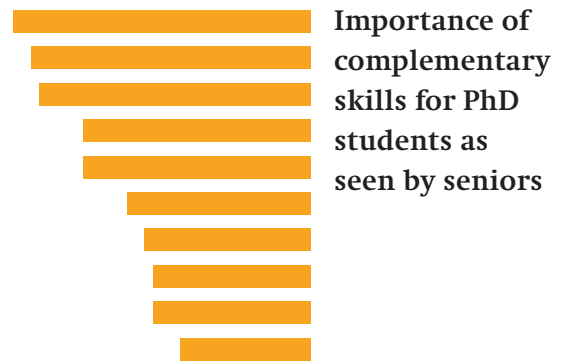


Transferable skills for life scientists

A report produced by the EMBO Science & Society Programme for the European Molecular Biology Conference



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Background

The European Charter for Researchers¹ aims, among other things, at “promoting career development of researchers”. The European Commission’s Code of Conduct for the Recruitment of Researchers¹ states that “merit should not just be measured on the number of publications but on a wider range of evaluation criteria, such as teaching, supervision, teamwork, knowledge transfer, management and public awareness activities”. The need for researchers to develop transferable skills is mentioned specifically in the code of conduct under

the following headings: supervision and managerial duties, continuing professional development, career development, and access to research training and continuous development.

In the 2007 report on the Bologna Process in a global setting², it is stated that “*The integration of graduates into professional life, and hence into society, is a major social responsibility of higher education. Learning needs to encompass transversal skills ... in addition to specialist knowledge.*” Educational research shows that most PhD students

will end up not working in an academic environment³. Even for those who stay in academia, career success increasingly depends upon developing the skills of management and communication. Currently, very few PhD programmes in Europe offer continued education in scientific and transferable skills. In defining a PhD as “early stage training”, the European Commission is placing much emphasis on professional training, but some scientists fear that this will shift the focus too far away from basic scientific training. What is the right balance? What do practising scientists think?

Key insights from the EMBO survey*

One of the most striking observations was that, of those questioned, more than 80% had not heard of the European Charter for Researchers. This is a somewhat worrying finding, given that the Charter and Code of Conduct have consequences for all scientists with research groups.

When senior life scientists were asked whether they would like the younger scientists in their lab to receive (more) training in complementary skills, 71% replied “yes” (n=421).

To the question “Do you think that training in complementary skills would make younger scientists more attractive as candidates for jobs in academia or industry?” 75% answered “yes” (n=423).

The skills that seniors consider most important for PhD students, for example, are indicated by the chart in Box 1. Skills of communication outside scientific circles receive a worryingly low rating.

A telling insight into which skills need more attention earlier in the scientific career is given by the charts in Boxes 2

and 3. Administrative and management skills occupy the top third ranking in terms of popularity of answer (between 56 and 30% of respondents). But public communication skills also rank highly (almost, or just within the top third in popularity) – much higher than the graphic in Box 1 would suggest. In fact, this finding suggests that senior scientists unjustly downgrade the importance of public communication skills for young scientists, whilst recognizing them as relatively important for themselves. When, indeed, *should* they be learnt?



Box 1 | Mean score attributed to the importance of various skills for PhD students by senior scientists, on a scale of 5 (very important) down to 1 (unimportant).

* The survey was targeted at life scientists of status group leader and above. 485 responses were collected from European life scientists, mainly from the EMBO membership and via FEBS mailing lists.



Box 2 | Percentage responses of senior scientists as to the areas of complementary skills in which they would have liked to receive training earlier in their career.



Box 3 | Percentage responses of senior scientists as to the areas of complementary skills in which they think they need to improve significantly.

Summary

- Of the transferable skills listed, management and administration are the ones generally considered most desirable by senior scientists.
- Public communication is also an area in which many senior scientists feel the need to improve significantly.
- Most senior scientists think it important that the younger scientists in their groups receive more skills training.
- For PhD students they consider the most important skills to be research ethics, peer communication and time management.
- For post-docs, in addition to the above, the most highly ranked skills include scientific ones (data not shown).

It can be deduced that PhD students and post-docs receive the least support from their supervisors in the development of public communication skills, which, never the less, are considered relatively important later in the scientific career.

Ensuring more transferable skills training for themselves and their younger researchers implies that supervisors spend *even* less time doing research. As it stands, many senior scientists feel overloaded with administrative non-scientific work. The representative quotes given on the back cover (from scientists answering the EMBO survey) suggest the following:

*If the shapers of European science want the scientists of the future to be better equipped with transferable skills **and** do excellent research, then much more administrative support must be ensured. If public communication is to be fostered, more qualified staff working in communication are necessary, and funders and assessors of science must recognise scientists' communications efforts in more tangible ways. The quality of all skills training courses must be subjected to tough quality control, as many seem to fall well short of expectations in terms of usefulness.*

References

1 http://ec.europa.eu/eracareers/pdf/am509774CEE_EN_E4.pdf
 2 www.ond.vlaanderen.be/hogeronderwijs/bologna/documents/WGR2007/Bologna_Process_in_global_setting_finalreport.pdf
 3 "Destination of all PhD graduates", a publication of the UK GRAD programme: www.grad.ac.uk

■ Selected quotes from respondents in the EMBO survey

// We need to do more and more tasks unrelated to direct research without more help. //

// A lot of these courses, events etc. are not sufficiently professionally executed to be really valuable. //

// I would favour the establishment of a formal PhD training program that:

1. is concentrated in a short and well-defined period (e.g. two-three weeks/year).
2. comprises science, communication and/or management, depending on the student's career plans.
3. is organized by teachers for which such PhD training is not extra work. //

// In my career, I have done about 100 popularization talks about genetic engineering, or the sequence of the human genome, and been part of several TV talk shows about science. I have written several popularization articles, and none of that work has ever been recognized as positive value for my academic CV. //

// The general feeling amongst colleagues – and I tend to agree – is that the focus is being shifted away from the science towards peripheral matters. //

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