Doctoral graduates are best known for their analytical power and technical expertise which they have learnt to apply rigorously. However, the range of skills that they develop is much wider. This is often not even recognized by the graduates themselves, although the increasing focus on skills development is helping to overcome this.

Research-intensive universities aim to produce doctoral graduates with a broad range of skills. Intellectual and academic skills are developed to a much deeper extent than is done at the Bachelor's or Master's level, and doctoral graduates are trained to be more inquisitive and independent. In addition, personal and professional management skills are developed as part of the doctoral experience. Research degrees concentrate strongly on the transferable skills relevant to research and such skills are relevant not only for the research workplace but also for other places of employment. Where appropriate doctoral programmes focus on their transferability to other domains in which a high level of creative thinking and critical analysis are needed.

This broad range of skill sets includes:

Intellectual skills, which comprise the ability to

- think analytically and synthetically
- be creative, inquisitive, and original
- take intellectual risks
- deploy specific technical research related tools and techniques

Academic and technical skills, which comprise the ability to

- understand, test and advance complex theories or hypotheses and to deploy sophisticated concepts, methodologies and tools in the chosen subject to a very high level
- be able to identify issues and translate them into questions amenable to scholarly enquiry
- develop and demonstrate academic credibility and become recognized as a member of an international scholarly community
- successfully pursue original research in the chosen area
- understand the workings of a special, high-level, research-intensive environment
- use critical judgment in an objective manner based on variable evidence
- apply highest standards of rigour in the proof of ideas
- manage a high degree of uncertainty both in method and in outcomes
- transfer new knowledge to scholarly communities and communicate it to society
- work according to ethical principles
- work in an interdisciplinary setting or on an interdisciplinary topic

Personal and professional management skills, which comprise the ability to

- persist in achieving long terms goals
- manage projects with uncertain outcomes in diverse settings and organizations
- take a project through all its stages: from developing the original idea, to developing a plan, garnering the evidence, and communicating the results and their significance
- be self-motivated and autonomous
- work to achieve results with minimum supervision
- be flexible and adaptable in approaching complex and uncertain problems
- communicate very complex concepts
- network internationally
- work in a team
- speak and present effectively in public
- the ability to lead other researchers the ability to teach and train others
- the ability to organize conferences and workshops

These skills should enable and enhance the doctoral worker/graduate in three complementary domains:

- Competence: acquiring specific expertise, knowledge, technology and methodology to conduct and understand research within a discipline and across disciplines;
- Achievement: gaining personal effectiveness, time, project, and self-management, developing a problem solving attitude and assuming a leadership role;

- Relationship: developing a team work attitude, collaborating and communicating with specialists and non-specialists.

*Taken from "Maintaining a Quality Culture on Doctoral Education at Research-Intensive Universities", Advice Paper, no: 19, March 2016, by LERU (League of European Research Universities).