White - Other	9 (4%)	8 (4%)
Not recorded/Prefer not to say	1 (0%)	57 (27%)

Table 13: Participants by ethnic origin

Attitudinal change

To evaluate attitudinal change of the programme participants, all participants were sent a pre-activity and post-activity questionnaire. The questions used were unchanged from last year's programme. The survey was delivered and results analysed by David Wilkinson, Learning Gain.

Headlines

- The summer schools significantly increased participants' confidence in applying for medicine/dentistry, with a 13% and 18% increase for medicine and dentistry respectively.
- The summer schools also increased participants understanding of healthcare careers more broadly, with 10% and 26% increase for medicine and dentistry respectively.
- There were slight variations in outcomes by host institution (although the general trends were comparable), and further exploration of the differences between programme content may help inform best practice going forward.

LEARNING GAIN TOOL® ANALYSIS



USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT:

MSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024

Full report

Dr David Wilkinson
Dr Dane McCarrick





USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT: MSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024

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USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT: MSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024

Executive summary

Learning Gain Tool

Identifying the factors that predict student engagement in Medicine is essential to understanding future career trajectories in this field. Our analysis compared students' interest and engagement in Medicine before (at baseline) and after (at follow-up) their participation in the MSC Summer School Pathway programme.

Pathway Programmes

This year provision was presented as four distinct Pathway Programmes, delivered by the following partner organisations:


- Brighton and Sussex Medical School and Anglia Ruskin Medical School.
- London Medical Schools: a partnership between St George's, Queen Mary, King's College London and University College London Medical Schools.
- Edge Hill Medical School in partnership with Lancaster, Liverpool, Manchester Medical Schools.
- Yorkshire Medical Schools: a partnership between Leeds, Sheffield and Hull-York Medical Schools.

About the data

Data were collected from participants at the beginning and end of the programme. In order to conduct advanced statistical analyses on our data we have 'paired' responses (participants who completed both pre and post programme surveys). Our analysis is therefore based on 213 respondents - see Table 3: Learning gain responses by host institution).

Questions about medicine and healthcare

Within the question set covering medicine and healthcare, the greatest change was recorded in relation to Q3 - I feel confident in applying to medicine. (see Table 2: Learning Gain statements ranked by largest gain). The increase in confidence to apply was slightly lower than recorded for the 2023 programme (13%).

13% 

Q3: I feel confident in applying to medicine.

Questions about skills

In line with previous years, the largest learning gain (across all questions) was linked to confidence in presenting thoughts and ideas to others (Q6 - I feel confident presenting my thoughts and ideas to others). As the qualitative reflections indicate later in this report, group presentation work and contributions in seminar/lecture-based situations add considerable support in raising confidence in this area.

12% 

Q6: I feel confident presenting my thoughts and ideas to others.

Questions about university and careers

Participants reported the greatest increases in their understanding of different careers available to them in health (Q13 - I understand the different careers available in health). This was matched by a similar increase in participants understanding of developmental needs in relation to their career intentions (Q10: I know my own strengths and areas I need to develop).

10% 

Q13: I understand the different careers available in health.



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Inferential statistics

The inferential analysis supported the trends observed in the raw data, depicting a positive shift in students' perceptions of studying medicine following exposure to the summer schools.

Qualitative data analysis

In order to provide additional context to Learning Gain Tool data, we have collected additional qualitative feedback and reflections from participants whilst they were undertaking their Pathway programme. Our questions focused on the skills being developed for participants of the Summer Schools and their reflections on the programme and its value and emerging impact.

We received 111 responses to our qualitative survey, with broadly good representation from each of the Summer School Pathways (see Table 6 for a breakdown of responses by Pathway provider).

What skills are you developing that will be useful for your progression?

A number of skills were identified in response to this questions. The most cited skills included: communication skills, teamwork, clinical/medical skills, self-confidence (in terms of presenting to others and speaking in group settings), and scientific research skills.

“ Communication is the key skill I developed throughout the program as communicating in small break out rooms helped me discuss my opinion and thoughts ... being involved in group discussions helps develop new ideas and learn different perspectives.”

“ I have developed my medical knowledge, including how and why patients are prescribed specific medicines and therapies - which has given me a broader perspective of medicine and healthcare. This experience also helped me form connections with other medical professionals, enhancing my communication skills.”

Did the experience of the Summer School match your expectations?

Most participants who answered the survey thought the Summer School Pathway Programme matched, or exceeded, their expectations. Participants generally expected to learn more about university study, and routes into medicine specifically.

“ The Summer School experience has been invaluable. I've gained a lot of knowledge not only about the medical field but also about the process of becoming a medical student. The workshops and guidance on personal statements and interviews exceeded my expectations and made me feel more prepared for the application process. Additionally, interacting with professionals and peers has broadened my perspectives and solidified my passion for medicine.”



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Most interesting elements

Participants stated that the most interesting elements of the summer school programme were clustered around understanding of medical topics, practical (medical) skills development and meeting students and professionals.

“ Learning about various medical conditions and treatments has been a highlight for me. I feel I am gaining essential knowledge that I can apply in the future should I apply to study medicine.”

How would you explain the experience to others?

Participants described the Pathway programme as supporting their development and insight into the broad subject of healthcare, with a specific focus on medicine. Many additionally described the programme as informative and enriching.

“ I felt like I was immersed in a mini medical school, learning about everything from basic medical principles to complex patient care scenarios. This experience has made me more confident in my decision to pursue medicine and has given me knowledge I can apply as I move forward in my studies.”

What else would you like help or support with?

Preparing for progression to university was a common theme in responses received to this question. Some participants recognised and valued the informal elements of the Pathway programme that were linked to continuing, or supporting, their application to university. However, a number would have welcomed more structured content and guidance to support preparation of their personal statements.

“ Writing about my experiences and motivations in a compelling way is challenging, and I feel I could benefit from feedback on how to present my journey into medicine effectively. Additionally, understanding what admissions teams look for in applications and statements would give me more confidence as I navigate this process.”



USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT: MSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024

Introduction

Learning Gain Tool

Identifying the factors that predict student engagement in Medicine is essential to understanding future career trajectories in this field. Research Toolkit utilises the Learning Gain Tool as a novel measurement technique to assess student engagement both pre and post exposure to course content, but also to observe important changes over time. Our analysis compared students' interest and engagement in Medicine before (at baseline) and after (at follow-up) their participation in the MSC Summer School Pathway programme.

Additional qualitative data collection

In order to provide additional context to Learning Gain Tool data, we have collected additional qualitative feedback and reflections from participants whilst they were undertaking their Pathway programme. Data were collected via a short survey seeking responses to qualitative questions exploring the effect and impact of Pathway programme provision. The survey was administered following completion of the Pathway programme via a web-link sent to all of those who had completed both pre and post programme surveys.

The qualitative data collected through this survey was coded in order to establish themes and topics to contextualise the Learning Gain analysis. Themes and topics have been grouped around: skill development, expectations and what participants enjoyed the most about the Pathway programme.

Learning Gain Tool

The Research Toolkit Learning Gain Tool®, is an interactive resource capable of assessing and measuring impact of educational interventions. It uses pre and post-activity data to explore impact from the perspective of the activity participant, school or stakeholder representative. This tool has been used across a number of outreach programmes and is also used by other widening participation providers regionally and nationally to identify effect, impact and distance travelled of educational interventions.



Pathway Programmes

This year provision was presented as four distinct Pathway programmes, delivered by the following partner organisations:

- Brighton and Sussex Medical School and Anglia Ruskin Medical School.
- London Medical Schools: a partnership between St George's, Queen Mary, King's College London and University College London Medical Schools.
- Edge Hill Medical School in partnership with Lancaster, Liverpool, Manchester Medical Schools.
- Yorkshire Medical Schools: a partnership between Leeds, Sheffield and Hull-York Medical Schools.

Each of the Pathway providers determined a Summer School programme tailored to local need - consisting of a range of activities alongside a residential or online summer school. Applications were open to young people in Year 12 who were interested in studying medicine.



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Measuring learning gain

As part of their participation in the MSC Summer Schools Pathway programme, students were asked to respond to a series of 13 before and after questions or statements. These questions were administered via the use of the online Learning Gain Tool®. Participants on the Summer School programme were provided with a web-link in order to register on the system and to respond to the questions. The bank of questions were linked to skills, views, and knowledge in a number of areas linked to medicine and healthcare. Questions were developed by Research Toolkit and the Summer Schools Pathway programme team and have been adapted from other similar outreach and widening participation interventions.

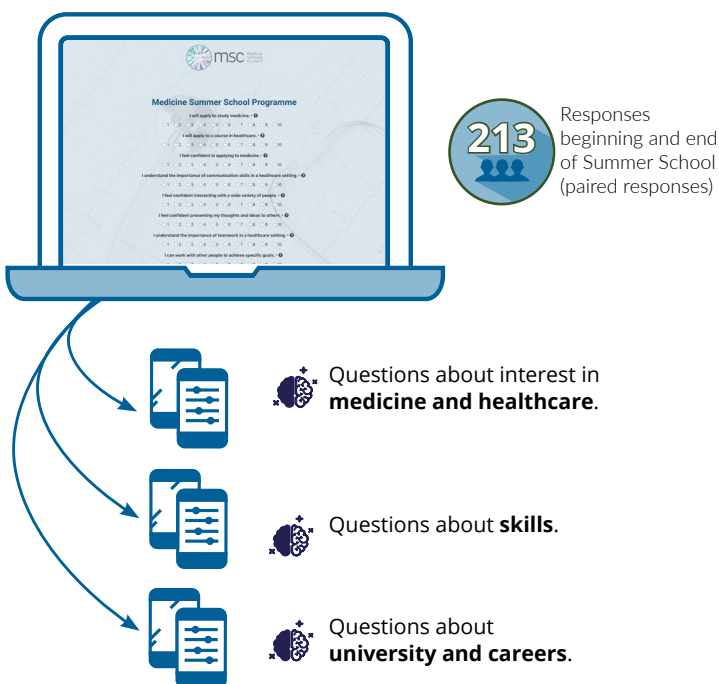
Paired-samples t-tests were used to determine whether the mean difference between these two sets of observations were statistically significant. The associated statistical assumption checks (i.e., normality; inferential case/outliers checks) were also run in parallel to these analyses and the data was confirmed suitable for this analysis technique. Only complete cases were used in the analysis.

Descriptive analysis: percentage increases

For the purposes of transparency we include the numeric change in average value - from the beginning of the programme to the end of the programme (see Table 1: Learning Gain statement analysis: MSC Summer Schools programme). For example, the change in value of question 5 (I feel confident interacting with a wide variety of people) moves from an average of 8.12 to 8.67 by the end of the programme. To clarify this movement we have converted the change to a percentage figure; using the beginning of the programme as a base this represents a 7% increase at the end of the programme. To aid accessibility, we have also ranked responses by largest learning gain (see Table 2 Learning Gain statement analysis - ranked by largest gain).

About the data

Data were collected from participants at the beginning and end of the programme. In order to conduct advanced statistical analyses on our data we have 'paired' responses (participants who completed both pre and post programme surveys). Our analysis is therefore based on 213 respondents - see Table 3: Learning gain responses by host institution). Participant data were combined to produce an average across the 13 question or statement areas. At the beginning of the programme this resulted in the production of a 'temperature reading' of attitude, perceived skill and understanding. The same process was used for the data collected at the end of the programme. The difference in average values (pre and post programme) produces a distance travelled or 'learning gain' value.

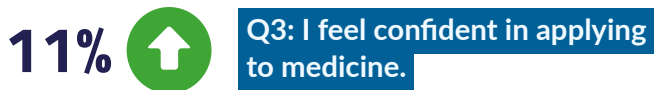




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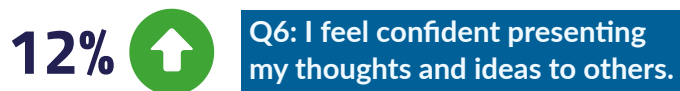
Questions about medicine and healthcare

Within the question set covering medicine and healthcare, the greatest change was recorded in relation to Q3 - I feel confident in applying to medicine. (see Table 2: Learning Gain statements ranked by largest gain). The increase in confidence to apply was slightly lower than recorded for the 2023 programme (13%). However this result continues to indicate that positive messages linked to progression were emphasised during the course of the various Pathway programmes delivered by participating host organisations.

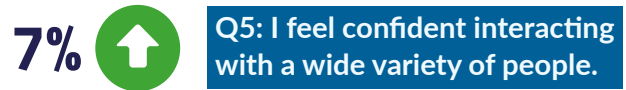


Questions about skills

In line with previous years, the largest learning gain (across all questions) was linked to confidence in presenting thoughts and ideas to others (Q6 - I feel confident presenting my thoughts and ideas to others). Although a smaller increase than in 2023 (15%), this positive gain indicates that Summer School provision provides participants with suitable and encouraging opportunities to present thoughts and ideas to others. As the qualitative reflections indicate later in this report, group presentation work and contributions in seminar/lecture-based situations add considerable support in raising confidence in this area.

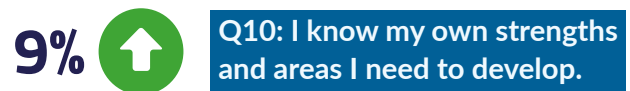
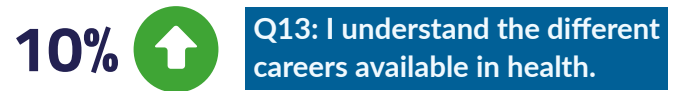


In a number of other skill areas, learning gains were fairly similar. The largest one being related to the positive impacts of interacting with other participants, facilitating staff, medical students whilst on the programme (Q5 - I feel confident interacting with a wide variety of people). Although the ranking of importance of skill areas is consistent with last year's Summer School programme data the distance travelled, pre and post Pathway programmes, is less pronounced.



Questions about university and careers

Participants reported the greatest increases in their understanding of different careers available to them in health (Q13 - I understand the different careers available in health). This was matched by a similar increase in participants understanding of developmental needs in relation to their career intentions (Q10: I know my own strengths and areas I need to develop). This is a result of the diverse careers-based content delivered by host organisations throughout the programme, and a focus on critical and honest reflective activities.





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A note on increases

Some areas received small increases by the end of the programme. This could be due to a number of reasons including the fact that the 'score' at the beginning of the Summer School was extremely positive for some elements (which included interest in medicine and healthcare and a recognition of some of the key skills required to be successful in these career areas). Small increases may also be the result of more honest reflection by participants, by the end of the programme, in relation to their drive towards careers in medicine and the assessment of skills and abilities required to pursue such careers.

Inferential statistics

The inferential analysis supported the trends observed in the raw data, depicting a positive shift in students' perceptions of studying medicine/healthcare following exposure to the Summer School Pathway programme.

Paired-samples t-tests revealed eleven out of thirteen questions featured statistically significant differences in follow-up scores (relative to baseline) across the 213 students. The two questions where differences were not statistically significant were: Q1: I have an interest in studying medicine at university and Q2: I have an interest in studying healthcare. Both of these questions had very high pre-programme scores (first survey point) and had very slight shifts at the end of the Summer Schools (post survey point). This repeats the finding from last year where both statements were extremely positively scored pre-programme.

The 'Overall Pre and Post (all statements)' score was also significant indicating a positive impact on participants of the MSC Summer Schools Pathway programme. This indicates that, holistically, across all statement areas covered by the learning gain survey, the Summer School improved students' interest, skill and desire to progress to University to study medicine/healthcare. The significant relationships are reported below (see Table 5). Questions which have a p-value of less than .05 were considered statistically significant.

Qualitative data analysis

In order to provide additional context to Learning Gain Tool data, we have collected additional qualitative feedback and reflections from participants whilst they were undertaking their Pathway programme. Data were collected via a short survey seeking responses to qualitative questions exploring the effect and impact of Pathway programme provision. The survey was administered following completion of the Pathway programme via a web-link sent to all of those who had completed both pre and post programme surveys.

The qualitative data collected through this survey was coded in order to establish themes and topics to contextualise the Learning Gain analysis. Themes and topics have been grouped around: skill development, expectations and what participants enjoyed the most about the Pathway programme.

We received 111 responses to our qualitative survey, with broadly good representation from each of the MSC Summer School Pathways (see Table 6 for a breakdown of responses by Pathway provider). Our questions focused on the skills being developed for participants of the Summer Schools and their reflections on the programme and its value and emerging impact.



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What skills are you developing that will be useful for your progression?

A number of skills were identified in response to this questions. The most cited skills included: communication skills, teamwork, clinical/medical skills, self-confidence (in terms of presenting to others and speaking in group settings), and scientific research skills.

Communication skills

During the Pathway programme, participants emphasised the development of communication skills as a critical component of success for those studying medicine at university. Many participants reported enhancing their ability to present research effectively, interact with peers, and adapt their communication style to engage with diverse audiences. These skills were refined through activities such as group presentations, where participants practiced conveying complex information clearly and confidently. Some students highlighted the critical importance of good communication skills in medical settings, where clear communication with patients, families, and healthcare teams is essential. These positive comments on the importance of communication skills match the Learning Gain survey data exploring this theme.

“ Communication is the key skill I developed throughout the program as communicating in small break out rooms helped me discuss my opinion and thoughts ... being involved in group discussions helps develop new ideas and learn different perspectives.”

“ Requiring us to work in groups, with people we didn't know, helped to build my communication skills ... I was presenting my work to new people and as well as presenting the summary of my research to new faces.”

Teamwork

The value of working in teams was directly cited by around one third of those completing the survey. Comments highlighted that teamwork was viewed as a vital skill developed through collaborative projects and group presentations. Some participants noted that working in teams helped them improve their ability to listen actively, share responsibilities, and coordinate effectively with their peers. Working in teams enabled participants to appreciate diverse perspectives and strengthen their adaptability, particularly when tackling challenges as a group. For some participants teamwork also fostered a sense of empathy, and there was a recognition that this helped them in preparing to work in healthcare settings, where effective collaboration is essential for providing quality patient care.

“ I've had the opportunity to work on my team-working skills by having to speak to people I don't know on zoom calls and work together to come up with an answer.”

“ I improved my teamwork skills through working on the presentation we prepared as a group. Working with others, with different experiences was useful ... it helped me to also develop my empathy skills for when I met the patient.”



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Clinical / medical skills

During the MSC Summer Schools Pathway programme, participants developed various medical and clinical skills that will be of value should they progress to study medicine. Participants highlighted gaining hands-on experience in medical tasks, such as reading X-rays and understanding disease models, which enhanced their ability to interpret clinical information. This experience provided insight into the intricacies of patient care and diagnosis, allowing students to apply theoretical knowledge in practical settings. Additionally, some participants mentioned learning communication techniques for sensitive scenarios, such as delivering difficult news to patients and families, a crucial aspect of compassionate care in healthcare.

“ I've been able to focus on developing a new of skill areas that I think are important for progressing to study medicine at university. These include knowledge of things such as reading X-rays, learning about diseases and healthcare models, and learning about how to break bad news.”

“ I have developed my medical knowledge, including how and why patients are prescribed specific medicines and therapies - which has given me a broader perspective of medicine and healthcare. This experience also helped me form connections with other medical professionals, enhancing my communication skills.”

Self-confidence

Participants reported considerable improvements in their confidence as a result of their engagement with the content of the Pathway programme. As part of the process many were expected to present research and other group work to their peers and others involved in the programme. In addition, some expressed that working in teams with unfamiliar individuals challenged participants to communicate more openly and assertively.

For many, the Pathway programme provided a supportive environment where they could engage in new tasks, knowing that mistakes were part of the learning process. This approach helped them build resilience and recognise their strengths and abilities. Furthermore, interacting with healthcare professionals and peers in collaborative settings boosted their confidence in both professional and academic contexts, as they felt more prepared to engage in future university and healthcare environments.

“ The whole programme, and the individual sessions helped me to feel comfortable about what I had to say and contribute. It helped with my confidence and made it easier for me to communicate with others I don't know well. I was able to get a wider understanding into higher education as a result too.”

“ It is quite intense but enjoyable! It is really pushing me out of my comfort zone, and throughout the sessions, I have noticed my confidence speaking to other students and also the speakers has massively improved.”



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Research skills and knowledge

During the MSC Summer Schools Pathway programme, participants gained valuable research skills useful for progression to university. Participants were able during practical exercises to gather, analyse and synthesise information on complex topics, an experience that deepened their understanding of effective research techniques. These tasks often required students to independently investigate medical and healthcare issues, fostering critical thinking and encouraging a self-driven approach to learning.

One of the highlights for many participants was the opportunity to design and present a research project, which helped them refine their abilities to convey information clearly and persuasively. This experience strengthened participants research skills and left many of them feeling more capable of conducting meaningful research work as they progressed to university study in the future.

“ The experience has pushed me to better manage deadlines and to integrate my research findings into coherent reports, which I feel is invaluable for my future studies. Additionally, I’m learning to use various research tools and frameworks, helping me approach academic research with a structured mindset.”

“ Working on group research projects taught me the importance of organizing our findings clearly and effectively. I’ve learned to interpret data, formulate insights, and present them in a way that’s both informative and accessible to others, preparing me well for future academic challenges.”

“ The Summer School has introduced me to research methods in medicine, allowing me to critically analyse and question healthcare data. This skill, combined with hands-on guidance from instructors, has helped me understand the importance of a well-rounded, evidence-based approach in medical research.”

Did the experience of the Summer School match your expectations?

Most participants who answered the survey thought the MSC Summer Schools Pathway Programme matched, or exceeded, their expectations. Participants generally expected to learn more about university study, and routes into medicine specifically. For the majority of participants their expectations were realised and supported their desire to study medicine or a related discipline at university.

“ The Summer School experience has been invaluable. I’ve gained a lot of knowledge not only about the medical field but also about the process of becoming a medical student. The workshops and guidance on personal statements and interviews exceeded my expectations and made me feel more prepared for the application process. Additionally, interacting with professionals and peers has broadened my perspectives and solidified my passion for medicine.”

“ It exceeded all of my expectations. I couldn’t be happier with all the helpful information and opportunities I have gained from the summer school. The program was well-organized, and the sessions were both informative and engaging. I now have a clearer understanding of what it takes to succeed in a medical career and feel inspired to work towards that goal.”

“ I had an amazing time being able to converse and interact with like-minded aspiring medical students and develop on each other’s ideas and interests. The experience was both educational and enjoyable, and I feel more motivated than ever. The staff and speakers were supportive, and it was inspiring to hear from different professionals in medicine, which gave me insight into various specialties.”



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A small number of participants indicated that the programme did not match their expectations. Some found the immersive and intensive nature of the programme stretching and challenging at times. Others identified that more breadth in terms of 'hands on' experiences, for example, would have enhanced the programme.

“ ... the experience so far has been quite spontaneous, which was not what I was expecting. Although the spontaneity brought some exciting moments, I found it challenging to keep up at times. Additionally, some of the topics didn't align with my expectations, and I feel that certain aspects could have been better structured.”

“ The experience did not fully meet my expectations. While some of the sessions were helpful, I felt that the program was not as comprehensive as I hoped. I expected more hands-on learning and detailed guidance, but instead, some sessions felt too general. It left me wanting more depth and more focused content on the medical field itself.”

Most interesting elements

Participants stated that the most interesting elements of the Summer School programme were clustered around understanding of medical topics, practical (medical) skills development and meeting students and professionals.

Understanding of medical topics

Participants appreciated the interactive way that Summer Schools were delivered. This allowed them to quickly gain knowledge and deepen their understanding of a diverse range of medical topics. Learning about medicine, contextualised by real-life examples, and delivered by healthcare practitioners and medics enhanced the programme for most participants.

“ The academic aspects have been very enriching; I've learned a lot about the foundational knowledge needed for a medical career.”

“ Learning about various medical conditions and treatments has been a highlight for me. I feel I am gaining essential knowledge that I can apply in the future should I apply to study medicine.”

Practical (medical) skills development

The opportunity to undertake practical, hand-on activities, were welcomed by most participants on the programme. Of particular interest were sessions that allowed participants to explore clinical skills.

“ The medic-specific skills, such as chest X-rays and diagnostic techniques, were incredibly fascinating and eye-opening.”

“ Practicing clinical skills in a hands-on environment has been so rewarding; I feel more confident about what medical school will entail.”



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Meeting students and professionals

Participants frequently mentioned interactions with healthcare professionals, including doctors and medical students, as their most favourite part of the Pathway programme. These interactions enabled participants to deepen their understanding of medicine and health-related career options. They also provided a 'real-life' perspective of what to expect for those committed to medicine as a career route.

“ Meeting and learning from doctors from different specialties was so inspiring and gave me insight into what to expect in the field.”

“ Talking to professionals and lecturers really expanded my understanding of the various paths within medicine ... the speakers provided invaluable advice and stories that helped me understand the reality of medical careers.”

How would you explain the experience to others?

Participants described the Pathway programme as supporting their development and insight into the broad subject of healthcare, with a specific focus on medicine. Many additionally described the programme as informative and enriching. A considerable number of those surveyed noted that the experience had helped them feel more prepared for medical school, offering practical insights and readiness to study the subject at university. For many participants there was a common view that the MSC Summer Schools Pathway programme provided a rare opportunity to learn more about the reality of studying medicine and a career in healthcare.

“ I felt like I was immersed in a mini medical school, learning about everything from basic medical principles to complex patient care scenarios. This experience has made me more confident in my decision to pursue medicine and has given me knowledge I can apply as I move forward in my studies.”

“ This experience has truly prepared me for the demands of medical school. I now know more about the application process, the skills I need to develop, and the areas where I need to focus. Having the chance to simulate some aspects of medical school life has been incredibly helpful, and I feel much more prepared for what lies ahead.”

“ This was a one-of-a-kind opportunity that I wouldn't have found anywhere else. It provided me with invaluable insights, hands-on experience, and access to people who have been in the field for years. I feel privileged to have been part of this program, and it has reinforced my commitment to a career in medicine.”



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What else would you like help or support with?

Preparing for progression to university was a common theme in responses received to this question. Some participants recognised and valued the informal elements of the Pathway programme that were linked to continuing, or supporting, their application to university. However, a number would have welcomed more structured content and guidance to support preparation of their personal statements. Other areas of content and provision that could have been strengthened or enhanced included more support in terms of interview preparation and more practical content on skill development (particularly clinical skills).

“ Writing about my experiences and motivations in a compelling way is challenging, and I feel I could benefit from feedback on how to present my journey into medicine effectively. Additionally, understanding what admissions teams look for in applications and statements would give me more confidence as I navigate this process.”

“ I need more support with interview preparation, particularly with mock interviews or strategies for answering common questions. Being able to practice in a realistic setting would help reduce my anxiety and make me feel more prepared..”

“ I’d love more opportunities to develop my clinical skills—hands-on experience with medical procedures and medical knowledge is something I feel would give me a stronger foundation as I move closer to applying for medical school.”

Concluding remarks

Learning or development gains

Data collected from participants of the 2024 MSC Summer Schools Pathway programme identified considerable development in areas crucial for success when studying medicine. Quantitative and qualitative data identified these as including communication, teamwork, self-confidence, medical/clinical skills development.

The value of the MSC Summer Schools Pathway programme

Analysis of Learning Gain data revealed statistically significant improvements in participants’ confidence, particularly in presenting ideas and applying to medical school. Such findings reflect the value of the structured components of the MSC Summer Schools Pathway programme, with a particular emphasis on group presentation and research work, and practical medical exercises delivered by healthcare professionals and practitioners. These activities not only enhanced participants’ ability to articulate thoughts but also enabled meaningful interactions with peers and professionals, which many described as central to their growth.

The qualitative reflections further highlight participants’ appreciation for the immersive experience and the opportunity to gain hands-on exposure to medical concepts. The program exceeded expectations for many, providing a realistic preview of what to expect at medical school. The Pathway programme continues to provide an important platform for widening access to medicine, particularly for students from diverse backgrounds. Data in this report shows that these targeted participants gain tremendous benefit from experiences that immerse them in medical and healthcare settings.



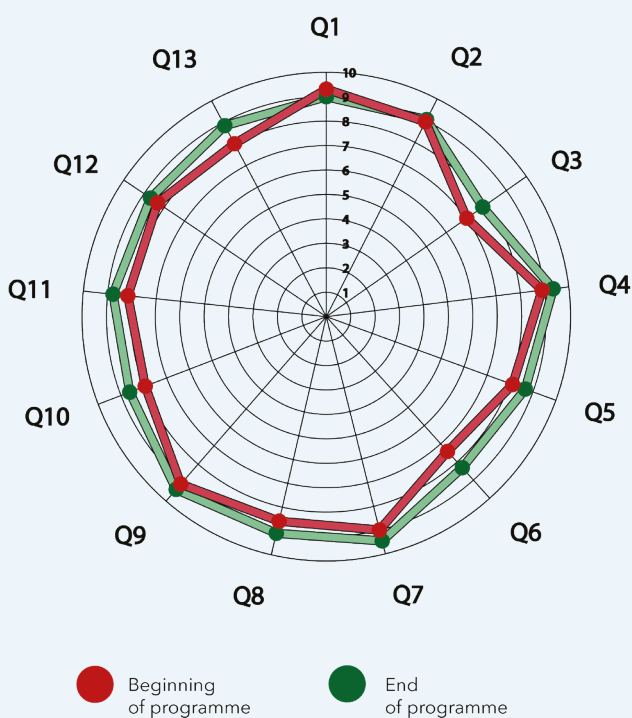
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Table 1: Learning gain statement analysis - MSC Summer Schools Pathway programme

Learning Gain Tool statements:	Pre	Post	% ↑↓
Questions about medicine and healthcare			
Q1: I have an interest in studying medicine at university.	9.31	9.00	↓-3%
Q2: I have an interest in studying healthcare.	8.95	9.05	↑1%
Q3: I feel confident in applying to medicine.	7.02	7.82	↑11%
Questions about skills			
Q4: I understand the importance of communication skills in a healthcare setting.	8.90	9.36	↑5%
Q5: I feel confident interacting with a wide variety of people.	8.12	8.67	↑7%
Q6: I feel confident presenting my thoughts and ideas to others.	7.42	8.32	↑12%
Q7: I understand the importance of teamwork in a healthcare setting.	9.00	9.46	↑5%
Q8: I can work with other people to achieve specific goals.	8.59	9.10	↑6%
Q9: I understand the role of empathy in a healthcare setting.	9.08	9.37	↑3%
Questions about university and careers			
Q10: I know my own strengths and areas I need to develop.	7.94	8.62	↑9%
Q11: I feel comfortable in a physical or virtual university environment.	8.17	8.78	↑7%
Q12: I think I would succeed at university.	8.33	8.68	↑4%
Q13: I understand the different careers available in health.	8.01	8.85	↑10%
Overall Pre and Post (all statements)	8.37	8.85	↑6%

Table 2: Learning gain statement analysis - ranked by largest gain

Learning Gain Tool statements:	Pre	Post	% ↑↓
Q6: I feel confident presenting my thoughts and ideas to others.	7.42	8.32	↑12%
Q3: I feel confident in applying to medicine.	7.02	7.82	↑11%
Q13: I understand the different careers available in health.	8.01	8.85	↑10%
Q10: I know my own strengths and areas I need to develop.	7.94	8.62	↑9%
Q11: I feel comfortable in a physical or virtual university environment.	8.17	8.78	↑7%
Q5: I feel confident interacting with a wide variety of people.	8.12	8.67	↑7%
Q8: I can work with other people to achieve specific goals.	8.59	9.10	↑6%
Q7: I understand the importance of teamwork in a healthcare setting.	9.00	9.46	↑5%
Q4: I understand the importance of communication skills in a healthcare setting.	8.90	9.36	↑5%
Q12: I think I would succeed at university.	8.33	8.68	↑4%
Q9: I understand the role of empathy in a healthcare setting.	9.08	9.37	↑3%
Q2: I have an interest in studying healthcare.	8.95	9.05	↑1%
Q1: I have an interest in studying medicine at university.	9.31	9.00	↓-3%





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Table 3: Learning Gain - responses by host institution

Learning Gain Tool paired responses:	Number	Percentage
Brighton and Sussex Medical School / Anglia Ruskin University	66	31.0
Edge Hill (with Manchester, Lancaster & Liverpool)	40	18.8
London Medical Schools	38	17.8
Yorkshire (Leeds, HYMS and Sheffield)	69	32.4
TOTAL	213	100.0

Table 4: Learning Gain - comparison by host institution

Learning Gain Tool statements:	Brighton / Anglia Ruskin University			Edge Hill			London			Yorkshire		
	Pre	Post	% ↑↓	Pre	Post	% ↑↓	Pre	Post	% ↑↓	Pre	Post	% ↑↓
Questions about medicine and healthcare												
Q1: I have an interest in studying medicine at university.	9.26	9.21	↓-.5%	9.25	9.20	↓-1%	9.37	9.11	↓-3%	9.35	8.62	↓-8%
Q2: I have an interest in studying healthcare.	9.05	8.92	↓-1%	9.10	9.00	↓-1%	8.76	9.32	↑6%	8.88	9.06	↑2%
Q3: I feel confident in applying to medicine.	7.05	7.89	↑12%	7.08	7.65	↑8%	6.89	8.21	↑19%	7.03	7.62	↑8%
Questions about skills												
Q4: I understand the importance of communication skills in a healthcare setting.	8.39	9.41	↑12%	9.23	9.25	↑.3%	9.29	9.37	↑1%	8.99	9.38	↑4%
Q5: I feel confident interacting with a wide variety of people.	7.91	8.64	↑9%	8.53	8.55	↑.3%	7.92	8.92	↑13%	8.20	8.64	↑5%
Q6: I feel confident presenting my thoughts and ideas to others.	7.09	8.26	↑16%	7.58	8.10	↑7%	7.16	8.66	↑21%	7.78	8.32	↑7%
Q7: I understand the importance of teamwork in a healthcare setting.	8.74	9.36	↑7%	9.28	9.48	↑2%	9.08	9.55	↑5%	9.03	9.51	↑5%
Q8: I can work with other people to achieve specific goals.	8.27	9.05	↑9%	8.80	8.85	↑1%	8.55	9.21	↑8%	8.80	9.25	↑5%
Q9: I understand the role of empathy in a healthcare setting.	8.68	9.38	↑8%	9.45	9.23	↓-2%	9.24	9.42	↑2%	9.17	9.42	↑3%
Questions about university and careers												
Q10: I know my own strengths and areas I need to develop.	7.47	8.79	↑18%	8.08	8.45	↑5%	8.37	8.71	↑4%	8.07	8.49	↑5%
Q11: I feel comfortable in a physical or virtual university environment.	7.70	8.94	↑16%	8.55	8.75	↑2%	8.34	8.84	↑6%	8.32	8.62	↑4%
Q12: I think I would succeed at university.	8.05	8.76	↑9%	8.75	8.73	↓-.3%	7.95	8.76	↑10%	8.57	8.54	↓-.3%
Q13: I understand the different careers available in health.	7.71	8.86	↑15%	8.05	8.43	↑5%	8.05	8.92	↑11%	8.26	9.03	↑9%



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Table 5: Paired sample t-tests

	t	df	p
Questions about medicine and healthcare			
Q1: I have an interest in studying medicine at university.	2.282	212	0.988
Q2: I have an interest in studying healthcare.	-0.647	212	0.259
Q3: I feel confident in applying to medicine.	-5.634	212	< .001
Questions about skills			
Q4: I understand the importance of communication skills in a healthcare setting.	-3.924	212	< .001
Q5: I feel confident interacting with a wide variety of people.	-4.590	212	< .001
Q6: I feel confident presenting my thoughts and ideas to others.	-7.395	212	< .001
Q7: I understand the importance of teamwork in a healthcare setting.	-4.466	212	< .001
Q8: I can work with other people to achieve specific goals.	-5.075	212	< .001
Q9: I understand the role of empathy in a healthcare setting.	-2.650	212	0.004
Questions about university and careers			
Q10: I know my own strengths and areas I need to develop.	-6.855	212	< .001
Q11: I feel comfortable in a physical or virtual university environment.	-3.859	212	< .001
Q12: I think I would succeed at university.	-2.582	212	0.002
Q13: I understand the different careers available in health.	-6.429	212	< .001
Overall - Pre and Post Summer School	5.941	212	< .001

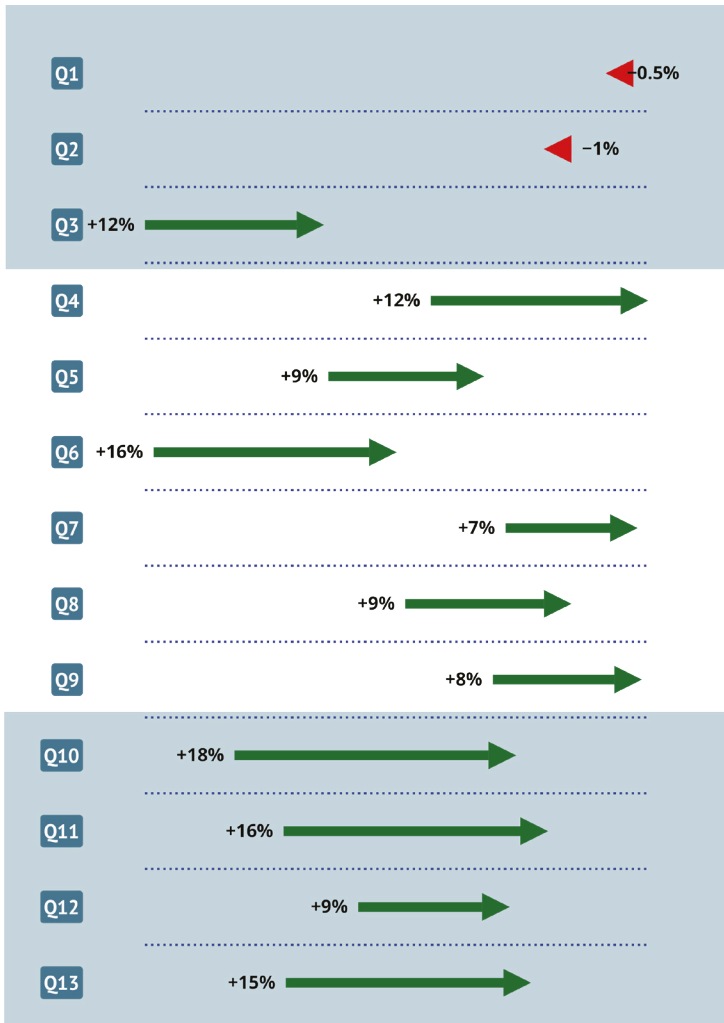
Table 6: Qualitative survey data - responses by host institution

Pathway	Responses	Percentage
Brighton and Sussex Medical School / Anglia Ruskin University	42	38
Edge Hill (with Manchester, Lancaster & Liverpool)	24	22
London Medical Schools	24	22
Yorkshire (Leeds, HYMS and Sheffield)	21	19
Total	119	100

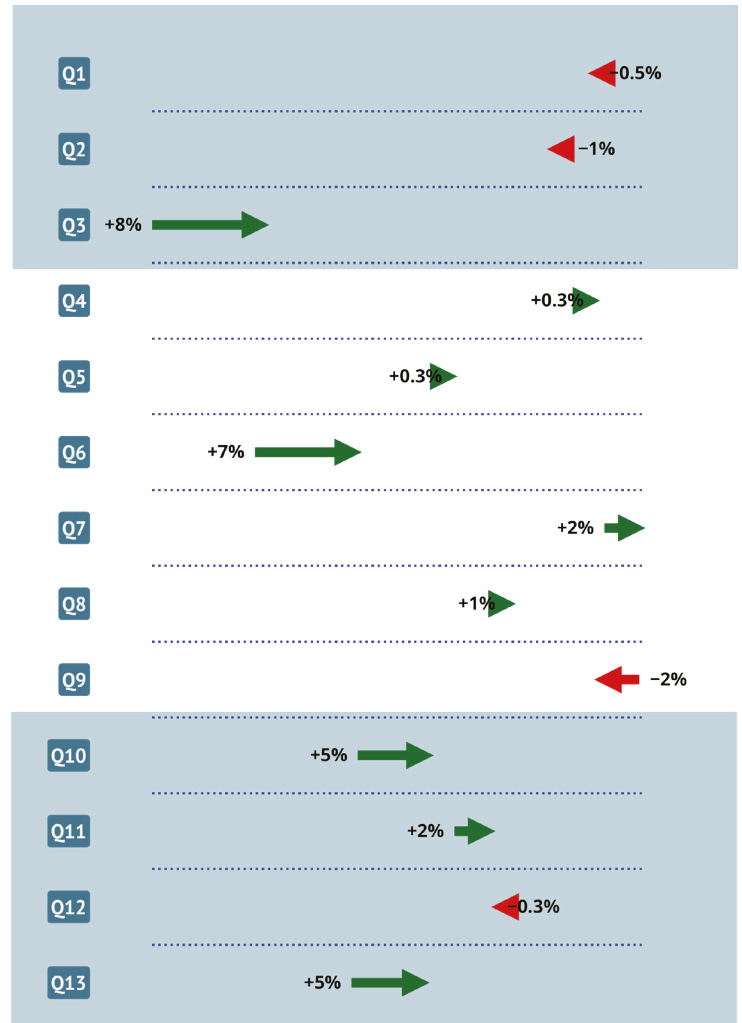


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Chart 1: Learning Gain - results by host institution



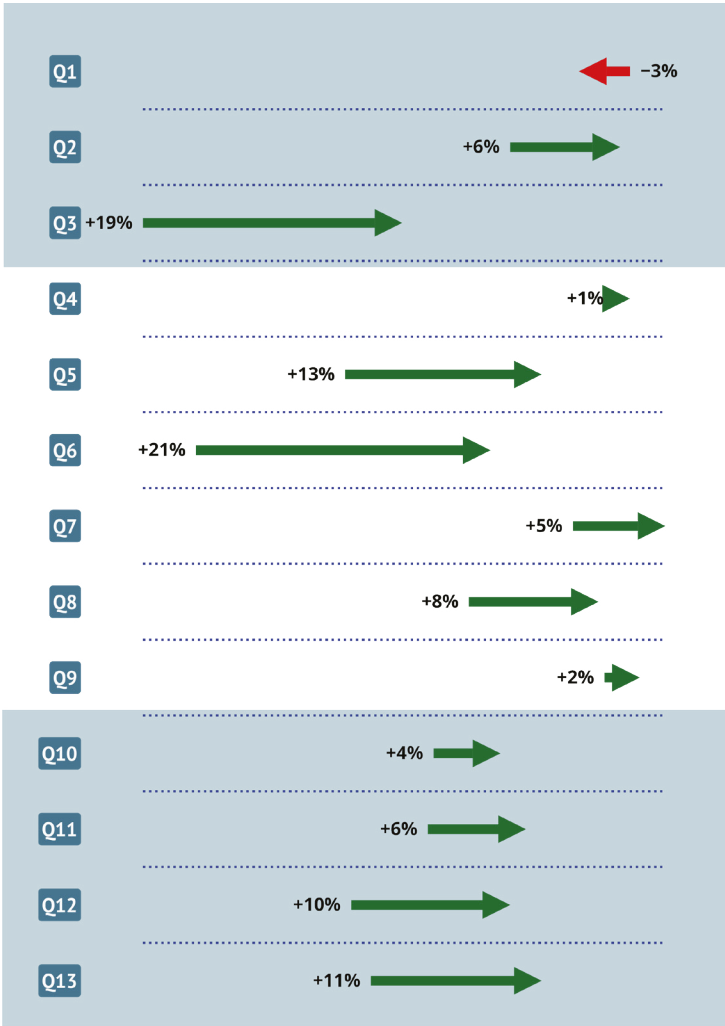
Brighton and Sussex Medical School / Anglia Ruskin University



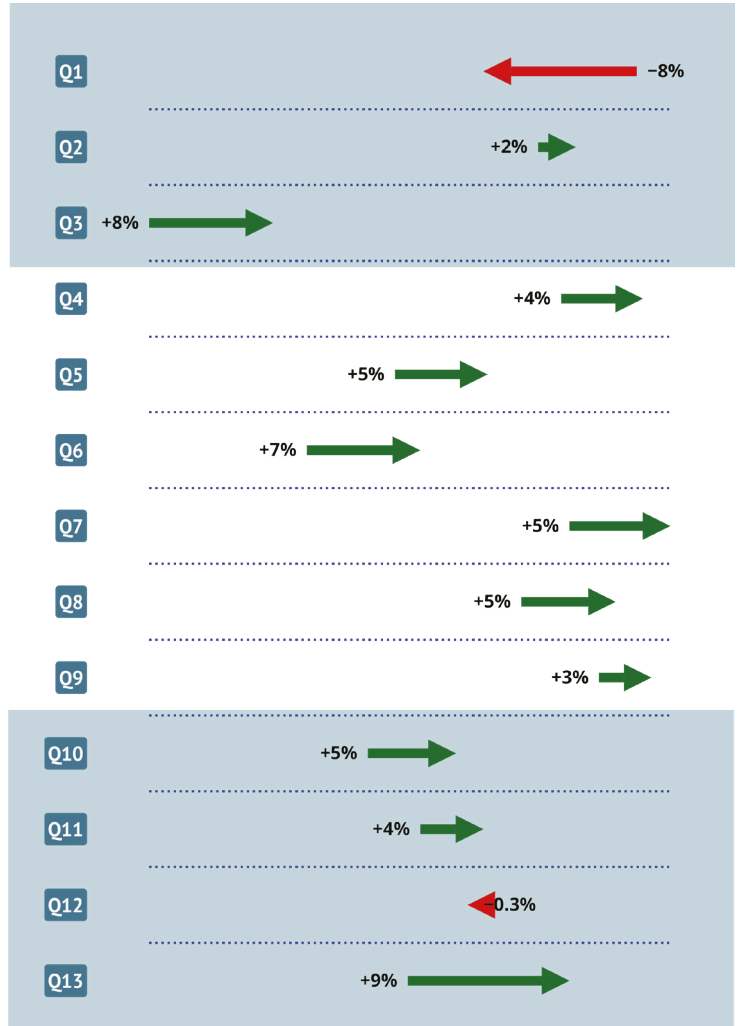
Edge Hill (with Manchester, Lancaster & Liverpool)



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London Medical Schools



Yorkshire (Leeds, HYMS and Sheffield)

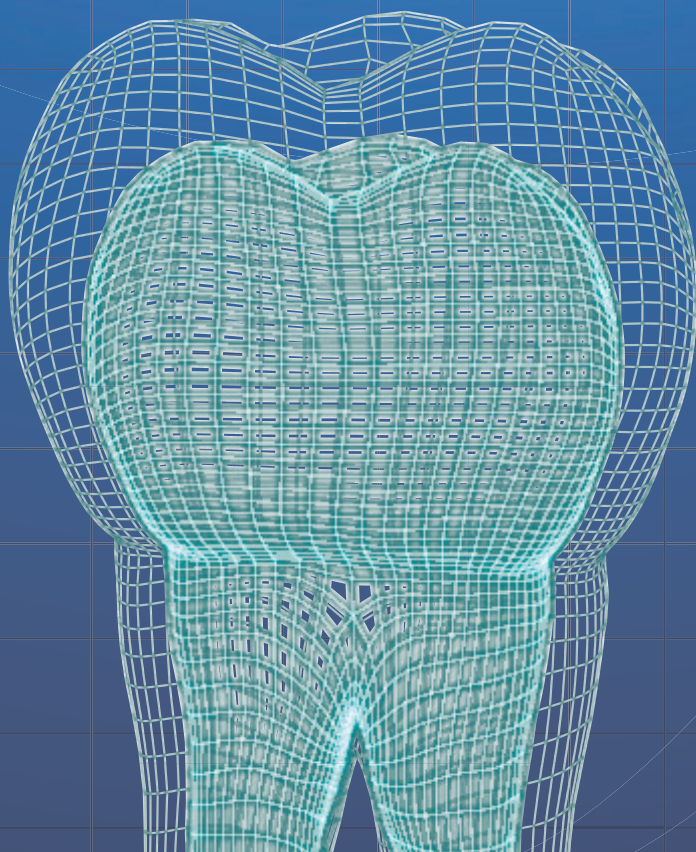
LEARNING GAIN TOOL® ANALYSIS



USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT: DSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024

Full report

Dr David Wilkinson
Dr Dane McCarrick





USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT: DSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024

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Executive summary

Learning Gain Tool

Identifying the factors that predict student engagement in Dentistry is essential to understanding future career trajectories in these fields. Our analysis aims to compare students' interest and engagement in Dentistry before (at baseline) and after (at follow-up) their participation in the DSC Summer Schools Pathway programme.

Pathway Programmes

This year the programme was provided as five distinct programmes, delivered by the following partner organisations:

- Queen Mary University of London programme.
- Peninsula Dental School programme.
- University of Leeds School of Dentistry programme.
- University of Liverpool Dental School programme
- University of Manchester Dental School programme

About the data

Data were collected from participants at the beginning and end of the programme. In order to conduct advanced statistical analyses on our data we have 'paired' responses (participants who completed both pre and post programme surveys). Our analysis is therefore based on 154 respondents - see Table 3: Learning gain responses by host institution).

Questions about dentistry and healthcare


Within the question set covering dentistry and healthcare, the greatest change was recorded in relation to Q3 - I feel confident in applying to dentistry. (see Table 2: Learning Gain statements ranked by largest gain). This boost in confidence to apply indicates that, across the programme, participants were provided with positive messages about progressing to a dentistry programme of study with the participating host organisations.

18% 

Q3: I feel confident in applying to dentistry.

Questions about skills

The largest positive change within skills was linked to confidence in presenting thoughts and ideas to others (Q6 - I feel confident presenting my thoughts and ideas to others). The positive gain achieved this year indicates that Summer School provision provides participants with suitable and encouraging opportunities to present thoughts and ideas to others.

14% 

Q6: I feel confident presenting my thoughts and ideas to others.

Questions about university and careers

Consistent with Learning Gain data from last year, participants reported substantive increases in their understanding of different careers available to them in oral health by the end of the Summer School programme (Q13 - I understand the different careers available in oral health). The positive gain recorded this year is larger than that recorded last year (19%).

26% 

Q13: I understand the different careers available in oral health.

Inferential statistics

The inferential analysis supported the trends observed in the raw data, depicting a positive shift in students' perceptions of studying dentistry following exposure to the DSC Summer Schools Pathway programme.



USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT: DSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024

Introduction

Learning Gain Tool

Identifying the factors that predict student engagement in Dentistry is essential to understanding future career trajectories in these fields. Research Toolkit utilises the Learning Gain Tool as a novel measurement technique to assess student engagement both pre and post exposure to course content, but also observe important changes over time. Our analysis aims to compare students' interest and engagement in Dentistry before (at baseline) and after (at follow-up) their participation in the DSC Summer Schools Pathway programme.

Pathway Programmes

This year the programme was provided as five distinct programmes, delivered by the following partner organisations:

- Queen Mary University of London programme.
- Peninsula Dental School programme.
- University of Leeds School of Dentistry programme.
- University of Liverpool Dental School programme
- University of Manchester Dental School programme

Each of the programme providers determined a Summer School programme tailored to local need - consisting of a range of activities alongside a residential or online summer school. Applications were open to young people in Year 12 who were interested in dentistry.

Learning Gain Tool

The Research Toolkit Learning Gain Tool®, is an interactive resource capable of assessing and measuring impact of educational interventions. It uses pre and post-activity data to explore impact from the perspective of the activity participant, school or stakeholder representative. This tool has been used across a number of outreach programmes and is also used by other widening participation providers regionally and nationally to identify effect, impact and distance travelled of educational interventions.



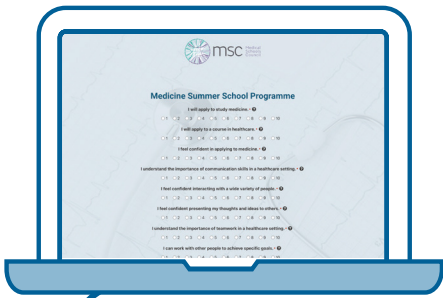
Measuring learning gain

As part of their participation in the DSC Summer Schools Pathway programme, students were asked to respond to a series of 13 before and after questions or statements. These questions were administered via the use of the online Learning Gain Tool®. Participants on the Summer School programme were provided with a weblink in order to register on the system and to respond to the questions. The bank of questions were linked to skills, views, and knowledge in a number of areas linked to dentistry and healthcare. Questions were developed by Research Toolkit and the Summer School programme team and have been adapted from other similar outreach and widening participation interventions.

Paired-samples t-tests were used to determine whether the mean difference between these two sets of observations were statistically significant. The associated statistical assumption checks (i.e., normality; inferential case/outliers checks) were also run in parallel to these analyses and the data was confirmed suitable for this analysis technique. Only complete cases were used in the analysis.

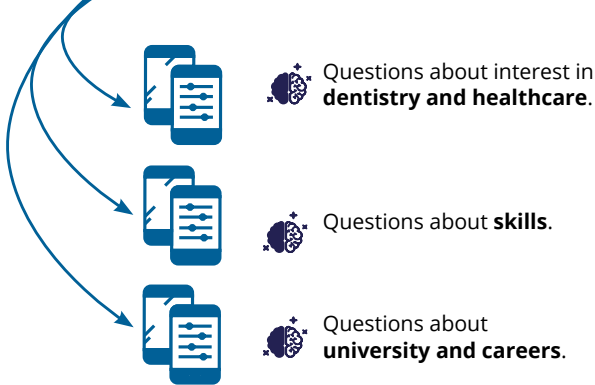


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154

Responses beginning and end of Summer School (paired responses)



About the data

Data were collected from participants at the beginning and end of the programme. In order to conduct advanced statistical analyses on our data we have 'paired' responses (participants who completed both pre and post programme surveys). Our analysis is therefore based on 154 respondents - see Table 3: Learning gain responses by host institution). Participant data were combined to produce an average across the 13 question or statement areas. At the beginning of the programme this resulted in the production of a 'temperature reading' of attitude, perceived skill and understanding. The same process was used for the data collected at the end of the programme. The difference in average values (pre and post programme) produces a distance travelled or 'learning gain' value.

Descriptive analysis: percentage increases

For the purposes of transparency we include the numeric change in average value - from the beginning of the programme to the end of the programme (see Table 1: Learning Gain statement analysis: DSC Summer School Programme). For example, the change in value of question 1 (I will apply to study dentistry) moves from an average of 8.73 to 9.14 by the end of the programme. To clarify this movement we have converted the change to a percentage figure; using the beginning of the programme as a base this represents a 5% increase at the end of the programme. To aid accessibility, we have also ranked responses by largest learning gain (see Table 2 Learning Gain statement analysis - ranked by largest gain).

Questions about dentistry and healthcare

Within the question set covering dentistry and healthcare, the greatest change was recorded in relation to Q3 - I feel confident in applying to dentistry. (see Table 2: Learning Gain statements ranked by largest gain). This boost in confidence to apply indicates that, across the programme, participants were provided with positive messages about progressing to a dentistry programme of study with the participating host organisations. The increase in confidence to apply was slightly higher than recorded for the 2023 programme (16%). However this result continues to indicate that positive messages linked to progression were emphasised during the course of the various Pathway programmes delivered by participating host organisations.

18%

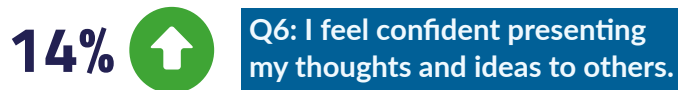
Q3: I feel confident in applying to dentistry.



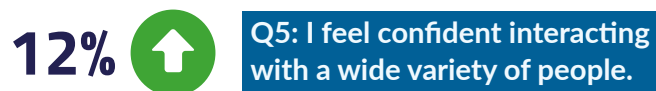
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Questions about skills

The largest positive change within skills was linked to confidence in presenting thoughts and ideas to others (Q6 - I feel confident presenting my thoughts and ideas to others). The increase recorded against this skill is similar to that recorded by last year's Learning Gain survey (15%). The positive gain achieved this year indicates that summer school provision provides participants with suitable and encouraging opportunities to present thoughts and ideas to others. This is provided flexibly through group presentation work and contributions in seminar/lecture-based situations.

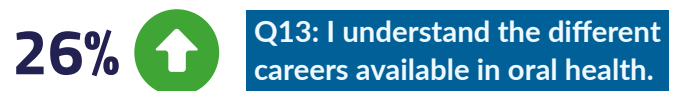


Socialising and interacting with other participants, facilitators and others involved with the Pathway programmes may have positively influenced gains or increases in other skill areas. This is consistent with last year's Learning Gain data, which presented similar positive gains (11%) relating to confidence in terms of interactive with other participants (Q5: I feel confident interacting with a wide variety of people).

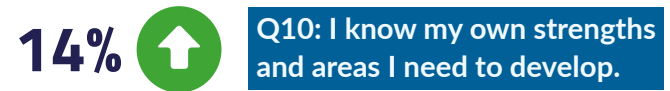


Questions about university and careers

Consistent with Learning Gain data from last year, participants reported substantive increases in their understanding of different careers available to them in oral health by the end of the Summer School Pathway programme (Q13 - I understand the different careers available in oral health). The positive gain recorded this year is larger than that recorded last year (19%).



Participants also gained greater self-awareness regarding their personal and professional development needs (Q10: I know my own strengths and areas I need to develop). This improvement suggests the Pathways programme successfully encouraged introspection, helping students better identify areas for growth as they progress toward medical school.



A note on increases

Some areas received small increases by the end of the Summer School Pathway programme. This could be due to a number of reasons including the fact that the 'score' at the beginning of the Summer School Pathway was extremely positive for some elements (which included interest in dentistry and dental health, and a recognition of some of the key skills required to be successful in these career areas). Small increases may also be the result of more honest reflection by participants, by the end of the programme, in relation to their drive towards careers in dentistry and the assessment of skills and abilities required to pursue such careers.



USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT: DSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024

Inferential statistics

The inferential analysis supported the trends observed in the raw data, depicting a positive shift in students' perceptions of studying dentistry/dental health following exposure to the summer schools.

Paired-samples t-tests revealed twelve out of thirteen questions featured statistically significant differences in follow-up scores (relative to baseline) across the 154 students. The one question in which differences were not statistically significant was: Q2: I will apply to a course in dental health or dental therapy. There was considerable variability in response to this statement (pre and post Summer School), which may be an indicator of poor comprehension of the question rather than a lack of interest in pursuing dentistry provision at University.

The 'Overall Pre and Post (all statements)' score was also significant indicating that, holistically, the summer school improved students' perceptions of studying dentistry/dental health in higher education. The significant relationships are reported below (see Table 5). Questions which have a p-value of less than .05 were considered statistically significant.

Concluding remarks

Learning or development gains

Data collected from participants of the DSC 2024 Summer Schools Pathway programme identified considerable development in areas crucial for success when studying dentistry and related oral health subjects. This report highlights the Pathway programme's success in enhancing participants' knowledge, confidence, and preparedness for dental school. Statistically significant increases were observed in students' understanding of the diverse careers in oral health, with a 26% gain in awareness, and an 18% increase in confidence to apply to dentistry programs. These are consistent with results obtained for the 2023 Summer Schools Pathway programme.

The value of the DSC Summer Schools Pathway programme

The development of key skills, such as presenting ideas and engaging with diverse groups, was also notable, showing the effectiveness of hands-on group activities and workshops in supporting the development of communication and related interpersonal skills. The programme encouraged participants to reflect on their strengths and areas for improvement, promoting valuable self-awareness that will be of value should they progress to study dentistry/healthcare at University.



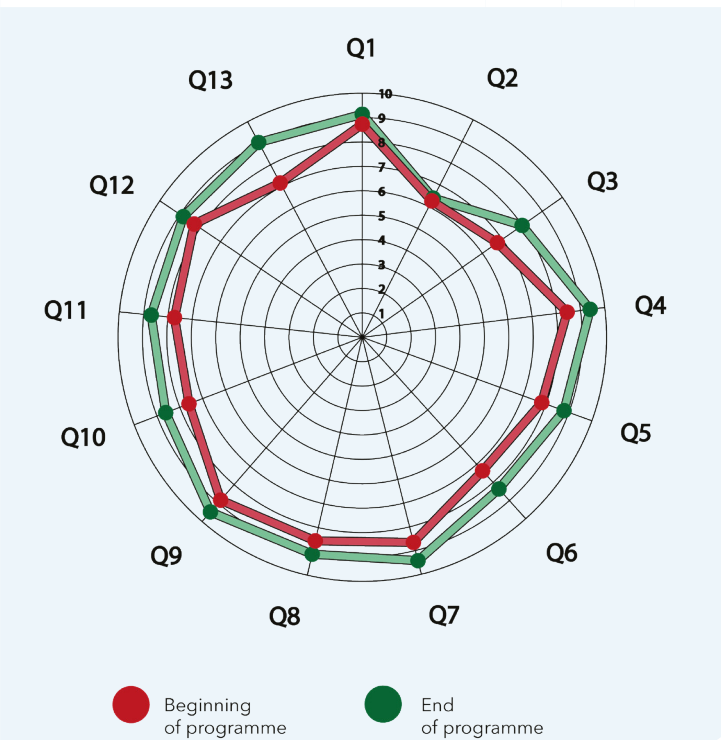
USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT: DSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024

Table 1: Learning gain statement analysis - DSC Summer Schools Pathway programme

Learning Gain Tool statements:	Pre	Post	% ↑↓
Questions about dentistry and healthcare			
Q1: I will apply to study dentistry.	8.73	9.14	↑5%
Q2: I will apply to a course in dental health or dental therapy.	6.27	6.40	↑2%
Q3: I feel confident in applying to dentistry.	6.75	7.99	↑18%
Questions about skills			
Q4: I understand the importance of communication skills in an oral health setting.	8.45	9.40	↑11%
Q5: I feel confident interacting with a wide variety of people.	7.82	8.79	↑12%
Q6: I feel confident presenting my thoughts and ideas to others.	7.36	8.36	↑14%
Q7: I understand the importance of teamwork in an oral healthcare setting.	8.66	9.43	↑9%
Q8: I can work with other people to achieve specific goals.	8.56	9.12	↑6%
Q9: I understand the role of empathy in a healthcare setting.	8.84	9.48	↑7%
Questions about university and careers			
Q10: I know my own strengths and areas I need to develop.	7.60	8.62	↑14%
Q11: I feel comfortable in a university/higher education environment.	7.73	8.69	↑13%
Q12: I think I would succeed at university or other higher education Institution.	8.30	8.84	↑7%
Q13: I understand the different careers available in oral health.	7.16	9.04	↑26%
Overall Pre and Post (all statements)	7.86	8.71	↑11%

Table 2: Learning gain statement analysis - ranked by largest gain

Learning Gain Tool statements:	Pre	Post	% ↑↓
Q13: I understand the different careers available in oral health.	7.16	9.04	↑26%
Q3: I feel confident in applying to dentistry.	6.75	7.99	↑18%
Q6: I feel confident presenting my thoughts and ideas to others.	7.36	8.36	↑14%
Q10: I know my own strengths and areas I need to develop.	7.60	8.62	↑14%
Q11: I feel comfortable in a university/higher education environment.	7.73	8.69	↑13%
Q5: I feel confident interacting with a wide variety of people.	7.82	8.79	↑12%
Q4: I understand the importance of communication skills in an oral health setting.	8.45	9.40	↑11%
Q7: I understand the importance of teamwork in an oral healthcare setting.	8.66	9.43	↑9%
Q9: I understand the role of empathy in a healthcare setting.	8.84	9.48	↑7%
Q12: I think I would succeed at university or other higher education Institution.	8.30	8.84	↑7%
Q8: I can work with other people to achieve specific goals.	8.56	9.12	↑6%
Q1: I will apply to study dentistry.	8.73	9.14	↑5%
Q2: I will apply to a course in dental health or dental therapy.	6.27	6.40	↑2%





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Table 3: Learning gain - responses by host institution

Learning Gain Tool paired responses:	Number	Percentage
Queen Mary University of London, Institute of Dentistry	23	14.9
Plymouth University, Peninsula School of Dentistry	36	23.4
University of Leeds, Dental Institute	11	7.1
University of Liverpool, School of Dentistry	28	18.2
University of Manchester, School of Dentistry	56	36.4
Total	154	100.0

Table 4: Learning gain - comparison by host institution

Learning Gain Tool statements:	Queen Mary			Plymouth			Leeds		
	Pre	Post	% ↑↓	Pre	Post	% ↑↓	Pre	Post	% ↑↓
Questions about dentistry and healthcare									
Q1: I will apply to study dentistry.	9.00	9.65	↑7%	8.86	9.06	↑2%	7.00	8.55	↑22%
Q2: I will apply to a course in dental health or dental therapy.	5.57	6.43	↑16%	6.33	7.11	↑12%	6.00	7.64	↑27%
Q3: I feel confident in applying to dentistry.	6.52	8.43	↑29%	6.92	7.86	↑14%	6.36	7.73	↑21%
Questions about skills									
Q4: I understand the importance of communication skills in an oral health setting.	8.78	9.70	↑10%	8.22	9.25	↑13%	7.27	9.45	↑30%
Q5: I feel confident interacting with a wide variety of people.	7.83	8.83	↑13%	8.03	8.86	↑10%	6.73	8.45	↑26%
Q6: I feel confident presenting my thoughts and ideas to others.	7.22	8.39	↑16%	7.56	8.31	↑10%	6.73	8.18	↑22%
Q7: I understand the importance of teamwork in an oral healthcare setting.	8.83	9.87	↑12%	8.64	9.14	↑6%	8.18	9.73	↑19%
Q8: I can work with other people to achieve specific goals.	8.52	9.30	↑9%	8.53	9.17	↑7%	8.00	9.55	↑19%
Q9: I understand the role of empathy in a healthcare setting.	9.04	9.70	↑7%	8.72	9.22	↑6%	8.09	9.55	↑18%
Questions about university and careers									
Q10: I know my own strengths and areas I need to develop.	7.74	8.78	↑13%	7.78	8.53	↑10%	7.18	8.55	↑19%
Q11: I feel comfortable in a university/higher education environment.	7.70	9.17	↑19%	7.67	8.39	↑9%	7.27	8.45	↑16%
Q12: I think I would succeed at university or other higher education Institution.	8.35	9.26	↑11%	8.25	8.69	↑5%	7.55	8.36	↑11%
Q13: I understand the different careers available in oral health.	7.26	9.26	↑28%	7.08	8.78	↑24%	6.18	8.73	↑41%



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Table 4: Learning gain - comparison by host institution (continued)

Learning Gain Tool statements:	Liverpool			Manchester		
	Pre	Post	% ↑↓	Pre	Post	% ↑↓
Questions about dentistry and healthcare						
Q1: I will apply to study dentistry.	9.07	9.43	↑4%	8.71	8.96	↑3%
Q2: I will apply to a course in dental health or dental therapy.	6.39	6.89	↑8%	6.52	5.45	↓-16%
Q3: I feel confident in applying to dentistry.	7.25	8.61	↑19%	6.57	7.63	↑16%
Questions about skills						
Q4: I understand the importance of communication skills in an oral health setting.	8.96	9.79	↑9%	8.45	9.16	↑8%
Q5: I feel confident interacting with a wide variety of people.	8.43	9.21	↑9%	7.61	8.59	↑13%
Q6: I feel confident presenting my thoughts and ideas to others.	7.71	8.96	↑16%	7.23	8.11	↑12%
Q7: I understand the importance of teamwork in an oral healthcare setting.	9.00	9.93	↑10%	8.52	9.13	↑7%
Q8: I can work with other people to achieve specific goals.	8.93	9.50	↑6%	8.54	8.73	↑2%
Q9: I understand the role of empathy in a healthcare setting.	9.00	9.82	↑9%	8.89	9.38	↑5%
Questions about university and careers						
Q10: I know my own strengths and areas I need to develop.	7.75	9.04	↑17%	7.43	8.43	↑13%
Q11: I feel comfortable in a university/higher education environment.	7.82	9.21	↑18%	7.82	8.48	↑8%
Q12: I think I would succeed at university or other higher education Institution.	8.75	9.43	↑8%	8.23	8.57	↑4%
Q13: I understand the different careers available in oral health.	7.71	9.36	↑21%	7.09	9.02	↑27%



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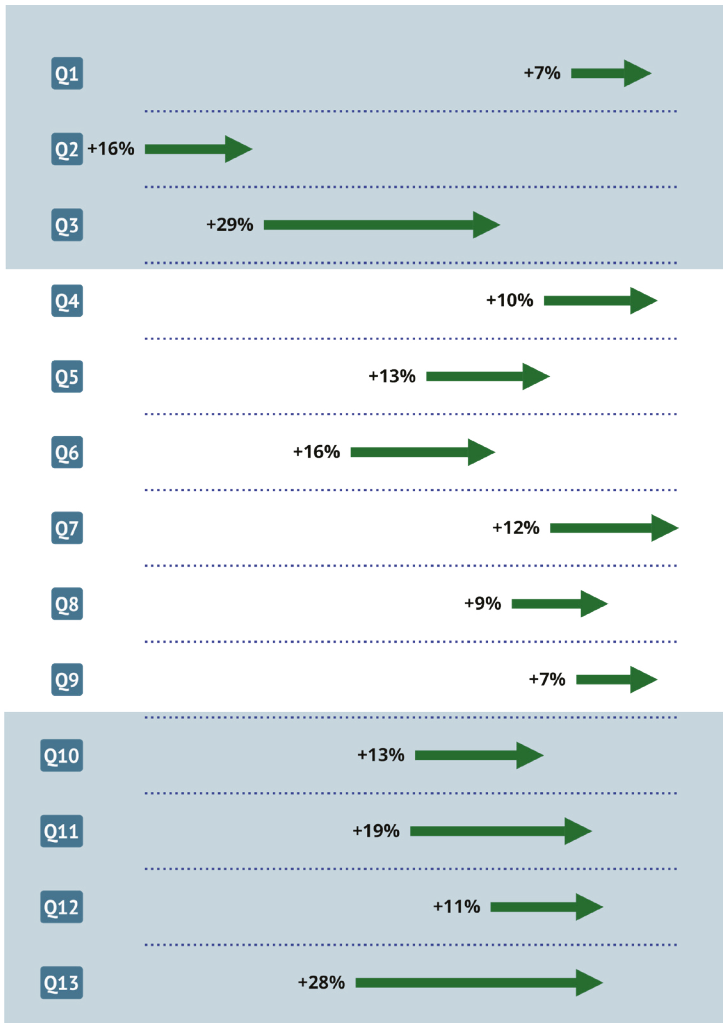
Table 5: paired sample t-tests

	t	df	p
Questions about dentistry and healthcare			
Q1: I will apply to study dentistry.	-2.232	153	0.014
Q2: I will apply to a course in dental health or dental therapy.	-0.472	153	0.319
Q3: I feel confident in applying to dentistry.	-7.584	153	< .001
Questions about skills			
Q4: I understand the importance of communication skills in an oral health setting.	-5.649	153	< .001
Q5: I feel confident interacting with a wide variety of people.	-6.039	153	< .001
Q6: I feel confident presenting my thoughts and ideas to others.	-7.036	153	< .001
Q7: I understand the importance of teamwork in an oral healthcare setting.	-4.593	153	< .001
Q8: I can work with other people to achieve specific goals.	-3.258	153	< .001
Q9: I understand the role of empathy in a healthcare setting.	-3.659	153	< .001
Questions about university and careers			
Q10: I know my own strengths and areas I need to develop.	-6.336	153	< .001
Q11: I feel comfortable in a university/higher education environment.	-6.173	153	< .001
Q12: I think I would succeed at university or other higher education Institution.	-3.766	153	< .001
Q13: I understand the different careers available in oral health.	-11.190	153	< .001
Overall - Pre and Post Summer School	-6.645	153	< .001

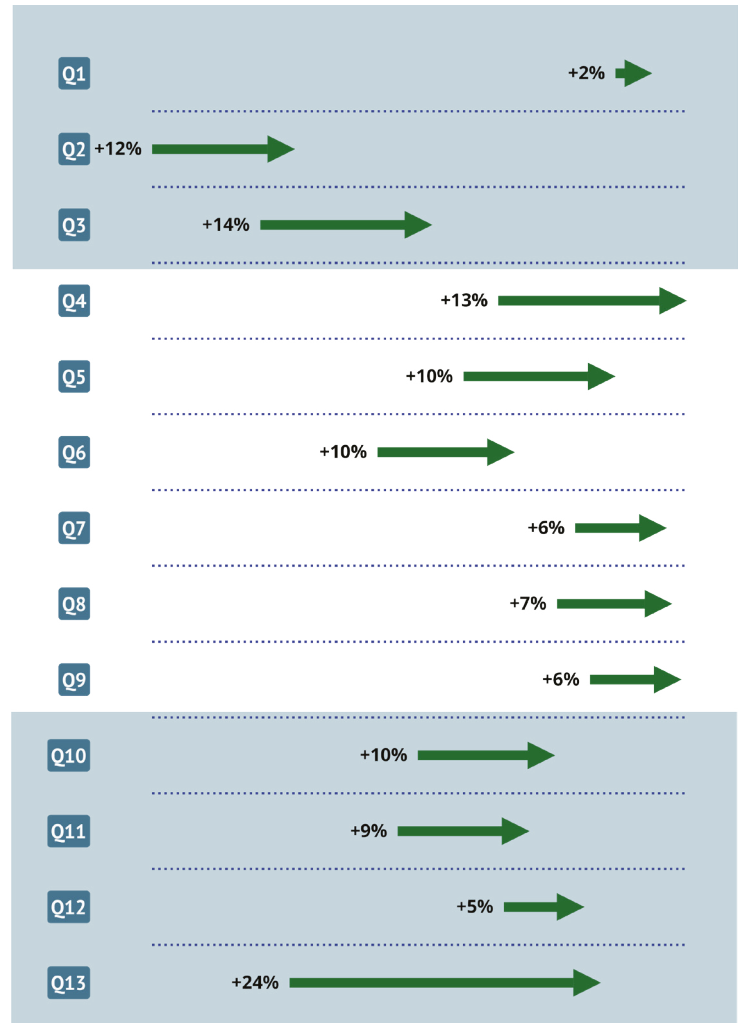


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Chart 1: Learning Gain - results by host institution



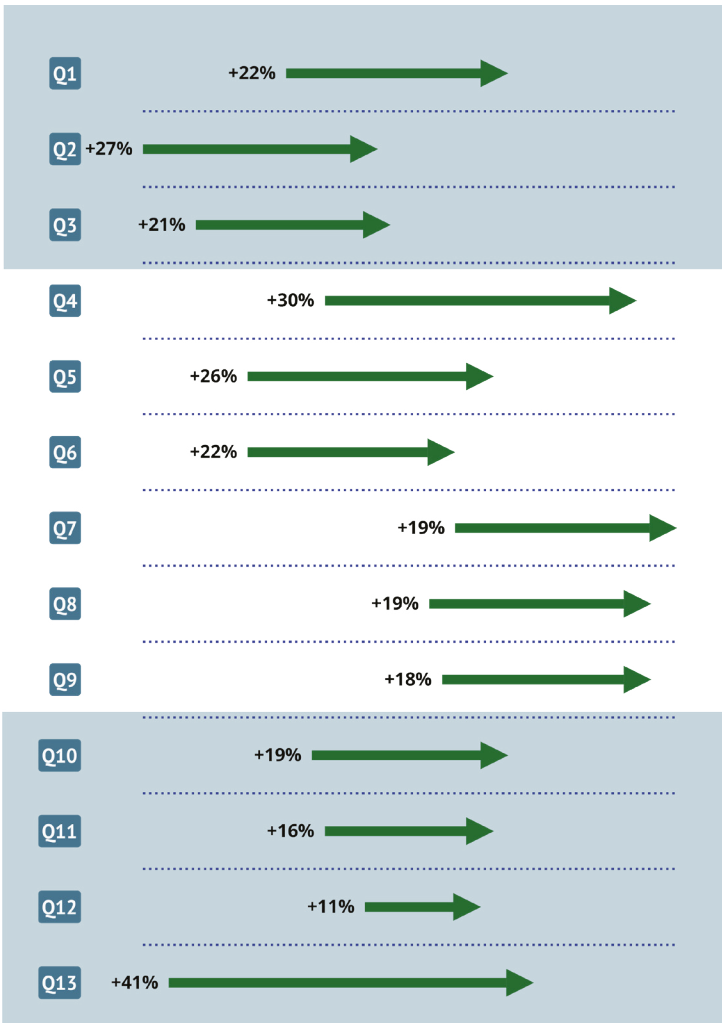
Queen Mary University of London, Institute of Dentistry



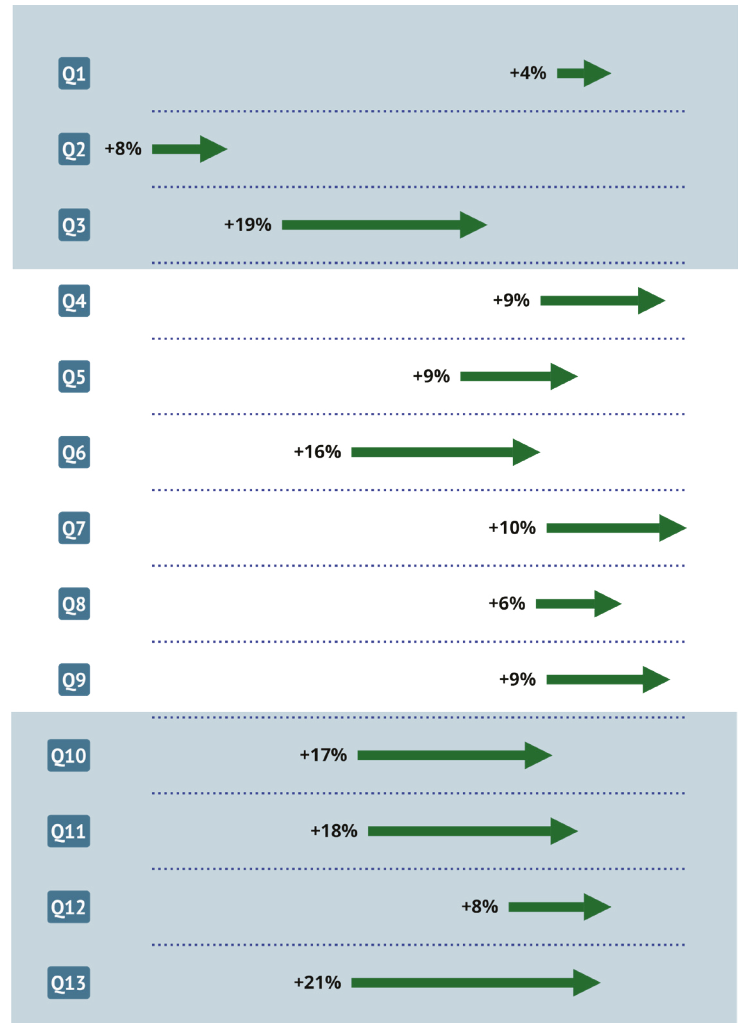
Plymouth University, Peninsula School of Dentistry



USING THE LEARNING GAIN TOOL TO EXPLORE IMPACT: DSC SUMMER SCHOOLS PATHWAY PROGRAMME 2024



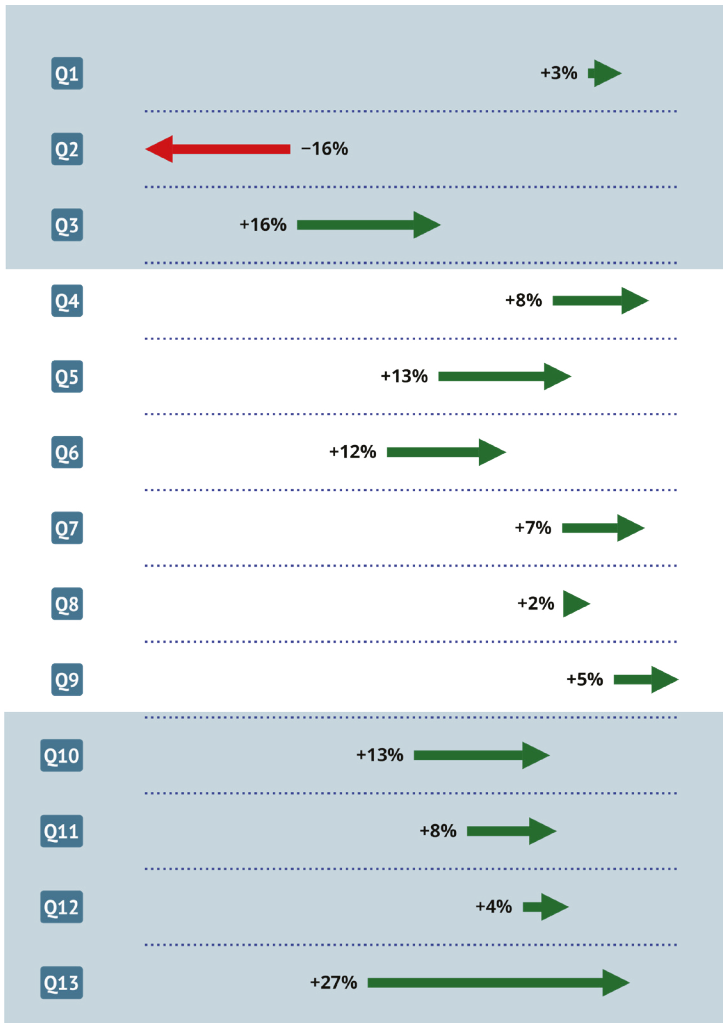
University of Leeds, Dental Institute



University of Liverpool, School of Dentistry



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University of Manchester, School of Dentistry

Interviews

Participants of the summer schools were asked if they wished to take part in an interview about their experiences. The interviews and subsequent report were completed by Amneet Sandhar, second year medical student at University of Southampton.

Headlines

- The summer schools helped participants visualise themselves within higher education and as future doctors/dentists.
- In-person summer schools provide transformative experiences, whereas online programmes focus on information delivery.
- Student ambassadors play a key role in encouraging participants.
- Participants benefited from increased confidence in the university transition, but highlighted concerns around workload and stress on the course.
- Some participants would like more flexibility with attendance policies and eligibility for contextual admissions offerings.

Evaluation of the impact of the Medical and Dental Schools Council Summer Schools 2024 on the participants who attended

Amneet Kaur Sandhar

Introduction

The Medical Schools Council (MSC) and Dental Schools Council's (DSC) summer school programmes in 2024 were designed to support young people from underrepresented backgrounds and from areas of limited outreach engagement. This report explores the impact of the summer schools through the participants' experiences.

Method

A qualitative study employing semi-structured interviews was undertaken. Participants were all students who had finished year 11 or year 12 and had attended at least one MSC or DSC summer school in 2024.

Summer school coordinators shared lists of students who consented to being contacted for research purposes. 81 dentistry summer school participants and 130 medicine summer school participants were contacted.

Interviews were audio-recorded, transcribed and analysed using NVIVO software. The researcher, a medical student in their second year of study, conducted the interviews, and informed the participants at the start of the interview that they had attended an MSC summer school in 2022. The researcher's background encouraged openness and relatability, though this could have caused participants to avoid criticism of the summer schools or result in implicit comparison between medicine and dentistry from DSC participants.

The researcher prioritised accessibility for the interviews, sending interview framework beforehand and using reasonable adjustments like auto-captions, rest breaks, phone calls instead of Teams meetings and amended all documents to be more screen-reader and dyslexia-friendly. The researcher also offered all participants the opportunity to ask any application-related questions at the end of the interview.

Thematic analysis was performed¹², coding MSC and DSC summer schools separately. All interviews were conducted over a period of two weeks in August 2024.

12 Braun V., Clarke V. Thematic Analysis: A Practical Guide. SAGE Publications, 2022.

Initial coding was agreed with the project supervisors and the coding frameworks were further discussed in the University of Southampton Medical Education research group. The coding frameworks were then combined due to the high level of similarity, but areas of nuance between the two summer school programmes were retained. Themes were extracted from the data and in discussion with the research group, a schematic representation of the interrelationships of the themes was created.

- Ethical approval was granted by the University of Southampton (ERGO number: 60516.A8).

Results

Summer schools were all online, hybrid or residential.

Of the 81 dentistry summer school participants contacted, 13 consented to interview. These 13 participants attended either Liverpool (residential), Manchester (online) or Plymouth (online) programmes.

Of the 130 medicine summer school participants contacted, 13 consented to interview. The 13 participants attended either Brighton and Sussex Medical School (residential), Anglia Ruskin University (residential), Edge Hill (residential) or Leeds (online) programmes.

The journey of MSC and DSC summer school participants can be best understood in three stages: preconceptions, experience and visualisation (Figure 2). Preconceptions represent the initial, often second-hand, ideas participants had about the profession. Experience refers to the opportunity for participants to gain first-hand insight into medical or dental student life through clinical skills and professional discussions. Visualisation reflects how participants could then rely on their first-hand knowledge to make informed career decisions and work toward their goals more effectively.

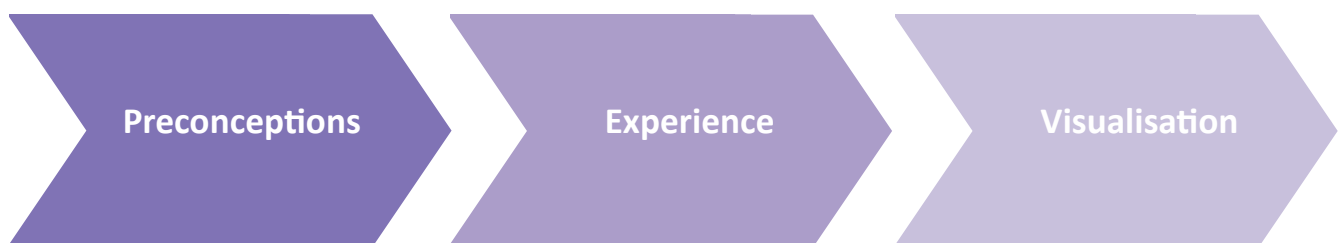


Figure 2: Representation of the journey MSC and DSC participants undertake when attending their summer school.

There were 10 themes identified through analysis across the MSC and DSC summer schools (Figure 3).

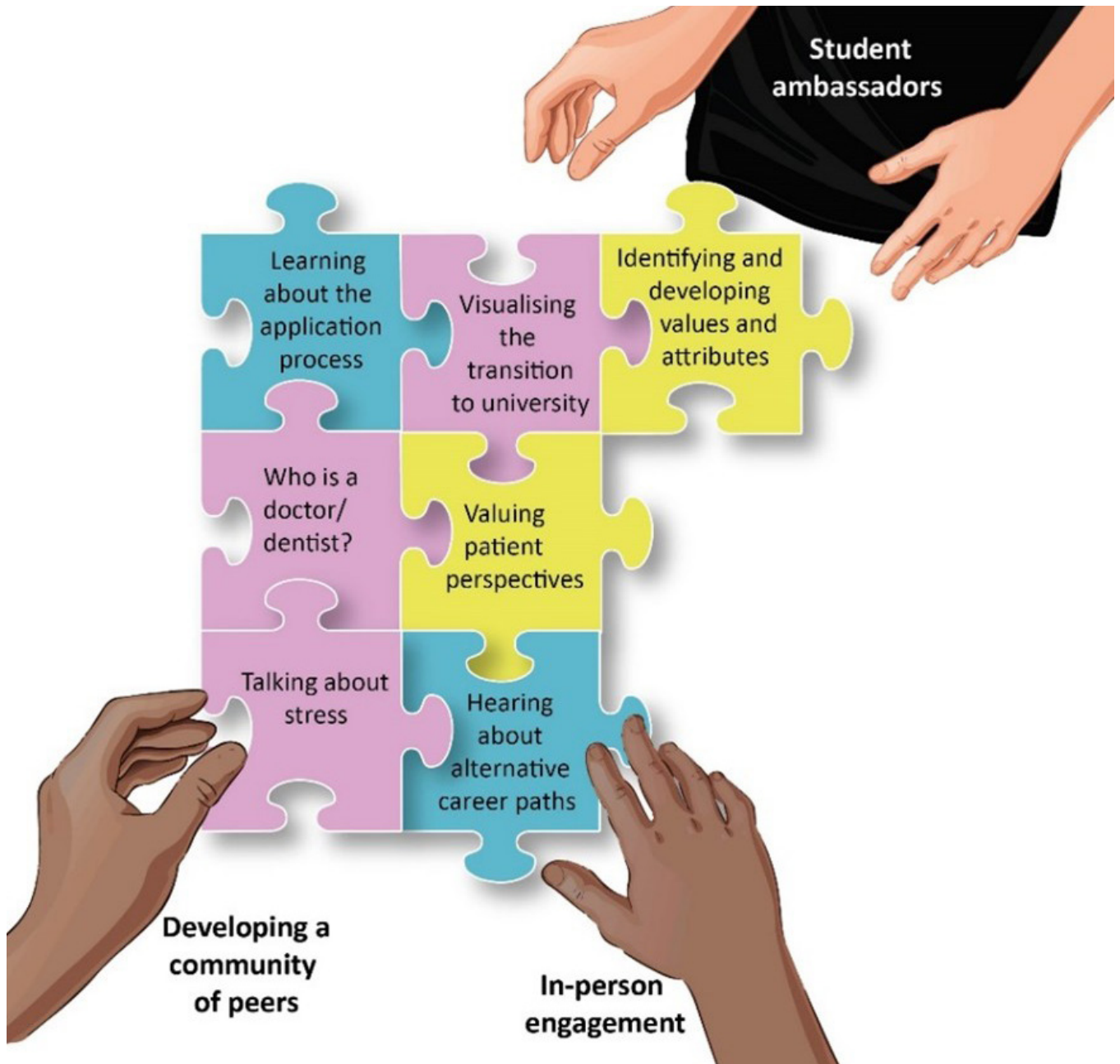


Figure 3: Representation of the 10 shared themes identified from MSC and DSC data. Puzzle pieces represent the themes of participants' personal (pink), professional (yellow) and informational (blue) objectives. Developing a community of peers and in-person engagement were bridging themes, and student ambassadors was a super-theme.

Learning about the application process

Many participants found the application process support helpful, especially regarding the importance of the UCAT, strategic application (applying for the schools where they are most likely to gain a place based on the entry requirements and scoring process), and practice for mini-mock interviews (MMIs), which improved their confidence.

“I think I know the application process as comprehensively as the tutors do now” – Participant 1, Medicine

However, this wasn't reflective of all participants' experiences. Participants 1 and 11 attended the same summer school, yet participant 11 reported less mastery of the application process than participant 1. This could be attributed to a differential baseline knowledge of the application process.

“Honestly I don't understand it that well yet” – Participant 11, Medicine

Students engaging with the summer schools were also given incentives such as a reduced offer and/or guaranteed interview.

However, many students found summer school attendance policies for reduced offers and guaranteed interviews inflexible, potentially excluding those with attention and organisation challenges, such as ADHD, and limiting their ability to benefit fully from these programmes.

“how I missed the opportunity on being like special consideration just because of one part, like one out of eight parts I didn't complete” – Participant 11, Medicine

The Plymouth DSC summer school uniquely offered year 11 students the opportunity to attend the summer school with their year 12 peers. One year 11 participant was interviewed and described the near-peer support as practically useful through advice for the UCAT, studying in year 12 and dentistry applications, but also in improving their levels of self-efficacy.

“If they [year 12s] can do it, then they said that we can do it too” – Participant 15, Dentistry

Early engagement can help applicants prepare to apply to medicine as they can select the required qualifications and have longer to develop skills and work experience needed. This was discussed at length with one participant who found that the summer school was too late in the application cycle for them to change to an alternative career path or get accepted in this application cycle.

“It’s so late to learn about more options right now because I’m, I’m already working towards my options I already chose” – Participant 11, Medicine

Organising summer schools with both Year 11 and 12 students is challenging for organisers who need to accommodate for the knowledge gap between participants.

“When they did this UCAT task and then all three of us year 11s were sat on a table and we just looked at each other blankly” – Participant 15, Dentistry

Who is a doctor/dentist?

Some participants reflected on the competitive view of these professions, describing their experience of:

“Being injected into a group of people who are all just as smart as you; when you’re like the smartest one from your previous school. You know like, little fish, big pond”– Participant 2, Medicine

However participants had the opportunity to find out how invaluable their contribution to these fields can still be, as Participant 2 goes on to realise after discussion with medical and dental students:

“They were high-achievers, but like didn’t always know they could do it” – Participant 2, Medicine

This was reinforced by the visibility throughout the summer schools of clinicians and medical students from similar backgrounds to themselves, helping them to believe that they would belong in the profession.

“Learning that someone like me, someone with a background like myself has, even though I’ve had less opportunity than other people, it doesn’t mean that I’m going to be any less valuable as a medical student or as a clinician” – Participant 5, Medicine

Talking about stress

Workload was a common discussion point, with participants reporting that student ambassadors were very helpful in challenging their initial perceptions about workload, illustrating the realities of medical and dental school workload and the importance of work-life balance from the start.

“maybe I don’t [want to be a dentist] because I do want a social life, but this has really solidified for me that I can end up having both just in moderation” – Participant 25, Dentistry

Some participants still had fears surrounding workload, comparing it to their intense summer school timetable.

Visualising the transition to university

One participant shared that their parents warned them of the challenges of student accommodation.

“I was kind of blinded by my parents being like oh they’re gonna, they could leave a mess for you to clean up, they could blame stuff on you” – Participant 6, Medicine

After the residential, the participant felt that their negative preconceptions had been challenged and that they could now positively visualise living in student accommodation aided by their concrete experience. This informed position is important as many participants who attend these summer schools will have parents who haven’t attended university and therefore need an opportunity to deconstruct any misconceptions they may have.

Valuing patient perspectives

Participants in both medical and dental summer schools valued the opportunity to engage with real patients. Participants at dental summer schools found this particularly helpful as dentistry is less discussed in the public and they had the chance to hear about negative experiences, informing them about the importance of managing patient expectations.

“You wouldn’t really just go talk to someone about, oh yeah, like how do you find dentists?” – Participant 19, Dentistry

“Some people aren’t quite as happy with the results.” – Participant 21, Dentistry

The value of hearing negative patient experiences was shared between both medical and dental summer school participants, but most answers from MSC summer schools were from a biopsychosocial lens, appreciating the uniqueness of patient experiences and needs:

“Our drug has to be easy to understand for patients” – Participant 6, Medicine

“It taught us how the patient is affected by living with this disease” – Participant 6, Medicine

“The patient being nervous, or the patient being maybe like agitated” – Participant 12, Medicine

Identifying and developing values and attributes

Whilst the values and attributes identified by the medical and dental summer school participants were largely similar, they were discussed at varying levels of depth. This is best seen through the participants’ discussion of communication skills. MSC summer

school participants discussed communication with greater complexity, describing the types of communication like verbal, non-verbal and paraverbal skills.

Alongside these skills students brought up how necessary it is to be mindful of using inclusive and empowering language and adapting communication based on needs.

“I know they mentioned, someone said wheelchair-bound, rather than a wheelchair user, and that was brought up, saying you’re not bound, it’s what’s giving you your life back, and I thought that was, that definitely made me think more about your own language choices” – Participant 8, Medicine

Unlike MSC summer schools, DSC summer school participants discussed other skills at greater length like manual dexterity.

“They test your manual dexterity in the interview so definitely like building up on that” – Participant 18, Dentistry

Students at summer schools were often required to complete feedback forms, developing reflective skills that would help them to identify their strengths in the application process.

“I’ve put more reflection into my, I think my whole application” – Participant 12, Medicine

Hearing about alternative career paths

The summer schools also included sessions promoting alternative healthcare careers. This develops students’ awareness of the roles of each person in a multidisciplinary team, which is assessed at interview, but also to help students find the career best suited to them.

“I always thought that medicine was the correct thing for me, but they also had a session about midwifery [...] they taught us something and then we actually got to do it on dummies and like mannequins as well” – Participant 6, Medicine

Participants discussed a highly varied experience of these sessions, ranging from brief lectures to practical skills. Whilst many participants found the sessions helpful, some participants held negative views, considering these careers as the ‘easier option’ or that the sessions were not relevant to them.

Developing a community of peers – bridging theme 1

A community of peers between the participants of the programmes was fostered through activities such as bowling, city trips and film nights, which helped participants connect outside of an academic context.

“we were all meant to be there looking after each other, and just forming that positive environment” – Participant 14, Dentistry

For those who were the only medicine/dentistry applicant from their school, building a sense of community was a primary goal of theirs whilst at the summer school.

“you normally have one every year who tries to get in and to either dentistry or medicine” – Participant 25, Dentistry

In-person engagement – bridging theme 2

Participants who attended in-person, residential summer schools described a more transformative process, which contributed to other key themes like ‘visualising the transition to university’, when they attended the university town in person.

Participants of online summer schools felt that they had less opportunity to build social connections with their peers, as well as missing out on the opportunity to try practical activities such as using clinical skills mannequins.

“It felt like in lockdown when we had online school” – Participant 16, Dentistry

Some participants of the online summer school noted accessibility issues, such as not having access to stable Wi-Fi or suitable device, or not having an appropriate learning space they can access in the evenings.

“Most challenging thing was like sometimes it’s hard to get like a quiet room” – Participant 19, Dentistry

Student ambassadors – super-theme

‘Student ambassadors’ were identified as the super-theme which helped to develop all other themes.

The near-peer teaching student ambassadors provided was seen as the most invaluable part of summer schools by most participants, as the authenticity of hearing from real students who have been in their position recently encourages relatability and connection.

“Nothing’s a silly question, like we were in your guys’ position just a couple years ago” – Participant 15, Dentistry

Participants identified student ambassadors as holding ‘insider knowledge’ and held high levels of trust in their advice.

“The best advice comes from the people who have actually done it and they’re doing it right now” – Participant 9, Medicine

Discussion

The online summer schools appeared to have an overwhelming focus on intensely delivering information, whilst the residential summer schools focused on providing a holistic university experience. The former approach aligns with the knowledge deficit model which assumes students only need extra factual information to catch up with their more advantaged peers. This could be a missed opportunity for bridging the gap in social capital between students from underrepresented backgrounds and their more advantaged peers.

The in-person engagement bridging theme therefore impacted on all of the other key themes expressed by participants. This can be described as an informative-transformative gap between the online and in-person summer schools.

It was noted that, even within the same programmes, participants completed the summer school with a varying degree of confidence in their understanding of the application process. If possible, it would be beneficial to provide individualised support to identify and assist participants who may be struggling due to do a differential baseline compared to their peers.

Whilst the summer schools helped participants visualise their own participation in medical or dental school and belief that they could gain a place, many participants expressed concern about workload and stress-management on the course. Simple interventions such as providing participants with a sample year 1 timetable might remove some of the unknowns around studying on the course.

Whilst acknowledging time constraints, it is recommended that summer schools include more practical activities in smaller groups related to alternative careers to boost engagement and respect for other professions. Participants also were keen to better understand current medical and dental students' reasons for choosing medicine/dentistry in comparison to other healthcare careers, with dentistry participants notably reporting that they had considered medicine in earlier years and would have liked to hear the key differences between the professions.

It is worth noting that whilst medicine and dentistry interviews share themes, there are relevant nuances in their codes. This is most stark when identifying and developing values and attributes relevant to the profession.

MSC and DSC summer school participants largely discussed the same values but to varying depths and frequencies. Communication in MSC participant responses went into detail around: inclusive and empowering language, paraverbal communication, verbal communication, adapting communication based on needs of patients and presentation skills, whilst DSC participants spent less time discussing communication and more time on manual dexterity and spatial reasoning.

These differences are relevant for joint discussions about the development of MSC and DSC widening participation programmes as these summer schools are foundational opportunities for participants but also the first time the MSC and DSC have to engage with their future professionals. This provides an important opportunity to begin developing the desired behaviours and outcomes for medical and dental graduates using the 'Outcomes for Graduates' and 'The Safe Practitioner' frameworks.

Conclusion

The impact of the MSC and DSC summer schools were significant to all participants, in different ways depending on the format of the summer school. All students had a better understanding of medicine/dentistry, but there were participants interviewed who needed more support to clarify misconceptions about medicine/dentistry applications and careers than was provided; these participants need to be better identified which could be through more longitudinal mentor support. Participants who attended online summer schools were able to identify values and attributes needed to study medicine and dentistry, but the development of skills was better accomplished at in-person summer schools.

Participants who attended in-person summer schools had improved their confidence in moving towards higher education by experiential learning like visiting the campus, living in halls of residence and making friends with a large group of new people but those online still found the experience useful in providing information on the course and application process.

Acknowledgements

I am deeply grateful to my supervisors Sally Curtis, Courtney Krstic and Ceri Nursaw for their exceptional guidance and support throughout this research project.

Without the 26 participants, this research wouldn't have been possible; I wish them the best of luck in their higher education journeys.

I would like to express my appreciation to the Medical Schools Council (MSC) for funding the studentship which has supported this project.

Recommendations

This report has demonstrated that the MSC and DSC summer school programme continues to provide valuable support for some of the most disadvantaged students. The majority of students participating in the programmes met multiple eligibility criteria indicating several dimensions of disadvantage, and over two thirds of participants were from the most deprived geographical areas of the UK. However, the number of participants from medicine cold spots did see a reduction this year, and so a targeted recruitment strategy and partnerships with schools in these areas may help improve participation from these regions in future.

Recommendation: Explore focused recruitment strategies and partnerships with local schools within cold spot areas for medicine.

Recommendation: Gather data on cold spots for dentistry for next year's programme.

As the programme becomes more established, MSC and DSC are keen to ensure that the limited places available are reaching the widest possible audience. Host medical and dental schools work together to deliver the programme, sharing best practice and supporting each other with recruitment. MSC and DSC recognise that summer school recruitment places a huge administrative burden onto the host universities, and it is difficult to ensure that participants are only taking part in one summer school placement. By centralising aspects of the application process in future years, this could mitigate some of these issues.

Recommendation: Explore the use of a centralised application process for the summer schools programme in future years.

Additionally, supporting communications and recruitment on the programme centrally via the MSC's teacher and adviser network will help raise the profile of the programme.

Recommendation: Continue to target priority groups, including engaging directly with teachers and advisers, and relevant charities.

Integral to our commitment to widening participation is our desire to continually improve our programmes and contribute to the wider literature on what constitutes effective outreach. Based on the findings and experience of running six years of summer schools, MSC and DSC will be undergoing a review of our evaluation strategy, identifying current gaps within our process aligning to the aims of the programme.

Recommendation: Undergo a review of the current evaluation process for the summer school programme to ensure that we are producing high quality evidence on what works in outreach.

More focused evaluation of the content and differences between individual programmes should be performed, in particular exploring ways in which online programmes can be supplemented to provide a greater sense of belonging and insight into the experience of studying in higher education. Student ambassadors were key to the success of the programmes.

Recommendation: Investigate ways of enhancing experiential aspects of the online summer school programmes.

Our current evaluation processes are robust in exploring the short-term outcomes of the summer schools, including increasing confidence in applying to medicine and dentistry, and improving understanding of the different careers available within healthcare. However, the long-term outcomes (progress into higher education and medicine and dental courses) are currently less well understood. Student databases, such as the Higher Education Access Tracker (HEAT), allow organisations to track the destinations of students participating in their outreach longitudinally; MSC and DSC have recently joined HEAT to enable us to implement this into our evaluation strategy.

Recommendation: Implement long-term evaluation of the outcomes of students on the summer schools programme through MSC and DSC's membership of HEAT.