# Employability Schemes for Young People in STEM: Reflections on research culture and cross-faculty collaboration

**Craig R. Carnegie[1], Helena Verrill[2], Asima Iqbal[3], Maryam Masood[4], Anupriya K. Haridas[5], Mona Faraji Niri[6], Bethany Haynes[7], Sarah Wilson[8], Phil Jemmett[9]**

[1,3,4,5,6,7,8,9]Warwick Manufacturing Group (WMG), University of Warwick, UK, [2]Mathematics, University of Warwick, UK
Correspondence: [1]craig.carnegie@warwick.ac.uk, [2]h.a.verrill@warwick.ac.uk, [3]asima.iqbal@warwick.ac.uk, [4]m.masood.4@warwick.ac.uk, [5]anupriya.haridas@warwick.ac.uk, [6]mona.faraji-niri@warwick.ac.uk, [7]bethany.haynes@warwick.ac.uk, [8]s.wilson.4@warwick.ac.uk, [9]philip.jemmett@warwick.ac.uk
LinkedIn: [1]@craig-carnegie [2]@helena-verrill-65b51829b [3]@asima-iqbal, [4]@maryammasood [5]@anupriya-k-haridas-046384196 [6]@mona-faraji-niri-96154557 [7]@bethany-haynes-484bab116 [8]@sarah-wilson-ba9a3483 [9]@philjemmett
ORCID: [1]0000-0003-0951-0675 [2]0009-0002-1480-7190 [3]0009-0007-4471-0564, [4]0000-0002-4073-2105, [5]0000-0002-1016-5701, [6]0000-0002-9087-5091 [9]0009-0002-1998-8728

**Funding**: See Acknowledgements.

**Editorial review**: This article has been subject to an editorial review process.



## Abstract

*Following the success of Employability Schemes for Young People in STEM: Enabling staff to deliver an enriching experience through research culture development, the next stage was to share good practice with more departments within the University of Warwick. This included sharing information through a faculty wide working group, recruiting staff from two new departments to create a cross-faculty work experience programme and supporting staff from other departments that wanted to host their own programme, but are new to the process. Overall, the aim was to demonstrate and enable engagement with young people, creating role models and encouragement for them to pursue a future in STEM.*

*This article includes a collection of reflections from the staff engaged in the process, highlighting how the initiatives have changed their view on employability schemes, enhanced their working environment and provided training and development that will open further opportunities for them in the future. As the team has grown and we go into the project's third year of deployment, new staff are foreseeing the possibilities and benefits of the project and have provided statements for their goals and objectives prior to beginning the program.*

*Through discussions with other groups, it is clear that employability schemes can come in many shapes and sizes, so a comparison between the traditions and project style of delivery has been presented.*

**Keywords**: work experience; research culture; team creation; good practice

## Research Culture Aims

Often referred through the Royal Society (**2025**) definition, Research Culture encompasses 'behaviours, attitudes, values and norms that encourage open, collaborative science involving a diverse workforce'. As this has been translated and adopted into academic institutions (**Edinburgh, 2025; Leeds, 2025; Oxford 2025; Warwick 2025**), we frequently see the themes of 1. *Career Paths, Personal Development and Training, 2. Research Practice, Responsible Research and Research Support, 3. Open Research, Governance and Data, 4. Equality, Diversity and Inclusion*. The research culture project, discussed and explored in this article, *Addressing social mobility issues in STEM*, (**Carnegie & Ogunkola, 2024; Carnegie et al., 2024**) was created to target the following three themes:

1. Personal Development and Training for Leadership
2. Equality, Diversity and Inclusion through Access to Higher Education
3. Open research and Sharing Knowledge via Good Practice.

The team have moved into their final year of funding through the Enhancing Research Culture Fund through Research England and are continuing to take the outcomes and conversation to a national and international audience. The project has created employability initiatives for young people between the ages of 16 and 18 from low socio-economic backgrounds, looking to increase their future opportunities with a work experience hosted at the University of Warwick. A large part of this year's project development was the focus on creating good practice and the dissemination of said practice through relevant networks, both locally and internationally.

A report, commissioned by UKRI, evaluated research culture initiatives, resulting in several recommendations for implementing culture change (**Shift Insight, 2024**). They reviewed the outcomes of 421 research initiatives, predominantly focussed on supporting Early-Stage Career researchers. Of the 421 projects, just 5 (1%) were focussed on improving opportunities for people from low socio-economic backgrounds', and 3

(<1%) focussed on improving relationships and opportunities within their local communities. Showing there is a continued gap within this space that needs to be highlighted.

## Team Growth and Good Practice

Published in 2021, the UK Department for Business, Energy & Industrial Strategy (**2021**) created the *R&D People and Culture Strategy*. A proposed output of the strategy was the development of a 'Good Practice Exchange' (GPE). This was delegated to and expanded upon in the UKRI Research Culture Initiative Report 2024, in which it states that the 'goal of the Good Practice Exchange is to harness and consolidate existing activities relevant to research culture for the benefit of researchers, research itself, and society'. The activities highlighted some key considerations that the committee must focus on when creating the GPE, which resonated very well in reflection of the Work Experience project we have undertaken. They include

1. Take a leadership role and have a compelling vision.
2. Be inclusive, including within leadership.
3. Be action based and be seen to facilitate actual change, translating practice into policy.
4. Champion and amplify existing work.
5. Be agile and flexible, develop mechanisms to evaluate and review.
6. Reach across the research ecosystem in sharing practice.
7. Foster a place for openness and transparency.
8. Further a common understanding of research culture.

Another year of project has seen the WMG Work Experience team change and grow. One member of the team left the department, others have new commitments through job role changes, but fortunately the project and funding has allowed us to create new roles for members of staff from all levels of employment. It has been a huge priority for this project to develop and enhance the opportunities for the members of staff that have participated.

## Work Experience Delivery

The work experience model that is predominantly discussed in this article involves a small cohort of two to four students, that incorporates an overarching STEM theme, met through a series of tours, lectures, practical work and independent learning. This week culminates in a group presentation to the staff, enhancing addition skills such as presentation

and communication. Alternative models are available and will be discussed in the Work Experience Models section.

The following sections provide reflective writing from those that have been or are about to be a part of the WMG Work Experience team.

## Continuing support: Asima Iqbal (WMG, Teaching, 2023)

I started working with the work experience team in 2023 following my longstanding engagement with widening participation activities outside the University of Warwick as I believe that all students, regardless of their background, should have access to the resources and experiences that can shape their future. My first assignment was volunteering as a Business Host in the *Beyond Your Limits* (BYL) programme conducted by the EY Foundation, to support three A level students on a work placement. I arranged a Library visit for the students and provided them with an opportunity to attend a national level academic conference, EERN hosted by WMG. The aim of facilitating students to participate in such educational activities was to raise awareness of STEM career paths. Reflecting on this work experience opportunity, it became obvious that while the students gained valuable insights into academic life at a university, they felt challenged to participate fully in the activities owing to language barriers. Two out of the three students had recently migrated from another country and were particularly struggling to integrate in their schools owing to cultural, educational and linguistic differences. This raises questions about the success and effectiveness of work experience opportunities for students coming from diverse backgrounds and the extent to which they feel included in an environment where they can thrive and succeed. Therefore, I feel that the work experience opportunities should also consider the unique challenges faced by migrants, some of them refugees, and tailor the activities to ignite their passion, boost their confidence, and open doors to future possibilities.

I collaborated with research colleagues to lead the Nuffield Research Placement for four A level students to do a project on ‘How can ChatGPT be used to develop professional skills in STEM students?’. This project aimed to deliver societal benefits by providing young adults in schools an opportunity to apply the skills and knowledge learned at school to work with researchers and academics while enhancing their UCAS applications and expanding their career prospects. While the Research Culture project allowed me to contribute to the widening participation strategy of WMG, working with the Work Experience team boosted my own career and professional growth as I had the opportunity to have two sessions in each running with an experienced professional development consultant to discuss my leadership and professional growth trajectory in the department. I found these sessions useful as I was able to achieve key

milestones in my existing role while furthering my career in educational outreach. Therefore, aligned with the spirit of promoting and nurturing a research culture within the department, participants of the project should continue to be provided such consultancy opportunities.

## Effective Mentorship: Anupriya Haridas (WMG, Research, 2024)

My involvement in the Research Culture Work Experience program organised at WMG over the past 12 months was completely voluntary and deep rooted in my interest to provide support and empowerment to the younger generation of students to pursue a career in STEM. As somebody who has immensely benefitted from the effective mentorship and encouragement at the right phases of my career, I am delighted to be part of this work experience program to give back, providing insights about my research work and activities on battery materials and battery manufacturing/testing at the Energy Innovation Centre (EIC) at WMG. Being in academia, I personally enjoy interacting with students and explaining about cutting edge research concepts in simpler terms. I consider it as a privilege, as it allows me to instil curiosity, make complex research concepts accessible, and help shape the next generation of scientists. At the same time, I also recognise it as a responsibility, as students often look up to their mentors for clarity, academic depth, and encouragement, which calls for a fine balance of knowledge, empathy, and inclusivity.

The work experience program, in association with the EY Foundation and Nuffield Placements has enabled me to interact with different student cohorts in 2024 via both presentations and lab tours of EIC, sharing my interdisciplinary career journey to empower and inspire the young minds to pursue a career in STEM. I was particularly delighted to learn from feedback that one of the students explicitly expressed their wish to be someone like me working in the field of batteries after presenting my career journey.

Additionally, as part of the programme, there was one-to-one developmental support offered, in which I enrolled casually. However, it supported me inevitably while navigating a sudden challenge in my career and turned out to be an invaluable experience. Facilitating the personal as well as professional growth opportunities of the facilitators/mentors is an often-overlooked aspect as they put their focus into supporting the growth of the younger generation of scientists/engineers. I strongly believe initiatives like this are a step change as they go beyond traditional mentoring models that focus solely on students or early-career researchers. By also investing in the development of mentors, a two-way

growth dynamic is facilitated by which the mentors become more effective, empathetic, and resilient, while the mentees benefit from enriched guidance from mentors who lead by example. This shift inevitably acknowledges that mentoring is not a one-directional process but a reciprocal relationship that strengthens the academic ecosystem. By supporting mentors as well as students, such initiatives foster a more sustainable and impactful culture of research training in the long-term.

In the coming years, I would like to see the programme flourish in scope and reach, spanning across various universities in the UK as well as key industries providing the young students hands-on experience and technical insights that can brighten their career prospects.

## Mentoring Through Sustainability: Maryam Masood (WMG, Teaching, 2024)

I got formally involved in the Research Culture Work Experience program organised at WMG in 2024. My interest in the program stemmed from my role as an academic at WMG and my desire to be a role model for the younger generation interested in a STEM career. Over the last year, I engaged with young students through the work experience program and learnt more about their career goals and interests. I took this opportunity to organise a session on sustainability. I set up a one-to-two-hour activity-based session for students, where I introduced them to key concepts about sustainability. I then invited them to apply these concepts to an area of their interest and present it to the team. I found the experience to be thoroughly fulfilling and enjoyable. I tried to simplify key concepts to show students how they align with my research and how these concepts could be applied. Working with younger students has been meaningful for improving my pedagogical approaches and understanding the perspectives of students from different backgrounds. The students were generally interested in learning how sustainability concepts applied to their areas of interest. One memorable moment was seeing students enthusiastically research and present creative ideas during the activity session, which showed their curiosity and engagement with the topic.

This program allowed me to pass on my knowledge and curiosity about sustainability to students while improving my approach to teaching and mentoring. It gave me the opportunity to reflect on how I can adapt my teaching and mentorship to different audiences. It also strengthened my skills in simplifying complex concepts, which is valuable for my academic role and outreach efforts. Another meaningful learning from this experience was the opportunity to receive developmental coaching. The coaching helped me to better align my work with my long-term career goals and in my leadership skill development.

In the future, I would like to see this program develop further and reach different universities. This is an exceptional experience both for young students and academics as they gain insight into future work and future of learning and should be further expanded. Within the program I would like to develop more hands-on activities for sustainability to further engage students in a practical and interactive manner. Activities such as building small sustainable systems, working with renewable energy models, or applying sustainability concepts to real-world challenges could greatly enhance the learning experience.

## Practical Engineering: Bethany Haynes (WMG, Technical Services, 2024)

I believe that practical work experience provides skills and abilities to young people that they would not otherwise gain from school. Having the opportunity to operate and interact with laboratory equipment can provide them with the confidence to follow a new career path that may have otherwise been too intimidating. My own work experiences were fantastic and confirmed that making things with my hands is what I do best, I'm passionate about passing this onto to those who may need a little extra guidance.

Being able to connect with students who aren't academically minded, struggle to focus on individual tasks and who may not have the support they need at home or school is very important. Sometimes these students get forgotten about in the system, ending up in trouble as they keep themselves distracted, but these same students often excel in practical environments and find that when their hands are busy with tools, their minds calm down.

The one-to-one personal development and group training sessions I've had from the research culture project has been great. This includes learning new techniques on presentation skills and communication which I then transferred into my work experience delivery. I never felt pressured, and I was able to dictate what practical work the students would be doing, allowing me to create a small program of work that could be a one-off, hour-long session or multiple sessions. I was able to ensure that the students were able to carry out the practical tasks themselves, as I oversaw the session and guide them.

I'd love to see this project progress with more students having the opportunity to experience the university campus and see that not everyone who has a good job and successful career started off with the best grades in school or went to university themselves.

## Cross-Faculty Collaboration: Helena Verrill (Mathematics, Teaching, 2024)

I have been the mathematics departments Widening Participation (WP) lead since 2023. The mathematics department has not previously hosted a work experience program, and certainly nothing so targeted on WP students. The statistics department has run a work experience program for girls from a local grammar school since 2023. I was interested in setting up a work experience in the maths department, so when I was introduced to this initiative it was the perfect opportunity to set something up.

So far, we have had three groups of WP students come to maths via the program. I've also attended workshops about how to set up a schedule of activities for work experience students.

Since I joined a program spanning WMG, physics and maths, it has made our involvement much less daunting. Having a team working on providing work experience has been an easy way for several members of the maths department to get involved with talking to visiting students from disadvantaged backgrounds. In the future, I am hoping we can use the same model for a work experience across mathematics, statistics and computer science. Now that I am aware of channels such as the EY Foundation, we are better able to work with partners to increase participation in maths.

I've been struck by the fact that work experience is valuable even for students who don't know what they might study at university. Just getting such students to campus is positive; perhaps a first stop on the route to becoming a researcher in some field. Work experience gives different insights than just sitting in a classroom observing a talk. WP students may have a lower level of mathematics background, because they will be more likely to attend schools which do not offer further maths, or which have larger class sizes, meaning teachers are not able to give extra attention to capable students, who would be able to go beyond the basics. WP schools are often less able to provide extracurricular activities and are more likely to have non maths graduates teaching mathematics. One-to-one conversations are useful for gauging the level of delivery of material, to be encouraging rather than off putting. We want to show WP students that universities don't have to be elitist institutions. Work experience reaches fewer student per hour per teacher, given its small group basis, in comparison to our year 12 events where we invite 60 to 100 students to attend lectures, encouraging them to apply to Warwick. In this sense it's time-consuming to arrange on a per student basis. Spreading the work over several departments makes it possible to fit in work experience around very busy academic schedules.

The research culture project has been useful for networking, especially attending the research culture conference at Warwick, and discussing research culture in an interdisciplinary environment.

## Project Based Delivery: Mona Faraji Niri (WMG, Academic, 2025)

I believe that being able to show that 'what you do as a researcher can change something for the next generation' is a part of being an academic. I truly enjoy working with young people and showing them what they can achieve with STEM.

I have been supporting students with an experimental robotic platform to programme a microcontroller for specific tasks. Renewable energy production is a critical requirement for clean energy and a NetZero future. The setup was designed to give the students an experience of programming and coding in software for controlling the robotic arms for photovoltaic panels to maximise sun exposure. They were introduced to the tasks a programming and robotics engineer deals with daily.

The experience changed my view of outreach activity as I realised how a well-defined, and guided practice can increase the engagement of teenagers in a heavily technical session. As I have not been educated in this system as a non-UK resident in my early days, these insights were very helpful in identifying the students' expectations and coming up with a best practice strategy to engage with them. The students were clearly impressed with what can be achieved with strong programming and software skills as engineers, and the look on their parents' faces watching them proudly presenting their work stuck in my mind.

This activity together with other similar ones made my case strong when I applied for a promotion to Associate Professor. I also benefited from the one-to-one coaching sessions offered by this program for my leadership and management skill development.

What I love to see next is a more focused programme to empower women and less-represented individuals for STEM careers. It's disheartening to see how young female feel that engineering and STEM isn't for them or that they lack the confidence to take charge. This is something I am passionate about changing.

## Industry Experience: Sarah Wilson (WMG, Research Support, 2025)

I am very pleased to be involved in the Employability Schemes Research Culture project. From a personal perspective, I benefitted from undertaking a period of work experience at an engineering test house in

my own school days, as until then all my knowledge of this STEM subject was derived almost exclusively from my parents, with very little content in my primary or secondary school curriculum. I was able to undertake placements in a variety of departments, with the ability to be hands on (health and safety permitting) for this very practical subject, which helped to shape my subsequent career. I chose to pursue a mathematics degree and then ventured into the world of electrical engineering where I eventually became the Chief Engineer for an area of East Midlands electricity distribution network.

From the other side of the fence, I have also spent some time as a secondary school maths teacher and am only too aware of the constraints on time and resources that our schools face when attempting to support young people towards employment. Whilst the utopia is to deliver enthralling lessons with clear links to practical application in the real world, igniting a passion and curiosity in learners, this is hard to achieve every time and certainly most schools do not have access to sufficient equipment, knowhow or the environment to be able to provide a full picture of the possibilities after secondary school.

This work experience scheme aims to give not just exposure to the world of work but also hands on experience, tasking participants with their own activities for which they are responsible for the completion, with adequate support from the excellent group of co-authors herewith. Skills development is not just on the students' side: colleagues have developed communication skills which they can further utilise for outreach, public engagement and scientific dissemination; team working skills to provide a cohesive programme to our student cohort; working under pressure and the ability to adapt to last minute changes; and greater empathy for the situations and lived experience of some members of our society.

In short, I am delighted to be taking part in the next iteration of the project to support both the young people with an interest in a STEM career, and also the personal and career development of my enthusiastic and generous colleagues.

## Work Experience Models: Phil Jemmett (WMG, Outreach, 2025)

WMG Outreach have a portfolio of activities designed to enrich the education journey for young people and inspire them to study STEM subjects at Higher Education and enter the engineering workforce. The ethos behind our portfolio is to find gaps in provision for particular groups of people and design projects that support young people through difficult transitions and preserve their interest in the subject.

One such provision gap has been identified in work experience. Universities have a unique position in that they are education institutes and therefore represent familiarity for school pupils, as well as the next step on their journey, while also being places of work. The Gatsby benchmarks, against which schools are measured, require students to have an experience of Higher Education and workplaces, making a placement at a university twice as useful to schools.

Many staff within the university offer work experience placements when asked, but this is often arranged through their own personal networks. The gap is for young people who do not have a family member in the university already: without the professional network in highly skilled professions, young people from areas of deprivation or low socio-economic status simply do not have access to work experience placements. Placements should be awarded to the students who need them most to ensure that the groups who are currently under-represented get experience.

The WMG Work Experience week, which follows a different delivery model to what might be considered the conventional work experience placement, has been designed in partnership with the University's Widening Participation team. It recruits exclusively young people who meet benchmarks of deprivation such as experience of care, being young carers, being in receipt of free school meals, and so on. The week revolves around the young people working in teams to design a product and, with our engineers as mentors throughout the week, create a prototype to display at a final showcase session on the last day.

Taking a project-based approach where the placement students work in the same team throughout the whole week allows them to develop skills and reflect on their own progress. Rather than having a 'scattergun' approach where they see lots of different working environments but never feel that they have gained any insight into them, our approach dives deeply into one particular topic. All the groups work in the same large room, so they have an opportunity to mix with each other and see the different projects. The teams are also encouraged to decide what roles they need within their group – who will handle the pitching of the new product? Who will design this component, or build, or test that new feature? Throughout the week, they do still see a variety of working styles and environments, while also gaining confidence and mastery in the skills they are using.

WMG Outreach are keen to see this model shared and explored in other subjects and contexts. For example, the University has expanded from one stream of engineering to also having a creative arts strand, and our team have been supportive of this move. The WMG Outreach team run the engineering stream, handling all the content, activity design, timetabling,

logistics and delivery, while the university's Widening Participation team are concerned with pastoral support, safeguarding, and liaison with schools and families. The partnership is of mutual benefit to both teams, allowing us to focus on our respective strengths.

The Addressing Social Mobility Issues in STEM project could help us to share the model with other universities and later, with industry, to increase the provision of high-quality work experience placements to people from backgrounds currently under-represented in STEM. Every student needs to have an experience, and every employer has something different to offer. The range of models explored in this project provide options that will work for different students and different placement hosts.

## Observations and Reflections: Craig Carnegie (WMG, Academic, 2023)

Work Experience often puts caution into those that are new to it, with the common query of 'do I have the time and resource to delivery such a program?', especially when the expectation is to host a full working week. Having now created and implemented a well-established experience, we have the flexibility to offer smaller, well-structured time slots for new people approaching the area. In the past 12 months we have collaborated with three departments, offering a two-to-three-hour window of time for them to deliver a workshop, talk or tour. This collaboration has then inspired those individuals to develop full days of delivery or even a full week.

We should not feel constrained by the traditional work experience model that is often thought of when considering such a programme. WMG Outreach has demonstrated that a project-based delivery, focussed within a managed zone, can cater for up to 30 young people at a time, providing each student with a job role and technical hands-on experience. This large-scale model allows the schools an easier way of satisfying their assessment criteria, rather than finding 30 unique work experience locations. Due to the overlap in our activities, we have set up a working group that included Human Resources, Technical Services and our safeguarding lead to create and disseminate good practice across the department.

A big driver for this initiative was the creation of role models that are here to inspire the next generation. The young people are very grateful for the time that is put in to teaching them or demonstrating something new, feedback from the experience included:

> *I have learnt a lot of new skills from WMG. I have learnt about all the different materials and design.*

> *This was an amazing opportunity to gain insight into the world of engineering.*
>
> *People were very nice, friendly and helpful. I learnt a lot by seeing what goes on behind the scenes and about the future of engineering.* (**Participant comments**)

It has also been great to see this relationship working in reverse, with the young people inspiring our team members. It has been important to create a diverse group within our work experience team. The range of job roles, ethnicities and lived experiences allows us to bring something new to the experience, and often we connect with the young people in different ways. We want to show that the access to higher education and industry is for everyone.

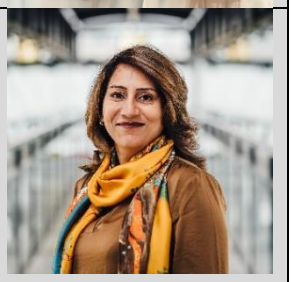
## Next Steps

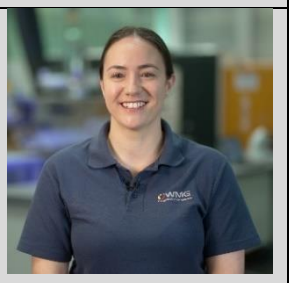
This year the team is taking their experiences and learning to a larger audience, connecting with Universities across the UK with the intention of starting a network of Work Experience providers as well as inspiring more to take on the role.

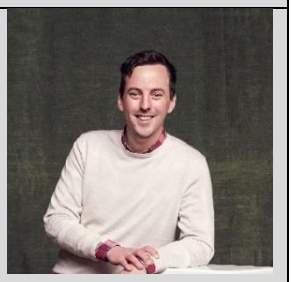
Project evaluation is something that is rarely done across research culture initiatives. The study through UKRI (**Shift Insight, 2024**) found that just 8% of projects sourced an external independent review, and 20% reviewed their own initiative through a self-assessment. WMG has and will continue to explore funding opportunities for work experience evaluation. It is crucial that we demonstrate the importance of such interventions, to encourage those from low socio-economic backgrounds to pursue the opportunities that are available to them.

## Acknowledgements

The project ‘Addressing social mobility issues in STEM’ was funded by the Enhancing Research Culture Fund through Research England.

| | |
|---|---|
| Dr Craig Carnegie is an Assistant Professor in high volume joining at WMG. He is working on an EPSRC project he was awarded, investigating process monitoring during adhesive and composite joining. He is currently leading a Research England development fund for employability schemes and is the chair of the Warwick STEM Work Experience Working Group. He has established the W.E.Inspire network, a national initiative to develop and support those delivering work experience programs across the UK. |  |
| Dr Helena Verrill is an Associate Professor at the University of Warwick Mathematics Institute. As well as a role within teaching and research, she holds a position with a focus on outreach and is the department's director of student experience. |  |
| Dr Asima Iqbal is an Assistant Professor at WMG, University of Warwick, delivering an interdisciplinary skills and research methods module to over 1,000 students both at UG and PG level. She is a Senior Fellow of Higher Education Academy (SFHEA) and as an academic and a practitioner, she organises and carries out capacity building programmes/workshops for students and fellow colleagues. She has been engaged in various outreach and widening participation initiatives for more than a decade which includes teaching and mentoring young adults from non-traditional backgrounds to achieve their potential while developing transferable skills to support their academic and professional development. |  |
| Maryam Masood is Mechanical Engineer, currently serving as a teaching focussed Assistant Professor at WMG, University of Warwick leading a postgraduate research methods module. Maryam is an Education for Sustainable Development (ESD) champion for WMG and a member for the central ESD Action Group. Maryam is also a WIHEA Fellow. Her research interest is in sustainability, waste management, education for sustainable development and intercultural awareness in HE setting. |  |

| | |
|---|---|
| Anupriya K. Haridas is a materials chemist and battery scientist with over a decade of experience advancing lithium-ion and next-battery technologies across multicultural and cross-functional research groups within India, South Korea, and the UK. As an Assistant Professor at WMG, she spear-headed the research on cathode materials and electrolytes bridging the gap between academic and industrial research via the High Value Manufacturing (HVM) Catapult Project. She is an experienced reviewer and grant evaluator for various international funding agencies across the UK, Europe and Asia and is committed to translating cutting-edge materials research into sustainable energy storage solutions. |  |
| Dr Mona Faraji Niri is Associate Professor of Battery Modelling at WMG, University of Warwick, with a PhD in control engineering from IUST. She previously held academic posts at IUST and Pooyesh Institute. A Fellow of the Faraday Institution, Alan Turing Institute, and Higher Education Academy, and MIET member, she specialises in modelling, control, and AI for energy storage and battery systems. Her work spans lithium-ion batteries, EV powertrains, and manufacturing optimisation. Recognised as a Future Promise by the Royal Academy of Engineering, she received the TechWomen100 (2021) and multiple Warwick awards, and reviews for major journals and funding bodies. |  |
| Bethany Haynes is an Engineering Technician at the University of Warwick. She has a decade of experience of working within a fast paced, hands-on technical laboratory environment. She spent the last three years working with local small-to-medium enterprises (SMEs) to design, develop and prototype new manufacturing techniques and approaches. Bethany started her career working with young people at Bluecoat School and Music College and has continued to provide work experiences and outreach activities to help inspire the next generation of technical professionals. |  |

| | |
|---|---|
| Previously Chief Engineer responsible for part of the East Midlands electricity distribution network, Sarah Wilson now supports academics and researchers in WMG, one of two engineering departments at University of Warwick. From clarifying research strategies to finding funding to enact these, through to considering publication strategies and capturing arising impact from projects, Sarah leads a small dynamic team to enable the academic research lifecycle. A particular interest is in the career development of colleagues, and Sarah takes an active part in the department's mentoring, promotions and tenure processes as well as managing the fellowship pipeline and international activities. |  |
| Phil is the Widening Participation Co-ordinator for WMG, a department at the University of Warwick. His role is to create a bridge between school education and engineering careers through outreach and work experience projects. He is also the Faculty Public Engagement Lead for Science, Engineering and Medicine, bringing his experience of working with different departments to create interdisciplinary and collaborative projects. Phil uses his position within the University of Warwick to bring the real experts on cutting-edge technologies out of the academy and into public spaces, engaging with young and old to build trust in science and engineering. |  |

## References

Carnegie, C.R., Ogunkola, N., 2024. Employability Schemes for Young People in STEM: Enabling staff to deliver an enriching experience through research culture development. Exchanges: The Interdisciplinary Research Journal, 11(3), 193-204. DOI: 10.31273/eirj.v11i3.1552 [Accessed: 24 January 2025].

Carnegie, C.R., Nealon, R., Verrill, H., 2024. Addressing social mobility issues in STEM: Expanding a departmental approach to work experience through a cross-faculty research culture partnership. International Research Culture Conference. 16th September 2024. Coventry. DOI: 10.13140/RG.2.2.28549.36324 [Accessed: 24 January 2025].

Department of Business, Energy and Industrial Strategy, 2021. R&D People and Culture Strategy. Available at: www,assets.publishing.service.gov.uk/media/60f804228fa8f50c768387c5/r_d-people-culture-strategy.pdf [Accessed: 24 January 2025].

Edinburgh, 2025. Research Cultures Action Plan. Available at: www.ed.ac.uk/research-innovation/research-cultures/research-cultures-action-plan. [Accessed: 24 January 2025].

Leeds, 2025. Research culture statement. Available at: www.leeds.ac.uk/research-and-innovation/doc/research-culture-statement. [Accessed: 24 January 2025].

Oxford, 2025. Research culture at Oxford. Available at: www.ox.ac.uk/research/support-researchers/research-culture-oxford. [Accessed: 24 January 2025].

Royal Society, 2025. Research system, culture and funding. Available at: www.royalsociety.org/current-topics/research-system-culture/. [Accessed: 24 January 2025].

Shift Insight, 2024. Research Culture Initiatives in the UK. UK Reproducibility Network & Vitae. Available at: www.ukri.org/wp-content/uploads/2024/01/UKRI-180124-ResearchCultureInitiativesInTheUK.pdf. [Accessed: 24 January 2025].

Warwick, 2025. Research Culture Strategy. Available at: https://warwick.ac.uk/research/research-culture-at-warwick/initiatives/. [Accessed: 24 January 2025].

**To cite this article:**

Carnegie, C.R., Veririll, H., Iqbal, A., Masood, M., Haridas, A.K., Faraji-Niri, M., Haynes, B., Wilson, S., & Jemmett, P., Employability Schemes for Young People in STEM: Reflections on research culture and cross-faculty collaboration. *Exchanges: The Interdisciplinary Research Journal*, 12(3), 243-259. Available at: https://doi.org/10.31273/eirj.v12i3.1836.