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A supporting supramolecular community

Jennifer Leigh and Jennifer Hiscock, both from the University of Kent, share with *Nature Chemistry* the origins of the Women In Supramolecular Chemistry (WISC) network, as well as some of the projects underway to try to help change the culture of this area of chemistry from the bottom up.

What are your respective backgrounds?

JH: My first degree was in biomedicinal chemistry at the University of Exeter, UK. I then moved to the University of Southampton for a PhD under the supervision of Philip Gale (who has since moved to Sydney, Australia) and Michael Hursthouse, studying the selective coordination of anionic guest species to neutral, hydrogen-bond-donating receptors. After post-doctoral work in collaboration with the UK government's Defence Science and Technology Laboratory, Porton Down, I moved to the University of Kent as a research fellow — this is when I met Jen L., who was a lecturer on an education course. I have been here ever since, embarking on my independent research on antimicrobial and anticancer technologies.

JL: My background is slightly less conventional — after a degree in chemistry with analytical science and an aborted PhD in computational chemistry, both at the University of Birmingham, I trained to become a yoga teacher and somatic movement therapist before going back to the same institution to complete a PhD in education. After gaining science teaching qualifications (PGCE) I did a couple of post-docs in psychology before getting appointed to a lectureship position in higher education and academic practice at the University of Kent. My research focuses around embodied and creative methods, reflexivity, marginalization and academic identity. Being involved with WISC is a bit like coming full circle — I am even a full member of the Royal Society of Chemistry (RSC) these days.

Can you tell us how, and why, you created the WISC network?

JH: It started with four of us — Anna McConnell (University of Kiel, Germany), Cally Haynes (University College London, UK), Claudia Caltagirone (University of Cagliari, Italy) and myself — feeling a need for support. In 2018 we formed our own peer-mentoring group based on our shared friendship, feelings of isolation and the pressures associated with starting out as independent researchers trying to secure that elusive permanent academic contract. So, we met online every two weeks to discuss our issues and help each other find solutions. It was not long before other women in the community expressed an interest in joining our sessions and we looked to expand these meetings into an actual network. With the support and guidance of two prominent supramolecular chemists, Kate Jolliffe (University of Sydney, Australia) and Michaele Hardie (University of Leeds, UK), we launched the WISC network in November 2019.

WISC is open to people of all genders who wish to help eliminate gender-related issues in the community and, more generally, create a sense of community and kinship among supramolecular chemists. Although the focus of the network is gender diversity, it is well established that members of various communities face significant barriers — for example, due to race/ethnicity, religion, sexuality, socioeconomic background, being located in the Global South and/or having a disability or chronic illness. We are very aware of the intersectional nature of inequities and we are working to take this into account throughout our projects. We are currently collaborating with other community groups such as Empowering Female Minds in STEM (EFeMS), the Chemistry Women Mentorship Network (ChemWMN), the STEMM Action Group of the National Association for Disabled Staff Network's (NADSN) and the Women in Academia Support Network (WIASN).

Our first step was to listen to the supramolecular chemistry community and learn what they would want from such a network. This required doing a survey, and this is when we realized that we needed input from a social scientist. I reached out to Jen L., initially asking her to look over our draft survey. After ripping it to shreds she put it back together and I co-opted her onto the WISC board. Since then both the full and advisory boards have grown and together they now count 18 members —

mostly supramolecular chemists as well as a few people with strong links to the community — from 7 different countries.

How did you assess the needs of the supramolecular chemistry community in particular, so that you could tailor projects accordingly?

JL: Our first survey was a major part of this. We deliberately asked open questions prompting participants to let us know what they would like the network to provide, as well as encouraging respondents to share their experiences around issues that we recognized from our own paths could be barriers — such as career breaks and the transition to becoming an independent researcher. We are grateful for the honesty and reflection that the respondents showed — and continue to show — in the surveys.

Many respondents were interested in mentoring and this was the first programme that WISC implemented. We are also active on Twitter and took leads from there to develop the first of our 'community support clusters', led by Emily Draper (University of Glasgow, UK), for people anywhere along a parenting journey. Academia is a challenging environment for those with child-caring responsibilities as well as for prospective parents — and this has been further exacerbated during the lockdowns and other Covid-related disruptions. This cluster is a space to connect, acknowledge difficulties, learn from each other, share resources and eventually help drive change in the community.

Through the involvement of a chemist-turned-social-scientist, WISC projects rely on embodiment and reflective practice. Can you introduce what they are and explain how they are embedded within WISC activities?

JH: Good question! I think I understand it more these days… when Jen L. first proposed this practice, I have to admit to having two initial reactions: 1) I can't understand why this will work and 2) is this really worth our time? However, Jen L. is an amazingly persuasive individual who convinced me to be more open-minded and give it a go and, to be honest, I think this has been one of the best things for WISC. Having a social scientist in the team has ensured that we conduct our surveys within ethical guidelines and in the context of existing social science research around equity, diversity and inclusion (EDI), in a way that gives us meaningful data.

JL: To answer the more technical bits, I use embodiment to mean taking information that arises from the body and mind; from thoughts, feelings, images, emotions, as well as proprioceptive and kinaesthetic senses (that is, related to the awareness of the position and movements of our body). This gives a person data to reflect on and allows them to process what they are experiencing. In practice, it means noticing what we feel when things happen, how it makes us feel as a result, and taking time to sit and think and talk about it. It's a way of accessing feelings and experiences that can be hard to put into words, and allows people to connect honestly and truthfully. This kind of research is called 'embodied inquiry' and it is used in social science as part of a collaborative autoethnographic research process — in which we reflect on individual and shared experiences, and relate these to the wider context in which they happened.

JH: One of our projects is looking at the experiences of women principal investigators (PIs) and as part of this, an international group of 14 WISC members meet once a month for collaborative autoethnography meetings. We share images, drawings and thoughts about different aspects of our work and lives. Quite a few of these are gathered in a book that will be published next year by Policy Press, *Women in Supramolecular Chemistry: Collectively Crafting the Rhythms of Our Work and Lives in STEM*. I was very sceptical about this project to start with, but it really has helped. It's not just about not feeling so alone, though that is part of it, it's also about sharing ideas, best practice and learning from each other.

An aspect that you are working on is decreasing gender barriers in academic progression and retention post-PhD. How do you tackle this issue, and have you had any success in capturing the experiences of those who have left the field?

JH: Our aim here is to both strengthen people's sense of belonging in the community and to gradually change the environment by encouraging members of the community to support each other. We focus our efforts post-PhD because data shows that it is when women are most likely to leave academia. Through our surveys, work with our research groups and our own collaborative autoethnography project, we have recognized that isolation plays a major part of this. Our mentoring programme, led by Marion Kieffer (InnoMedica, Switzerland), has been designed to help ameliorate this where possible.

It is set up so that small groups of peers (between one and four) meet every month with a mentor (of any gender) who is at least one career stage ahead of them. At the moment all participating mentees and mentors are in academia, but that doesn't have to be the case. We ask all participants to sign a mentoring agreement that includes rules of confidentiality and how often they will meet, and regularly ask for feedback to keep improving the scheme. So far more than 90% of both mentors and mentees have responded positively and signed up for another year.

WISC also hosts community clusters; two up-coming clusters will focus on first-generation academics and on disability, chronic illness and neurodivergence. Can you tell us why you identified these groups and what support these clusters will provide?

JL: We are working on having diverse WISC boards; currently our members represent a variety of religious beliefs, backgrounds and disabilities. The disability/chronic illness/neurodivergence cluster led by Anna Slater (University of Liverpool, UK) stemmed in part from my work on ableism in academia and also from the board members' own experiences. All the clusters have also come about because people in the community have asked for particular support there. Ableism is pervasive in academia and manifests in a myriad of different ways, from the culture of overwork to mental health stigma to the difficulty in securing workplace accommodations — this last point is compounded by the fact that accommodations were promptly implemented for everyone during the Covid pandemic, and seem at risk of being taken away as governments and universities strive for a return to 'the new normal'. Our disability/chronic illness/neurodivergence cluster will offer practical support, help create a sense of belonging and increase representation among the supramolecular community. It has also recently won a grant from the RSC for a project looking to improve accessibility in labs.

We are excited about launching the new first-generation cluster, to support people who are the first in their family to be in higher education. Over half the board are first-generation themselves and we appreciate that, with no pre-existing academic ties, the research environment can seem to operate according to a hidden handbook that you don't know exists. It's not so much that you don't know the answers, it's more that you don't even know the questions to ask to get those answers. In a similar manner to the other clusters, it will embed a social-science approach to community support.

What's next for WISC?

JH: We have a lot of ideas, but not a lot of time beside our 'day jobs' so we are careful not to over-promise and under-deliver. We very much welcome new people and ideas, and if members of the supramolecular chemistry community would like to be involved in the mentoring programme, a community cluster, the organization of a workshop or another project altogether, we would love to hear from them.

We are also working on some exciting public engagement projects. We have recently been awarded a grant from the RSC to work with Empowering Female Minds in STEM to increase the visibility of African women in chemistry and science communication. We are seeking applications from women registered to study science at an African university to come to the UK for a fully funded 10-day trip. Two ambassadors will be selected to visit chemistry research labs led by women PIs, and create content for science communication and public engagement channels supported by KMTV, a local TV station for Kent. The call for applications is currently open.

In addition, we are actively seeking partners to use the framework we have developed in WISC to expand our reach to other communities, both in terms of geography and demographics.

We would also like to engage with all stakeholders in the chemistry community, including funding bodies, university administrations and policymakers to help enact change from the top down as well as — in true supramolecular fashion — the bottom up.

Interviewed by Anne Pichon

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