

# CarpentryConnect Manchester 2019 Conference (CCMcr19) Report

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## Summary

CarpentryConnect Manchester 2019 (CCMcr19) took place over three days at [The Studio](http://studiovenues.co.uk/venues/manchester/) (<http://studiovenues.co.uk/venues/manchester/>) from 25th to 26th June 2019, and at the [School of Computer Science](https://www.cs.manchester.ac.uk/) (<https://www.cs.manchester.ac.uk/>), [University of Manchester](http://www.manchester.ac.uk/) (<http://www.manchester.ac.uk/>), on 27th June 2019. It was an opportunity for the members of The Carpentries' global community of instructors (and anyone else with an interest in helping researchers to improve their computational skills) to get together for a few days to exchange ideas and learn new things in between the main biennial [CarpentryCons](#).

The main themes of the conference were increasing the sustainability of scientific software and research through training, good teaching practices, tools and resources for research computing education, the development of novel or existing lessons/curricula in different domains and building local and regional carpentry/training communities at research institutions.

76 people registered to attend and we received over 50 workshop, poster and lightning talk proposals. In the end, we ran 21 training workshops and 7 discussion workshop, along with 12 lightning talks, 4 posters and 5 keynote speakers. We recorded keynote speakers and the [videos](#) are available on the [Institute's YouTube channel](#).

In the following sections, we give an overview of different parts of the agenda and details of the outputs, impact and feedback.

## Keynotes

[Tracy Teal](#), the Executive Director of [The Carpentries](#), was our first [keynote speaker](#) on day 1. Tracy is known for her work in Open Science and biomedical data science education and starting Data Carpentry back in 2013. Tracy addressed the [importance of building confidence in people and the importance of our instructors who do that -- knowledgeable, enthusiastic and comfortable bunch](#). She also presented the latest stats on The Carpentries work – a huge amount of it is taking place around the world, with an increasing number of workshops happening on all seven continents! The [recording of Tracy's talk](#) is available on YouTube.

[Mine Cetinkaya-Rundel](#), our second keynote speaker on day 1, is a data scientist, an RStudio educator and a recent addition to the School of Mathematics at the University of Edinburgh

where she moved from the Department of Statistical Science at Duke University. Mine is a famous educator in R, statistics and Data Science, and is the author of several highly popular courses on [Coursera](#). In her [talk](#), Mine spoke about goal-oriented backward design of curricula -- showing students the end result first, to motivate and give direction. The [recording of Mine's talk](#) is available on YouTube.

The second day started with an address by Prof. [Colette Fagan](#), Vice-President for Research at the University of Manchester. Professor Fagan, Fellow of the Academy of Social Sciences, is responsible for leading and implementing the University's research strategy and doctoral training. She spoke about the synergies of different local open research initiatives at Manchester and the collaboration between [Manchester's Cathie Marsh Institute for Social Science](#), Manchester's [Institute of Coding](#) and Manchester's [Data Science Institute](#), who were brought together and collaborated on sponsoring and bringing this event to the audience. The [recording of Colette's talk](#) is available on YouTube.

After that, the audience was addressed by [Lex Nederbragt](#), a Senior lecturer at the Institute of Biosciences, University of Oslo, Norway. Lex is also head of "Education and Training" for the Centre for Bioinformatics, Department of Informatics, University of Oslo and has been serving on the Executive Council of The Carpentries since its inception in January 2018. In [his keynote talk](#), Lex took us through all the lessons from the Carpentries' instructor training and what lessons could be learned from it and how to apply them in our daily work lives. The most important ones were a call to - "control your mailbox", "learn to say no", and self-care i.e. "before you can help others you need to be looking after yourself". The [recording of Lex's talk](#) is available on YouTube.

Our final keynote speaker was [Marta Teperek](#) from the TU Delft in the Netherlands. Marta has initiated and overseen the Data Champions programme and the Open Research Pilot before taking the leadership of the Data Stewardship project at the TU Delft. Marta serves on the Editorial Board of the Data Science Journal and she is the Co-Chair of the Research Data Alliance Libraries for Research Data Interest Group. In [her keynote talk](#), Marta taught us that data stewards are akin to doctors but for data (and sometimes software) problems and how to help researchers with small, realistic, incremental steps for improving their data management practices. The [Recording of Marta's talk](#) is available on YouTube.

## Workshops

### Discussions sessions

There was a focus on community development in the discussion sessions and building local training communities as well as how to influence senior management and get their buy-in. We ran the following discussion sessions ([abstracts](#) of which are available online) which also resulted in a number of blog posts (detailed in section "Outputs" below):

1. Actionable ways to improve diversity in our communities, led by Malvika Sharan (EMBL Germany) & SherAaron Hur (The Carpentries)

2. Building a local Carpentries institutional framework, led by Mario Antonioletti (University of Manchester), Marc Galland (University of Amsterdam) & Serah Rono (The Carpentries)
3. Building connections between local communities and forming regional training hubs, led by Katerina Michalickova (Imperial) & Aleksandra Nenadic (Software Sustainability Institute)
4. Strengthening the Library Carpentry community, led by Phil Reed & Nilani Ganeshwaran (University of Manchester)
5. Carpentry for the 99%, not the 1%: approaches for hands-on distance learning, led by Martin Callaghan (University of Leeds) & Andy Turner (EPCC)
6. Dos and Don'ts for computational training, led by Sara El-Gebali (University of Cambridge)
7. Open science for decision makers, led by Robert Davey (Earlham Institute)

## Training workshops

We ran training sessions on a range of practical skills, from collaborating using git, and advanced Shell skills to basic statistical methods, visualising data on maps and various curriculum development workshops. [Full descriptions of workshops](#) are available online.

1. Introduction to The Carpentries Curriculum Development led by François Michonneau & Tracy Teal (The Carpentries)
2. Basic Statistical methods using R, led by Andrew Stewart & Peter Smyth (University of Manchester)
3. Basic Statistical methods using Python, led by Peter Smyth & Andrew Stuart (University of Manchester)
4. Developing a 'Community Carpentry': knowledge & skills needed to develop a community of practice, led by Shoaib Sufi (Software Sustainability Institute)
5. Publication ready scientific reports and presentations with Jupyter notebooks, led by Anne Fouilloux (University of Oslo)
6. Rapid and Reusable Learning Design, led by Frances Hooley (University of Manchester)
7. Getting smarter with the UNIX shell, led by Toby Hodges (EMBL Germany) and Tania Allard (Microsoft)
8. Introduction to GitHub, led by Toby Hodges (EMBL Germany)
9. Boost your research reproducibility with Binder, led by Kirstie Whitaker (Alan Turing Institute)
10. Advanced technical writing, led by Sharif Salah (Google)
11. Contributing to Carpentry lessons using git and GitHub, led by Gerard Capes (University of Manchester)
12. ELIXIR Open Source Software best practices including the FAIR principles, led by Malvika Sharan (EMBL Germany), Allegra Via (Italian National Research Council) & Mateusz Kuzak (Dutch Techcentre for Life Sciences)
13. Interactive maps in Jupyter notebooks, led by Anne Fouilloux (University of Oslo)
14. How to make a Carpentries-style lesson, led by Alexander Konovalov (University of St Andrews)

15. Submittly - an open source tool to automate marking, led by David Perez Suarez (UCL)
16. ReproHack lead by Anna Krystalli (University of Sheffield)
17. Curriculum Development: Machine Learning and AI Carpentry, led by Colin Sauze (Aberystwyth University)
18. Curriculum Development: Digital Humanities led by Iain Emsley (University of Sussex) & Cat Smith (University of Birmingham)
19. Curriculum Development: Text mining led by Beatrice Alex & Claire Llewelyn (University of Edinburgh)
20. Curriculum Development: Biology: R for transcriptomics analysis, led by Edward Wallace (University of Edinburgh), Vasilis Lenis (University of Plymouth) and Giacomo Peru (Software Sustainability Institute)
21. Curriculum Development: Alternatives to Bash Shell for Windows users, led by Peter Smyth (University of Manchester)

## Lightning Talks

We had a number of lightning talks on topics of training and open science, big and open data, data and software citation and diversity ([abstracts](#) and slides of the lightning talks are available online):

- Provision of Quality of Service in Academic Libraries: The trend of Ethiopian University Libraries by Yared Abera (Mizan-Tepi University, Ethiopia)
- Why being "less specialized" is an important skill for community managers? by Malvika Sharan (EMBL Germany)
- The Power of PIDs by Frances Madden (British Library)
- A flipped classroom approach to teaching Carpentry by Peter Smyth (University of Manchester)
- CodeRefinery: lessons learned and future directions by Radovan Bast (High Performance Computing Group, UiT The Arctic University of Norway)
- Becoming a Regional Carpentries Coordinator by Serah Rono (The Carpentries)
- ELIXIR Training and The Carpentries by Mateusz Kuzak (Dutch Techcentre for Life Sciences)
- 4 Simple recommendations for Open Source Software by Mateusz Kuzak (Dutch Techcentre for Life Sciences)
- The Gallantries project: Bridging communities towards open training materials for life sciences by Mateusz Kuzak (Dutch Techcentre for Life Sciences)
- SAGE Ocean: Enabling social scientists to work with big data & technology by Shiran Juttla (SAGE Publishing)
- Diversity: The rise and fall of a LGBTQ+ network by Sara El-Gebali (EBI)
- Reimagining the paper by Emmy Tsang (eLife)
- Data Services at the British Library: Making Data and Software Citable by Sarah Stewart (British Library)

## Posters

A small number of posters ([abstracts](#) available online) were presented too around the topics of intermediate and advanced steps post Carpentry training, building and sustaining local communities of practice and persistent identifiers for data and software as cornerstone of open research:

- The Power of PIDs by Frances Madden (British Library)
- Get your data here! Open access social sciences data from the UK Data Service by Sarah King-Hele (University of Manchester)
- Building and Sustaining a Local Carpentries Group: University of Oslo Carpentries by Annika Rockenberger (University of Oslo)
- CodeRefinery: lessons learned and future directions by Radovan Bast (High Performance Computing Group, UiT The Arctic University of Norway)

## Social Programme

In addition to the conference reception dinner at the Studio, we also organised walks around Manchester to offer a change of scene and gave participants an opportunity to explore local culture. The city center tours we facilitated by Niall Beard, who took participants on a mural & graffiti trail around Manchester's Northern Quarter on the afternoon of 25th June and on a walk to explore Manchester city centre's famous buildings and sights in the afternoon of 26th June.



Picture by Niall Beard

During the main conference reception and dinner - to everyone's delight - we have been entertained by magician Alasdair Sutherland and illustrator/doodler Lauren Beard (who brought her lovely dog Bronte with her and drew avatars of attendees).



Picture by Malvika Sharan, <https://twitter.com/MalvikaSharan/status/1143615237175861250>



Avatars by Lauren Beard © University of Manchester

## Sponsors

We had a number of sponsors who share our vision and helped us deliver the event - by helping us keep registration costs low, maximising participation by people from diverse geographies and communities, and helping us waive registration fees, provide travel grants, and childcare options to allow as wide an audience as possible to attend.

Our event sponsors are listed below.



Cathie Marsh Institute

### [The Cathie Marsh Institute for Social Research \(CMI\)](#)

was launched in August 2014 and provides a focal point at The University of Manchester for the application of quantitative methods in interdisciplinary social science research in order to

generate a world class research environment. The Institute applies structures to life's challenging social questions, provide high-quality methods training and development and promote excellence in quantitative social sciences. [Prof. Rachel Gibson](#), the Director of CMI, has been providing invaluable support and guidance for the conference since its inception.



[SAGE Ocean](#) is an initiative from [SAGE Publishing](#) to help social scientists navigate vast data sets and work with new technologies. They hope that their work will help to make it easier for social

researchers to work with big data and new technology in order to advance our understanding of the world.

[Manchester's Data Science Institute](#) acts as an access point to the University's expertise in



data science, facilitates interactions between data science researchers and problem holders, owns the University's data science strategy, and delivers sustainable support for the community.



[The Institute of Coding](#) is a family of learners, businesses and educators creating a new way to develop the digital skills researchers will need at work and beyond.



**Hartree Centre**  
Science & Technology Facilities Council

[The Science and Technology Facilities Council \(STFC\) Hartree Centre](#) is home to some of the most advanced computing, data analytics and AI technologies in the UK, working with industry to tackle real-world

challenges and transform the productivity of people and processes.



[ELIXIR](#) unites Europe's leading life science organisations in managing and safeguarding the increasing volume of data being generated by publicly funded research. It coordinates, integrates and sustains bioinformatics resources across its member states and enables users in academia and industry to access services that are vital for their research.

[The British Library](#) is the national library of the United Kingdom and one of the world's greatest research libraries. It provides world class information services to the academic, business, research and scientific communities and offers unparalleled access to the world's largest and most comprehensive research collection. The Library's collection has developed over 250 years and exceeds 150 million separate items representing every age of written civilisation and includes books, journals, manuscripts, maps, stamps, music, patents, photographs, newspapers and sound recordings in all written and spoken languages; it also has a small but growing collection of datasets and software. Up to 10 million people visit the British Library website - [www.bl.uk](http://www.bl.uk) -

every year where they can view up to 4 million digitised collection items and over 40 million pages.



## consortium

[R Consortium](#) is a group organised under an open source governance and foundation model to support the worldwide community of users, maintainers and developers of R software. Its [members](#) include leading institutions and companies dedicated to the use, development and growth of R. The R language is an open source environment for statistical computing and graphics. The R community has enjoyed significant

growth, with more than 2 million users worldwide. A broad range of organisations have adopted the R language as a data science platform, including biotech, finance, research and high technology industries. The R language is often integrated into third-party analysis, visualisation and reporting applications, and runs on a wide variety of computing platforms.

We had narrowly missed out on sponsorship from Python Software Foundation, who were interested in supporting us. However due to the length of the decision making process, we missed out on receiving their support in time.

We also had a number of personal grants from their individual research/grant budgets from:

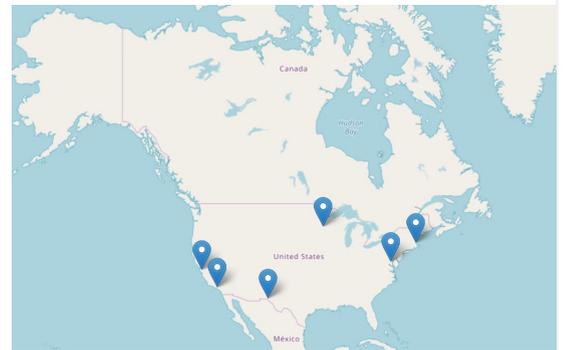
- [Sean McGeever](#), a Computing Manager at the School of Physics and Astronomy, University of Edinburgh, leading the Edinburgh Research Software Engineers and Edinburgh Carpentries communities. Sean is contributing from his own research/grant budget.
- [Lex Nederbragt](#) is a Senior lecturer at the Institute of Biosciences, University of Oslo, Norway. He is also head of "Education and Training" for the Centre for Bioinformatics, Department of Informatics, University of Oslo, and [serving on the Executive Council of The Carpentries](#) since its inception in January 2018. He was also one of our keynote speakers.
- [Raniere Silva](#) was Software Sustainability Institute's Community Officer in the period 2016 - 2019. He has been [serving on the Executive Council of The Carpentries](#) since its inception in January 2018 and has been an active member of the Carpentry Community for many years.

# Conference Stats

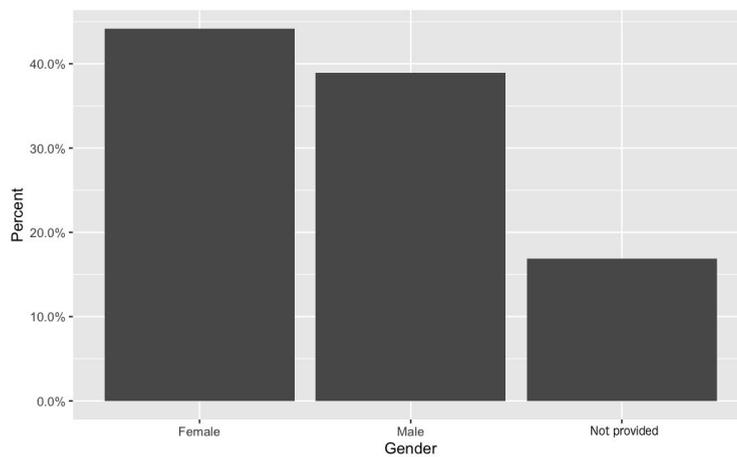
This section presents some numbers and stats from the conference. We ran 28 training and discussion workshops in total, had 12 lightning talks and 4 posters, and 11 sponsors.



We had 75 participants from 9 countries (UK, Belgium, the Netherlands, Norway, Oslo, Germany, Italy, the US and Australia) and 3 continents.

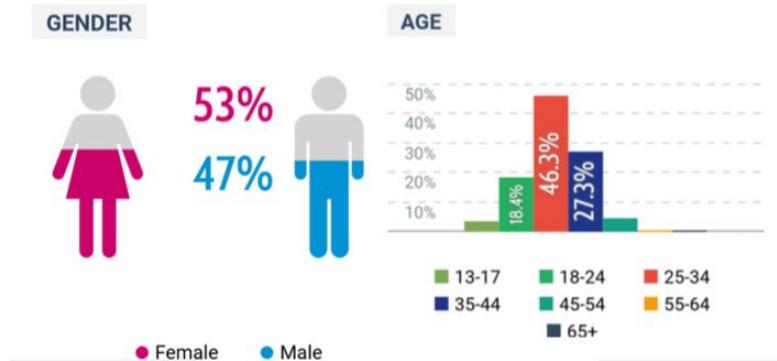


Conference was well balanced between the genders, with slightly more reported females.

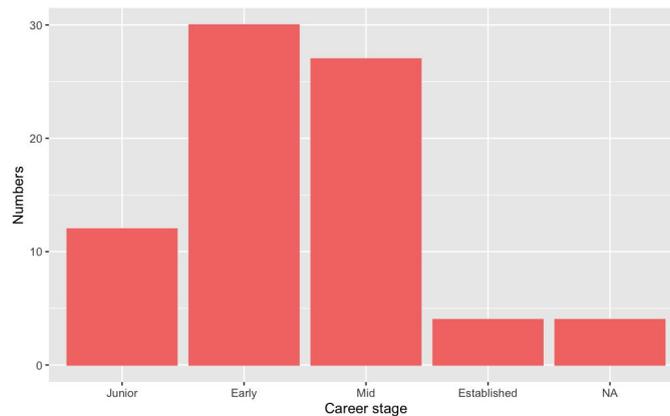


Demographic of people who tweeted about the conference was similar.

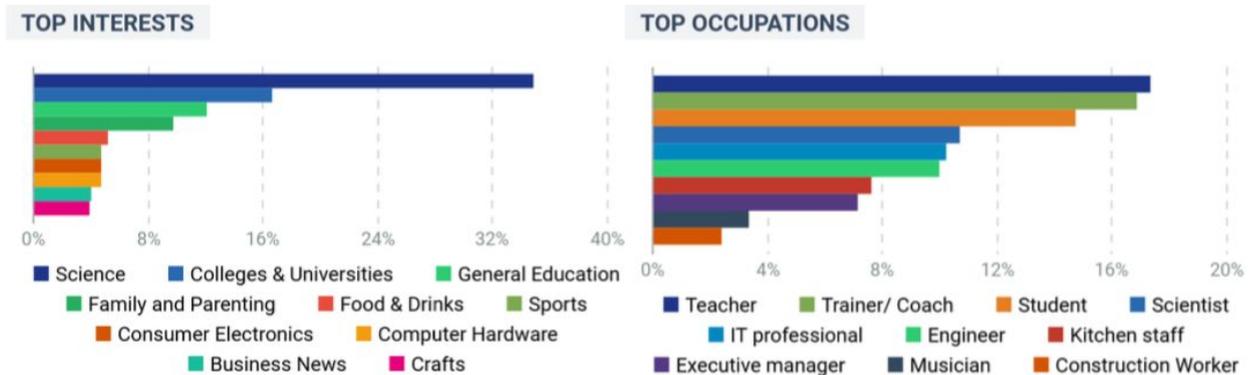
## Demographics



The majority of the conference participants are in early stages of their careers or mid-career.



Their interests and occupations based on their Twitter profile are as follows.



## Attendee Feedback

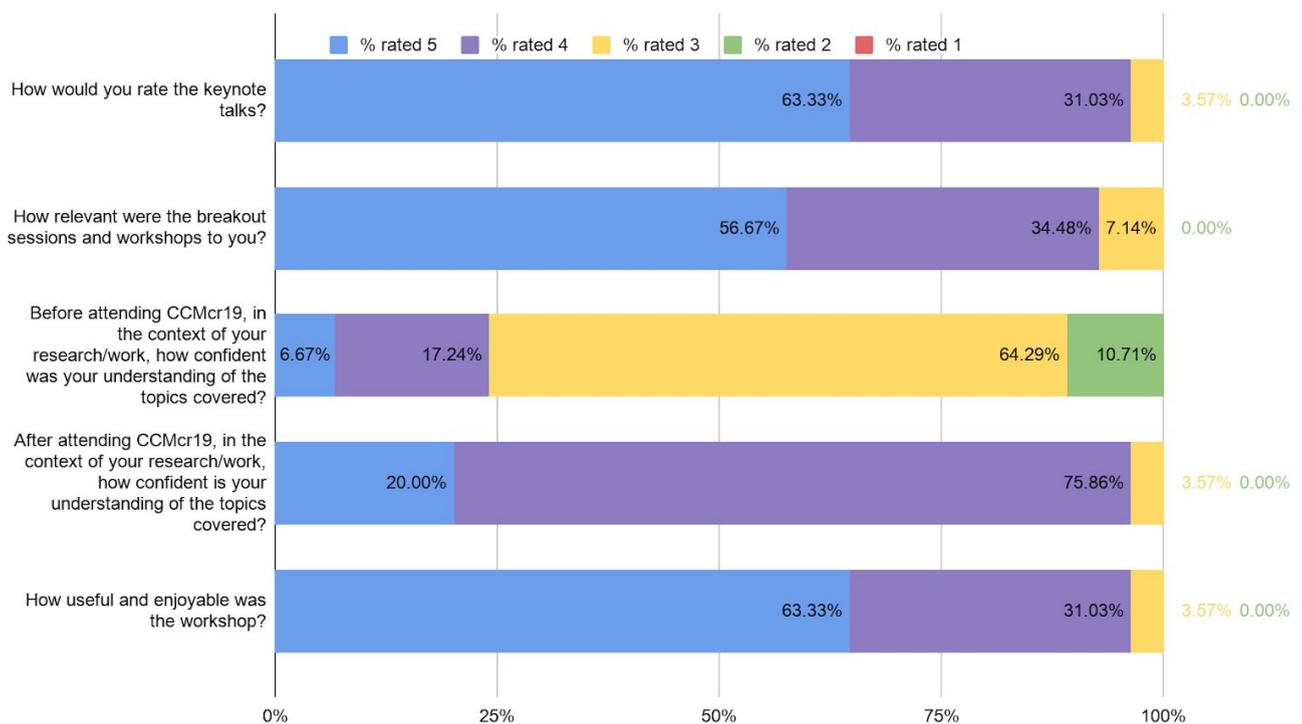
We asked the conference attendees to fill in a feedback survey after the conference, to get their perspective of the event and collect ideas for future improvements. We got 30 responses in total out of 76 attendees and the results are summarised below.

## Audience analysis

First we asked the audience about their familiarity with The Carpentries and the community. The vast majority of the audience were members of the Carpentry community - a big proportion of the audience were Carpentry instructors (74%), or people who helped at workshops (60%) or coordinated and hosted workshops in the past (63%). However, ~ 10% of the audience were newcomers who have not been involved or have never heard of the community before. So we managed to reach out and attract new members to the community, some of which wrote blog posts (reported below) about their positive experiences after the conference and tweeted throughout raising the profile of the Institute and community in their networks. We also had 4 Carpentries' members of staff in attendance, including the Executive Director Tracy Teal, proving how valuable they thought the conference was to the community.

## Experience of the programme

We asked the participants to rate the various aspects of the programme on a scale of 1-5, with 1 being poor and 5 being excellent.



Almost all participants (96.6%) rated keynote speakers 4 or higher.

93.3% found the workshops and breakout sessions relevant to them and their work.

When asked to rate their understanding of topics covered before and after the conference, average confidence increased from 3.2 to 4.2 (on a 1 - 5 scale).

Almost all participants (96.6%) found the event useful and enjoyable and 96.7% would recommend it to their colleagues.

There were no commuting, parking or accessibility issues reported and people felt that the event indeed required the full 3 days.

## What went well

Based on all the feedback from participants, people seemed to have enjoyed various aspects of the conference - “excellent keynote speeches”, “great food”, “great social programme” and “excellent conference organisation”. In particular, people liked “curriculum development breakout sessions”, which were part of the main goal of the conference and “fun activities [that] were thoughtful and really made an already excellent conference even more enjoyable”.

It was a place to meet new people from same domains and establish new contacts that will lead to reported further collaborations.

Many people experienced new type of sessions for the first time (e.g. ReproHacks) or finding out new things and tricks they did not know about for a tool they used for years, and “learning a lot”.

The true spirit of the Carpentries showed during all of the conference: “the feeling of being included and supported by the community” and “finding engaged and helpful people who were ready to help and welcoming help from others who were non-experts”.

Here are some of the quotes people used to describe their experience.

“This was an excellent, content-rich event. People were friendly and welcoming, what a great community. Also, I very much appreciate that the event provided great food to meet my special dietary requirement - thank you! Location in Manchester was fantastic; nice time of year to be in the U.K. Well worth the trip from the U.S.”

“Super organizing work - thank you so much!”

“There are no words to describe how awesome this conference was!”

“Thank you. This was my happy place.”

“It was all really fantastic!”

“I think [...] the organisers did an excellent job, and confirmed the fact that a strong social programme [...] really makes a difference to the experience.”

“It has been an amazing three days for me, THANK YOU! As an early career researcher, I really appreciate the support and kindness from the Carpentries! It means a lot to me!”

## Recommendations for improvement

Based on the comments, we will be looking to improve upon certain aspects of our events in the future.

### Information availability

Make sure that website minimises the amount of clicks to get to the information and make abstracts of breakouts on the website and list of delegates available to everyone sooner so people can make decisions on what sessions they will attend and know who is coming to the conference.

### Programme improvements

Allow more time for some of the sessions and have slightly fewer parallel sessions as there were so many people wanted to attend. Enforce 5 minutes of quiet reflection and refocus time as part of workshops/sessions and end a day earlier.

### Improvements in inclusivity and the environment

Use larger font for name tags. Be more mindful of introverts, as a lot of forced interactions can end up very tiring even though there were quiet rooms and meeting/work rooms available. Have more “enforced” outside time to help people reset in the day (e.g. during photo taking).

## Outcomes, outputs and impact analysis

### Outcomes

When we started planning the conference, we set out our main goals and objectives as:

1. Provide networking and meeting opportunities for the Carpentry community and a place for the community to meet in between the main biennial CarpentryCons;
2. Provide the community with updates from the Carpentries mothership and around the world;
3. Provide general training to people around starting and championing new communities of practice;
4. Help create smaller communities around training in particular domain or a particular tool and/or initiate new material creation;
5. Offer up-skilling and training opportunities on various topics;
6. Organise “Bug BBQs” to improve existing training materials and hands-on workshops to tackle particular training- or research-related issues;
7. Initiate a series of biennial CarpentryConnect conferences to fill in the gaps in years where the main CarpentryCons do not happen;

8. Have a fun and productive 3 days.

We have been largely successful in fulfilling the goals and objectives we set out to achieve - in particular the conference managed to pass inspiring and positivity messages to encourage the community to believe “they are good enough” and to grow a sense of belonging to the community.



Tweet by Jessica Ward,

<https://mobile.twitter.com/JKRWard/status/114383902502911808>

A reported increase of skills on a range of topics the conference provided training workshops on (21 in total) was evident in the feedback from attendees.

In addition to training in practical technical skills needed to improve research (git, Shell, R, Python), over three days we trained people in curriculum development skills by having a range of interlinked workshops from conceptual training material development, to Carpentries philosophy of teaching to collaboratively developing and coding lessons using the Carpentries lesson infrastructure and GitHub. This series of training workshops in material development culminated on the third day through hands-on workshops where people employed the knowledge from earlier training by starting the development of new curricula in several domains - digital humanities, text mining, machine learning and artificial intelligence and biology. This work and discussions in the community that followed after directly contributed to a change of practice on how The Carpentries handle lesson contributions. The new [Carpentries Lab](#) has been established for developing new, official, high-quality and community-reviewed lessons endorsed by The Carpentries and [Carpentries Incubator](#) for sharing and contributing to new Carpentry-style lessons developed by the community on a range of topics that are not part of the official curriculum.

In addition to the above training, the new “Community Carpentry” training programme, developed by the SSI Community Lead Shoaib Sufi, has been piloted using the knowledge gained from the SSI Fellowship Programme and the SSI's own guidance on community development skills, with a particular focus on helping seed, nurture and grow communities of practice. As much as training people in best practices around starting new communities of practice, the programme was in turn enhanced by the knowledge in the Carpentries communities and feedback received during discussions and will be turned into a new official training guide on community development by the SSI.

We also had [ReproHacks](#) (ran by Anna Krystalli, an SSI Fellow) - one-day reproducibility hackathons where participants attempt to reproduce papers from published code and data and raise awareness and need for open code and data. These proved a huge success.



**Andrew Stewart**  
@ajstewart\_lang

Many thanks to [@annakrystalli](#) for a brilliant [#ReproHack](#) at [#CCMcr19](#) today - and mega thanks to [@Ben\\_C\\_J](#) for nominating one of his papers with [@LisaDeBruine](#) and colleagues to see if we could reproduce the modelling results - and we could! 🎯 😊 👍 [#opencode](#) [#opendata](#) ftw!

Tweet by Andrew Stewart

[https://twitter.com/ajstewart\\_lang/status/1144316430063677446](https://twitter.com/ajstewart_lang/status/1144316430063677446)

The conference allowed The Carpentries management to connect with the UK and European communities and in return provided the community with the latest news from the Carpentries. The event also had a particular impact on the local Manchester community - bringing people involved in training from various departments that normally would not have met and starting new local collaborations.

The conference inspired a series of UK/European CarpentryConnect conferences - planning is underway to run CarpentryConnect in Belfast in 2020 to seed the community in Northern Ireland and we have an Institute Fellow interested in hosting another CarpentryConnect event in St Andrews in 2021.

Finally, 2 months on from the conference and based on the impact CCMcr19 had on the community, the organising committee of the main CarpentryCon conference (initially established as a biennial event) agreed that big community events such as CCMcr19 are needed every year to keep the community going and growing and made a decision to run CarpentryCon every year from now on.



[Video recordings of keynote speeches](#) are also available on YouTube.

We received an invitation to do a podcast on the [Open Science Radio](#) about our events and mission - details to be arranged in the near future.

### Blog posts

A number of blog posts from discussion sessions and workshops and personal experiences from the conference have been published (or are in the process of editing) at [the Institute's blog](#) or individual blogs of attendees:

- [Highlights of CCMcr19](#) by Aleksandra Nenadic, SSI Training Lead
- [Strengthening the Library Carpentry community](#), by Phil Reed (University of Manchester), Nilani Ganeshwaran (University of Manchester), Jez Cope (British Library), Tim Dennis (Director of the Data Science Center, UCLA), Chris Erdmann (The Carpentries), Silvia Di Giorgio (Institute for Molecular Infection Biology, Germany), Tracy Teal (The Carpentries Executive Director)
- [Dos and Don'ts for computational training](#) by a newcomer to the Community Sara El-Gebali, EMBL EBI, Cambridge
- [A friendly letter to community managers](#) by Malvika Sharan, SSI Fellow 2019, EMBL Germany
- [Personal experience of the conference](#) by Jess Ward, an SSI Fellow 2019, PhD student at the University of Newcastle
- [Connecting with the community: personal notes from CarpentryConnect Manchester 2019](#) by Malvika Sharan, SSI Fellow 2019, EMBL Germany
- [Reprohacking at CCMcr19](#) by Anna Krystally, SSI Fellow 2019, Research Software Engineer at the University of Sheffield
- Machine Learning Carpentry at Carpentry Connect Manchester 2019 (in editing) by Colin Sauze, Aberystwyth University
- Digital Humanities Curriculum Development at CarpentryConnect Manchester (in editing) by Catherine Smith (University of Birmingham), and Iain Emsley (University of Sussex)

### Event Organisation Guide

Based on the experience and lessons learned from the conference, a number of contributions have been made to the [“SSI Event Organisation Guide”](#), published soon after the conference and going through the steps of organising (successful) events.

## Acknowledgements

Many people came together to make CCMcr19 happen - we extend our thanks to everyone who contributed to making CCMcr19 a very successful event, including:

- [CCMcr19 sponsors](#)
- CCMcr19 attendees

- [CCMcr19 organising committee](#) and advisors Shoaib Sufi (SSI Community Lead) and Raniere Silva (former SSI Community Officer)
- [The Institute funders](#)

## Summary

CarpentryConnect Manchester 2019 was a great success, described by attendees as "an excellent, content-rich event" with "friendly and welcoming" community and an "amazing three days".

We made an impact on the worldwide community by improving their technical skills for day-to-day work and giving them knowledge and confidence to start their own mini-communities. We helped change how lessons contributions in the community work, making it easier for people to discover, reuse and contribute to new training materials. We left a number of resources for people to look back on - new materials, blog posts, videos, event organisation guide. We used our own experience to help and inspire others to organise such and similar events and have attracted new members to the community - helping with capability and capacity building.

At the end of three days with many conversations about best practices and methods for teaching researchers and making an impact at own institutions and regions in training in research software and data skills, it was clear that there is still a lot of work to be done but people left with a feeling that by working together with like-minded people who they met at the conference - they could make a change and are very likely to succeed.