

# IMPACT REPORT: MWC STEM Pathway Project with CareBlue Tutoring

December 2021

Impact Report



*“It was good insight to the career of Astronomy and the doors that can be opened for me in this career.”*

Young female BAME Muslim STEM Pathway Participant

## Background

During the COVID 19 pandemic, we embarked on a new STEM (Science, Technology, Engineering, Maths) Careers Pathways project which was delivered by CareBlue Training and Tutoring Services. This Project was designed to enable and encourage young BAME Muslim women, aged between 11-19 years old to explore and engage in educational and employment opportunities across STEM career pathways, with the support of their mothers.

This was delivered through three 30/45 minute online webinars focusing on experiences and inspirations by BAME women careers as programmers, engineers, scientists, and astronomers with the support of our current young BAME women on undergraduate/postgraduate courses sharing their reasons why they chose their own STEM career pathway. They offered an insight into their current experiences to help inspire these young BAME female Muslim participants so their mothers can provide them with support mechanism for them to go into their STEM careers. We also delivered three FREE 1-hour online courses, which took place in July, alongside the three webinars. The three online courses that were delivered were: how to think like a Programmer; how to think like an Engineer; and how to think like an Astronomer/Scientist.

## Why this Project?



There is a cultural belief that only certain higher educational routes and occupations are acceptable and bring respect and pride to the family i.e. doctors, solicitors, accountants etc, and these career choices are embedded in young girls from an early age.

We feel by delivering this project to parents and girls will help remove potential barriers to girls pursuing new/different opportunities. It will help raise the awareness of Muslim mothers, predominantly from the BAME community, whose education and employment views are stagnated with limitations, to help understand the opportunities around higher education and career choice for their daughters, whilst helping girls to become better problem solvers, critical thinkers, and inspirational leaders.

Careers Guidance will enable and encourage Muslim mothers to have the confidence to empower and support their daughters to achieve their full potential and build active independence, by exploring and engaging meaningful education and employment opportunities across science, technology, engineering and maths (STEM) sector subjects, instead of a future of a soul-destroying days marriage, stacking shelves or insecure jobs.

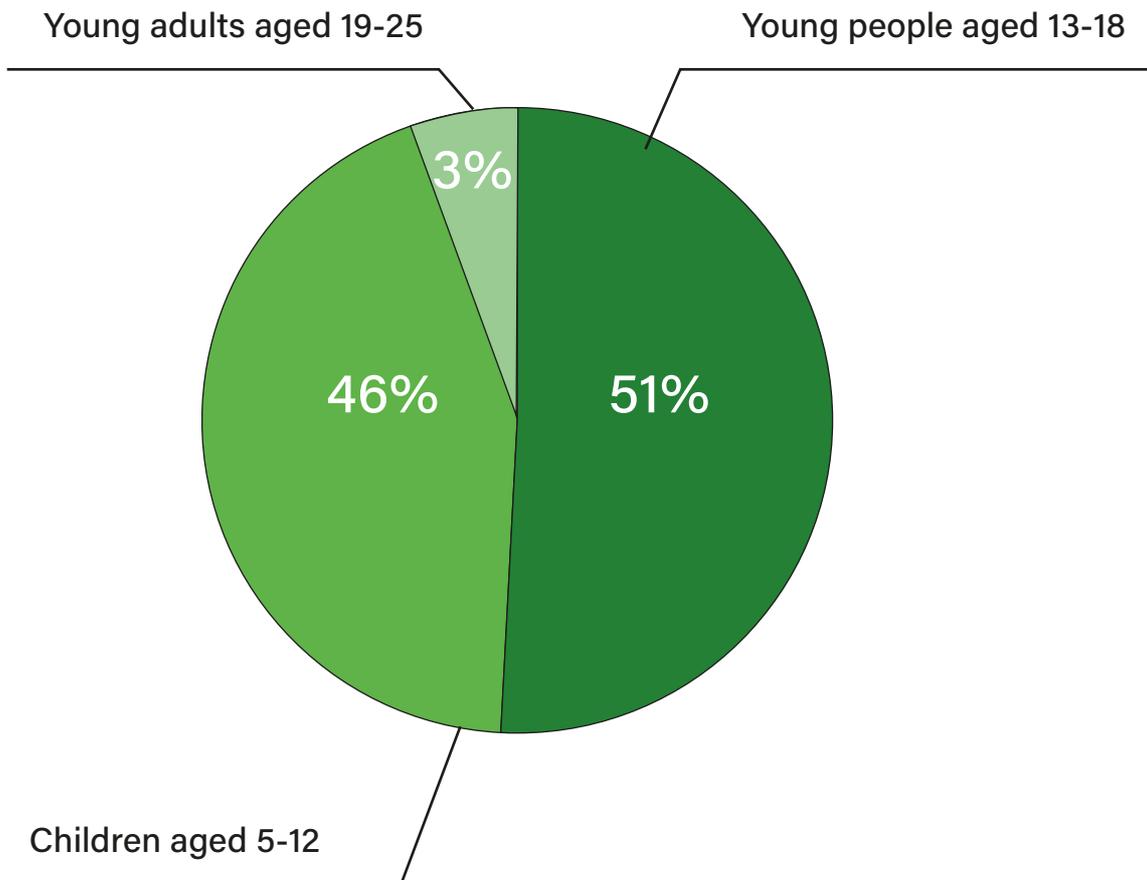
## **Impact of the STEM Project - Engineering Zoom Interviews & Webinars**



Due to the COVID 19 restrictions, we remotely interviewed several undergraduates and postgraduates from the Engineering career pathway through the online Zoom video platform, to discuss their educational experiences in STEM subject of Engineering. They are currently studying an engineering course at university through this COVID 19 pandemic. The Zoom recorded sessions are a valuable and excellent online resource for young aspiring BAME Muslim girls, who will be able to download and watch these young STEM advocates in their chosen engineering professions on the MWC website. This will help inspire future young BAME females into the engineering profession and will be a fantastic online careers guidance resource tool for the future. We have recorded 5 Zoom sessions from 6 different future female Muslim BAME engineers and we hope in the future we can replicate this for other STEM Subject Pathways and have them available and build our careers resource material on the MWC website.

The online webinars were also very successfully delivered and were recorded using the Zoom platform and will be available on the MWC website. When we launched the registration process for all 3 Webinars, the take up was fantastic. We had so many young BAME females, and their mothers interested in all 3 Webinars registering their interests and the majority wanting to take part in 2 out of 3 STEM Career pathways we had chosen to deliver. As the webinar session was delivered online and remotely, we had participants from all over the country, as well as local representatives from a variety of educational settings, from home-schooling, state, and private education. There were a total of 61 participants across the sessions.

## Age group of participants



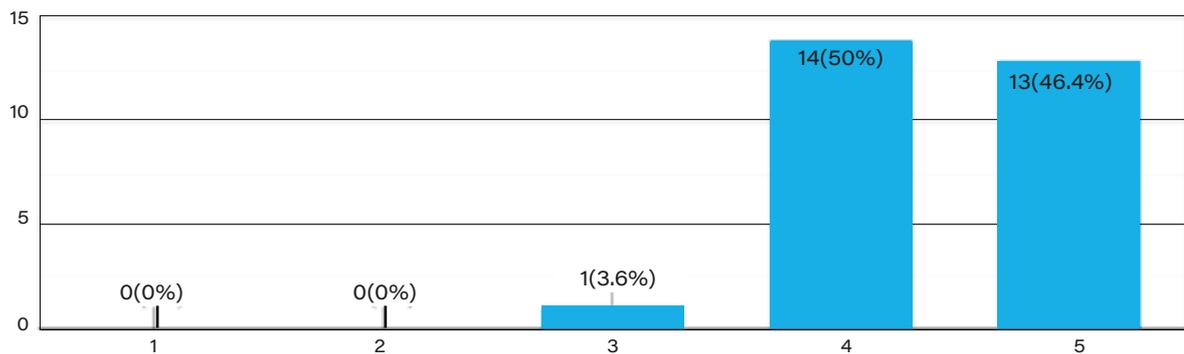
The webinar, in the first of a series of three sessions, was collaboratively delivered by CareBlue Tutoring & Training Services, MWC and University of Bradford. The aim of the webinar series was to stimulate discussion about STEM professions and our role as educationalists, parents, career development practitioners and for the BAME community to promote and encourage young people into these careers. There is an estimated annual shortfall in domestic supply of around 40,000 new STEM skilled workers. The webinar featured three short life experiences designed to stimulate discussion and reflection on STEM professions and career development to inspire and encourage young BAME Muslim girls with the support of their mothers to pursue STEM career pathways.

All the sessions were women-led and mainly all the panel members were female Muslim BAME, to inspire these young BAME female participants and provide them with a visual representation for these enthusing young students who joined the webinar sessions. The first session was chaired by Dr. Kulvinder Panesar, Lecturer in Applied Artificial Intelligence at Bradford University, the panel members, were a third year University of Leeds Computer Science student, a recently graduated student BSc (Hons) in Business Computing and a final year University of Bradford, Computer Science student. The second webinar session was chaired by Dr Elaine Brown, Associate Dean for Equality Diversity & Inclusion at Bradford University, with panel members being a University of Bradford Postdoctoral researcher in Engineering, a University of Sheffield, final year PhD student and University of Bradford, second year Mechanical Engineering student. The final webinar session was chaired by Khansa Ali, an educationalist, who interviewed Dr Evgenia Koumpia, a Research Fellow in Star Formation from the University of Leeds.

Registration was full for all 3 webinars; the first webinar was how to think like a Programmer! Attendance for the first session of the STEM project, how to think like a Programmer was 70%, and we received feedback from 67% of nearly all the participants. In the second session, how to think like an Engineer attendance was 90% and we received feedback from 55% of the participants. In the final session, how to think like an Astronomer attendance was 95% and we received feedback from 70% of the participants . From the feedback, all the participants that attended the STEM project were satisfied with all the webinars they attended and participated in, with 96.4% of participants rating the webinar 4 and above.

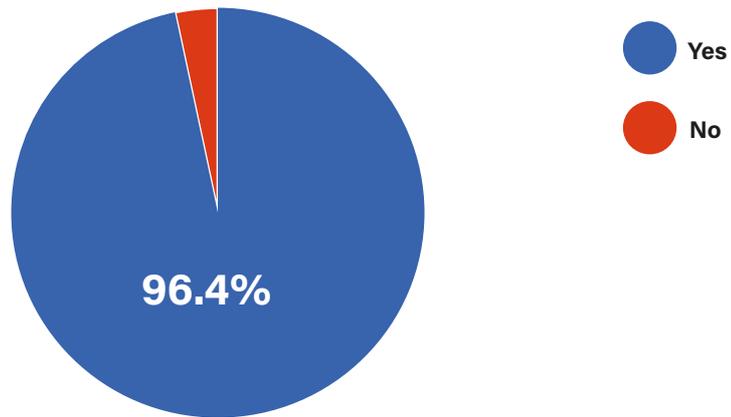
#### How satisfied were you with the Webinar?

28 responses



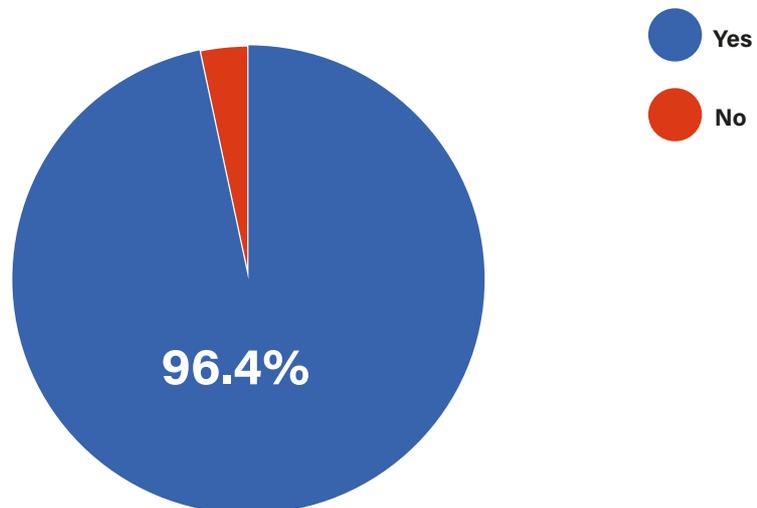
Would you participate in an event similar to this in the future if we held another?

28 responses



Would you recommend this course to a friend or family member?

28 responses



Here are some feedback comments from the participants on how they found the webinar:



*“I really enjoyed the webinar and I think it opened different options and routes I’d want to take when I’m older.”*

*“It allowed me to gain an insight into future careers in this field.”*

*“It was super relevant as I want to become an astronaut.”*

*“Very relevant, especially hearing from someone who is an astronomer.”*

*“Excellent opportunity for young girls to recognise pathways earlier on.”*

*“A well delivered webinar.”*

*“I really enjoyed the webinar.”*

## **Impact of the STEM Project - Online Courses**

The first online course session followed immediately after the webinar session; the majority of the participants remained online after the webinar they had attended. The participants were taught by one of the panel members, the third-year computer science student from the University of Leeds. The interaction and engagement throughout the course were fantastic, as they had a taster session in coding. They learned how to code a game and thoroughly enjoyed the online course session. Due to COVID 19, the course was delivered online through the google classroom platform and Google Meets for the video interaction. All the participants were provided with the course materials through google classroom, which consisted of video tutorials and step-by-step instructions if they needed it and are FREE to use after the session. All teacher presentations and course materials will be available on the MWC website FREE to use in the future, alongside the recordings of the Webinar and Online Course delivered.

Here are some feedback comments from the participants on how they found the online course ‘How to think like a Programmer’:



*“It was a fun way to practice programming.”*

*“I want to become a coder in the future.”*

*“It was fast paced learning.*

*Really enjoyed it.*

*It was fun.”*

*“I want to become a coder in the future.”*

The second online course session also followed immediately after the second webinar session; again, most of the participants remained online after the webinar they had attended. The participants were taught once again, by one of the BAME female panel members, the University of Bradford Postdoctoral researcher in Engineering. This was a hands-on course where participants who had registered were sent course materials and equipment through the post to build a model airplane and test the aerodynamics of how a wing works.

The session was interactive, engaging, fun and gave the participants a small insight in engineering. Although, due to COVID 19, the course was delivered online through the google classroom platform and Google Meets for the video interaction, the materials were sent through post which allowed the tutor and the participants to share the engineering building experiences. Participants enjoyed making the model planes and making the wing fly! All the participants were provided with the course materials through google classroom, which consisted of video tutorials and step-by-step instructions if they needed it and FREE to use after the session. All teacher presentations and course materials will be available on the MWC website FREE to use in the future, alongside the recordings of the Webinar and Online Course delivered for the second session, How to think like an Engineer!

Here are some feedback comments from the participants on how they found the online course 'How to think like an Engineer':



*"Still undecided about what I would like to do in the future but I enjoy building things and so engineering could be an option."*

*"It allowed me to gain an insight into future careers in this field."*

*"All the tools required for the course were supplied. Impressive!"*

*"10/10."*

*"I did like the making of the plane as it gave me a view on how engineers work."*

The final session was again straight after the webinar session, we had all the participants remain online after the webinar they had attended. This was the only session where it was not women-led, we had planned for it to be delivered by a female from the profession but she was unable to attend at the last moment, so it was delivered by an educationalist from CareBlue Tutoring. Another fun, engaging, interactive online session where participants learnt about Astronomy, how to build a comet and planets in their own solar system. Although this online course was the most difficult and challenging to deliver online and remotely, students enjoyed working through activities, which gave them a taster of what astronomy is like.

All the participants were provided with the course materials through google classroom, which consisted of video tutorials and step-by-step instructions if they needed it and were FREE to use after the session. All teacher presentations and course materials will be available on the MWC website FREE to use in the future, alongside the recordings of the Webinar and Online Course delivered for the final session, how to think like an Astronomer!

All our panel members, chairpersons and participants were so enthused and motivated by this STEM Project and felt it was so important that they all would like to take part in more of these type of STEM activities in the future and are available to be online STEM mentors for the STEM project in the future.

## **Recommendations - What Next?**

The webinars, interviews and the online course are important tools to provide young female BAME participants with an insight into careers they would like to pursue. Key individuals in the STEM professions need to offer useful careers advice and guidance, and it is very impactful to hear from those young inspirational individuals who are embarking on their future in the STEM careers of their choice. This project is truly inspiring and can provide a useful future resource STEM careers toolkit for future female, BAME young individuals.

We recommend more webinars, interviews, and online courses for more of these STEM professions. The uptake for this project was fantastic and more is required. We recommend for future sessions to be hybrid sessions, some delivered in face to face small group sessions as well as delivered online where you would reach a wider audience, as we did this time with participants from all over the country, varied age ranges starting from 11 up to the higher end at 19 and variety of educational establishments, state, private and home schooling. 30% of the participants were home schoolers and it was pleasantly surprising to see so many mothers had joined the webinars and online course sessions supporting the young female BAME participants.

A home-school parent provided us with valuable insight about the lack of careers guidance, information and help available in the current educational system for them. STEM projects like the one delivered by MWC and CareBlue Tutoring are really needed, and felt refreshing and truly appreciated by the home-schooling network. There is a void for home-schooled children when it comes to careers information and guidance, we need to provide more of these opportunities, and I think a future STEM project will definitely begin to address this void.

Here is what the participants from the STEM project want in the future:

*“Have a longer session and slow down on the demonstrations.”*

*“For the online course to be a bit longer.”*

*“Face to face.”*

*“More careers and inspiration.”*

*“Include more activities and increase the time for the course.”*

*It would be helpful to do the activities face to face in the future. I really enjoyed the webinar and the online course.”*

**Report created by Azhar Iqbal, CareBlue Tutoring for MWC  
STEM Careers Pathway Project.**



Working in Collaboration



This programme is funded by **The Manjit Wolstenholme Fund** **Leeds Community Foundation**