

*“It's not that I'm so smart, it's just that I stay with problems longer”.*

*Albert Einstein*

The aim of this resource is not really to give you a wonder set of techniques or strategies to solve problems. The primary focus is to enable you, a student and prospective graduate of the University of Edinburgh, to take some time to reflect on the importance and relevance of problems in your University experience and beyond, and on the value in our ability to identify, define and analyse them and to identify or create new processes to solve them.

In your academic study, regardless of your discipline, you have the opportunity to not only enhance your learning and understanding but also to potentially create new knowledge and/or understanding. Through the process of research and enquiry you frequently encounter new, unfamiliar problems in new, unfamiliar contexts: how do you respond? Do you see these problems as obstacles or positive opportunities for learning and knowledge creation or enhancement? Also, problems are not necessarily ‘given’ and you often have to pro-actively look for a gap, for that new or missing piece of knowledge or a different way of looking at an issue: are you able to recognise this problem, gap or need and isolate or define it? Formulating a good research question or topic for a research project is possibly the most crucial step in many of your research activities at the University and therefore your ability to identify, isolate and define a problem, combined with the readiness to ask key questions and to apply critical analysis to define the problem precisely would be one of the first steps in your exciting journey of Research and Enquiry. **Are you a good ‘problem finder’? Are you intellectually curious?**

How you approach problems and how you identify or create suitable processes to solve them is another challenge and opportunity for learning. First of all, are you aware of the diversity of approaches or strategies within your own discipline, in its research and/or practice culture? Are you aware of the approaches used in disciplines different to yours? Have you ever wondered why some of the most challenging global and local problems and issues require the work of diverse, often multidisciplinary teams? As you progress in your academic exploration, you learn that there may not be an absolutely ‘right’ or ‘wrong’ answer or one interpretation or solution, you discover that knowledge is complex and provisional and can be contested, you practise dealing with uncertainty and unpredictability. The great news is that you have joined a truly cutting-edge and global academic

community you can learn from and share with; you have also joined the wider community beyond your academic life here, your societies, student representation, the wealth of engagement opportunities that University offers. Often working in teams or collaboratively, while being open and always intellectually curious, you are able to capitalise on the thinking, experience and skills of others and harness your own autonomy, flexibility, critical thinking and mental agility. Both as a student and a graduate, you are then enabled to respond to change and uncertainty more effectively, be more resilient and ready to analyse, negotiate or defend your approach, considering the ever changing professional world informed by a constant need for growth, innovation and improvement.

1. Do you pro-actively look for gaps in knowledge or understanding, and for opportunities to do things better, do things differently, to manage change? Do you create and harness these opportunities for yourself?
2. If a prospective employer in a job interview asked you for an example of a situation when you had to analyse a problem and generate solution, which situation would you describe and how?
3. What do you do when a solution doesn't work as you expected? What do you do when you can't find a solution?
4. Can you utilise and translate your knowledge, skills and abilities into a new, unfamiliar or different context? Can you think of an example when you've done so?
5. Do you use collaboration, team work and debate with others as an opportunity to listen and capitalise on their different thinking, experience and skills and to harness diversity? Can you think of an example when you've done so successfully?

For further self-study resources, you may start with generic problem-solving materials aimed at Higher Education students and available online, e.g. <http://www.palgrave.com/studentstudyskills/page/problem-solving-skills/> or books available in the library, such as Stella Cottrell's *'Skills For Success, Personal Development and Employability'*<sup>1</sup>.

Try signing up for a free online course in critical thinking offered by the MOOC University of Edinburgh: <https://www.coursera.org/course/criticalthinking>.

Also, the Institute for Academic Development developed resources on critical thinking and critical approach to learning which can be accessed through: <http://www.ed.ac.uk/schools-departments/institute-academic-development/postgraduate/taught/learning-resources/critical>

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<sup>1</sup> Cottrell, Stella (2010). *Skills For Success, Personal Development and Employability*. Basingstoke: Palgrave Macmillan.