How to communicate in an interdisciplinary team

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Speed read

- We need pooled interdisciplinary expertise to solve real life problems
- But experts can clash over language, divergent perspectives, and knowledge gaps
- Recognising these barriers — and discussing how to overcome them — is crucial

Researchers increasingly find themselves working with disciplines other than their own specialism to solve complex issues where science and society intersect. For example, understanding and adapting to climate change requires expertise ranging from ecology to sociology.

Interdisciplinary research aims to get different fields to jointly find something new, usually a solution to a problem that requires broader expertise than that of researchers from a single field.

But solutions don't appear simply because different disciplines meet in the same room. Experts are trained in their field's specific language, theories and research practices, and these create barriers in three groups: language, perspective and knowledge.

Communication is key — from making yourself understood to trusting people you don't know to do work you don't easily understand. This guide outlines challenges you might meet and provides some practical tips.

Sharing language

Each discipline uses its own terms, definitions and jargon, and this often leads to miscommunication. Interdisciplinary colleagues may have different meanings for the same words, or not even recognise some terms used by team members with different expertise.

For example, 'desertification', which describes a major climate change impact, has more than a dozen definitions. Ecologists use it to describe loss of productive agricultural land — the transition from fertile soil to a desert-like landscape — but this definition is not shared by all natural scientists. Economists use 'desertification' to describe the spiral of poverty in developing nations, while agricultural scientists use it to mean over-grazing practices.

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Jessica Thompson

Don't be tempted to gloss over such differences: acknowledge them from the beginning. Team managers should deliberately supplement talk about tasks with explicit discussions about language differences, framing them as learning opportunities for the entire team.

I have spent the past few years working with an interdisciplinary study of climate change in Mongolia. Surprisingly, our differences in native languages (English and Mongolian) are less problematic than the differences in our specialised, disciplinary language.

Accept different perspectives

Different fields also have different concepts of what research and knowledge is. Some fields see science as objective, while others believe objectivity is impossible. Some researchers work with qualitative information while others will trust nothing but 'hard' empirical data.

But these differences might not be easily apparent — researchers might assume they are thinking along the same lines when they aren't.

For example, in our Mongolian project, we struggled for several months to develop a shared fieldwork schedule, partly because we didn't explain the reasoning for our data collection preferences, and partly because of different views on what data was 'important'. Researchers investigating rangeland and ecosystem health need to work when vegetation is blooming; watershed data need to be gathered at multiple, seasonal intervals; and the team collecting household data needs to work around the herding and community schedules.

We resolved our differences using a surprisingly simple process. By jointly listing all the data that we needed on a chalkboard, we could map out the best times for the team to travel

together through five rural regions of Mongolia.

Differences in perspective also stem from culture and nationality. In the early stages of the project, our Mongolian partners expected formal communication, and responded only to emails from the highest-ranking US researcher. However, the lead US researcher is not fluent in Mongolian and often needs lower-ranking Mongolian team members to translate, if not write, her team correspondence. This was seen as disrespectful in Mongolia. It took us several conversations to figure out the cultural protocols and adjust accordingly.

Another cultural challenge I've had to reconcile is that of gender. Working with a team studying ecosystem services in Mexico, my peers from a Mexican university would speak directly to my male graduate student, while barely making eye contact with me.

Acknowledge what you don't know

In most interdisciplinary research projects, there isn't time to understand one another's work intimately. And that's also the point — you need to trust your colleagues and their expertise. After all, the intention is to combine people's knowledge to serve the project.

However, research training sometimes instils an ingrained sense of authority that tempts team members to debate the merits of each other's expertise, either through innocent exploratory questions misunderstood as challenges or to maintain ego as 'the expert'.

For example, during a group discussion on modelling air quality in Salt Lake City, United States, two lead researchers, one an urban planner and the other a plant ecologist, had a heated debate. An innocent question from the plant ecologist was belittled by the urban planner. The ecologist's response was to genuinely challenge the planner on a point, in turn embarrassing him.

Clearly, it is unacceptable to debate each others' work combatively. Ground rules should be set before nasty habits become group norms.

Here, research teams can benefit from using a professional facilitator. Facilitators can help the team to manage unhelpful communication habits, actively regulating 'unsportsmanlike' conduct. Increasingly, funding agencies, nongovernmental organisations and universities are training professional facilitators to specialise in team management and research collaboration.

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  The US Office of Science and Technology Policy manages the Science of Team Science listserv, which connects facilitators with interdisciplinary research teams across the globe.

Put the time in

Successful interdisciplinary teams make time for each other. Colleagues who enjoy spending time together are more open and willing to learn from each other. In numerous projects I've been involved in, team members have expressed the feeling that they did not have enough time together to discuss, connect and explore ideas.

Making time is difficult because researchers often do interdisciplinary projects in addition to their own specialist work. But project proposals and team agendas should include time that is explicitly for building trust, talking around potential communications issues and interacting socially. Don't be tempted to think of this as a 'waste' of time — your working relationships will benefit.

You should be aware of how you're behaving when spending time together too — make sure that you listen attentively and are open to new thinking and viewpoints. You might not always have a professional facilitator, so it's vital that everyone is aware of their behaviour and its effects on team communication and collaboration.

Humour can relieve stress, support common values and group goals, and integrate ideas. More importantly, it can diffuse problems before they grow. Joking and laughing can build cohesiveness within a team.

Teams should consider scheduling social time for mingling, building relationships and laughing. Researchers may be much more motivated to participate in collaborative work if social benefit accompanies the professional rewards.

My favourite example is from the Salt Lake City team. After a formal meeting, several researchers went out for pizza. Inspired by a group of high school cheerleaders, they ended up discussing high school athletics and their different experiences of secondary education.

This conversation provided an unplanned bonding opportunity that helped team members begin to trust each other, look forward to spending more time together, and even find additional opportunities to collaborate — six of us still meet to discuss the nuances of the research, and we have written more than a dozen further collaborative research proposals.

But remember that not everyone can commit to spending extra time with colleagues,

perhaps due to family commitments. Try to make sure that this kind of informal time doesn't exclude people — think how to build it into a normal day. Team members often just need 'space' to talk socially, and this can be during coffee and lunch breaks as much as evenings.

Getting the work out

Once the research is completed, you must get your results to those who need them. There can be tensions around deciding where research should be published. Each field has its own 'top' journals, and people may be reluctant to plump for journals they see as inferior.

This is exacerbated by the fact that many journals don't publish interdisciplinary research, and that journals focusing on interdisciplinary research can be seen as low quality compared with more specialised publications.

When 'writing up' you must ensure you reflect work done by the entire group, and that everyone feeds into it. But you should also appoint someone as the overall editor, ensuring the paper is coherent and reads 'with one voice'.

You should also discuss who will be the 'face' of the research if it gets media coverage, or whether you want more than one person to be featured. These are issues that apply to all research — you can get further advice from SciDev.Net's other practical guides to science communication, including how to communicate research via blogging and social media.

While the challenges can be frustrating, interdisciplinary research offers rich learning opportunities. Once you've finished a research project, try to avoid going back to your traditional silo. It would be a shame to close the lines of communication now you've opened them. Depending on your field, you might find that you often have the opportunity to get involved in interdisciplinary projects — try to share what you've learnt and spread the word.

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References

Further reading:

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Sustainability: Science Practice and Policy. 7, 74. Tools for enhancing interdisciplinary communication (2011)

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Source: http://www.scidev.net/global/communication/practical-guide/how-to-communicate-in-an-interdisciplinary-team.html