

Mentorship in research

Assuring that research integrity
principles are followed in research
organizations





What is mentorship?

In Homer's *Odyssey*, Odysseus commissioned his friend Mentor to watch over his son, Telemachus, while he was away fighting in the Trojan War. The word 'mentor' has since evolved to mean an "experienced and trusted person who gives another person advice and help", according to [Cambridge Dictionary](#).

In research, mentoring refers to good supervision, which implies overseeing young researchers' work while also granting them enough freedom and scope to support their professional development.

What are the criteria for good mentoring?

Although there is no set formula for mentoring, the research community generally agrees that, to be a good mentor, senior researchers should:

- Find a balance between independence and guidance, giving young researchers the freedom to expand on their ideas while gently reining them in when they get off track. In this sense, a special challenge is how to nurture research creativity while encouraging independence.
- Find a way to exert appropriate control without directing every single step young researchers may take or criticizing and questioning everything they do. In all cases, they should avoid misusing their power.
- Be good listeners and questioners as well. Instead of merely providing answers to young researchers, senior ones should lead them towards both an answer and a better understanding of what they are learning through more questions.



- Be willing to provide opportunities for practical learning, including through mistakes, since these can be turned into good teachable moments.
- Be willing to [teach general ethical values and principles of research](#), beyond the standards of specific disciplines, such as honesty, transparency, accountability, openness, and objectivity. Mentors should also raise awareness of the pitfalls of scientific misconduct. Research integrity should guide all researchers, regardless of their field.
- Be aware of their influence as role models to their PhD students' careers, in order to motivate them to someday be good mentors and supervisors themselves.



What the best mentors are like

[A 2018 Nature survey](#) in the scientific community tried to find out what the distinctive features of good mentors were. In a nutshell, these are:

- **Enthusiasm:** Mentors should be enthusiastic about their young students' research. If they are not, they need to ask themselves whether the student is working on the right project. If mentors are not passionate about their project, can they properly support them?
- **Empathy:** Mentors should show compassion and understanding. They need to listen, hear, and support their mentees' professional and non-professional needs, such as finding the right balance between work and family responsibilities.
- **Appreciate individual differences:** Mentors should strive to understand all team members and provide tailored help to each to enable them to make decisions about their career directions.
- **Respect:** Mentors should treat young researchers as genuine collaborators.
- **Unselfishness:** Mentors should let their students develop their ideas and allow them to be lead authors. They should also introduce mentees into their networks, for example, to facilitate potential collaborations.
- **Availability:** This is the standout quality appreciated by the mentees. Despite enormous workloads and responsibilities, mentors' doors should always be open. Regular meetings are clearly an important way for many mentors to support their scholars.

The importance of celebration

Both mentors and mentees should appreciate the value of celebrating victories, both large and small, as it is highly encouraging and can also contribute to community building, key to creating an environment where every researcher can thrive.

For their part, in order to be well mentored, young researchers should:

- Be willing to learn from senior researchers and consider and heed their advice.
- Respect agreements regarding certain steps of the work in their respective disciplines.
- Be willing to develop their own ideas and projects, and to use the scope and the freedom of research in an appropriate way.
- Be (come) aware of research and personal accountability.

How to foster mentorship?



Senior supervisors are expected to be [mentors for young researchers](#). However, there are currently no clear or binding criteria for mentorship, nor are mentors properly trained to play this role. Therefore, some guidance for how to appropriately supervise junior researchers' work is advisable:

- Universities, institutions and even funding programmes should encourage written binding agreements covering the rights and duties of both supervisors and PhDs. In most German universities, for example, senior and junior researchers have a written agreement establishing rules about what the project is, what has to be done, what it is expected, and when project milestones should be complete, among others. However, there is still room to more fully exploit the potential of these instruments in practice.
- Awards for good mentoring and supervision could foster discussions around these relationships and promote the development of certain criteria. Likewise, awards can help raise awareness on good role models

in mentoring. It would also be helpful to consider mentorship as a merit on senior researchers' CVs.

- Training young researchers is fundamental as well. Mentees can potentially challenge or change poor supervisory practices they experience. Good mentors should also encourage their students to start learning skills that will benefit them in the long term as soon as they start their PhD, such as being good communicators, for instance. [Young researchers](#) too, can be inspiring for undergraduate students who may someday become their future mentees.

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This Mentorship overview is part of the Ethical Researcher series developed in the framework of the Path2Integrity project, a European Union Horizon 2020 research and innovative programme that raises awareness about research integrity, while educating on how to argue in favour of responsible research and reliable research results. The main goal is to explain how important it is for researchers and society to sustain a culture of research integrity.

Please, also check the following overviews on:

- Researcher accountability
- Publication
- Research Environment
- Transparency versus protection of data and results

Research Integrity

Is the **quality safeguard** of science and technology, the social sciences, and the humanities.

Protects the **reputation** and careers of researchers and research organizations.

Contributes to **social progress, trust and accountability** in science and technology, the social sciences, and the humanities.

Avoids negative **social impacts** and wasted resources, time, and efforts.

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