QUEEN'S UNIVERSITY BELFAST

LEARN WITH AI

How to use AI to enhance, not hinder, your learning

Section 1: Core guidance

Used well, AI builds competence; used poorly, it builds dependence

Will AI be your learning partner or your intellectual replacement? The answer depends entirely on how you choose to use it. Your future is forged in that choice.

Effort isn't just part of learning; effort *is* what learning feels like

The foundation of learning is a biological process: the strengthening of neural connections within the brain. This process isn't passive; it requires cognitive effort and deliberate struggle. When we let AI provide instant answers, we outsource that essential effort and, in doing so, forfeit any real learning

Keep the effort, enhance it with AI

The key to using AI for improved learning is to make it a partner, not a shortcut. Use it to deepen your thinking, not to avoid it. Resist the temptation to let AI provide instant answers or finish learning tasks more quickly.

Effective learning requires time and mental effort; your goal is not to reduce this time, but to make every moment count, leading to genuine competency and success in your future.

Section 2: How to Learn with AI

Thinking, Problem-Solving, and Evaluation Skills

From brainstorming fresh ideas, to selecting and applying models or approaches, to critically evaluating whether a solution is valid or valuable, there any many types of thinking skill. Examples include generating innovative concepts for a design challenge, applying a specific technique to solve an engineering problem, diagnosing a medical condition, or assessing the strength of a legal argument.

In all of these cases, the golden rule is to do the work yourself first. Before you involve AI, tackle the task unaided. Brainstorm your own ideas, work through the problem, form your own diagnosis, or critique the argument. This initial cognitive effort is not a preliminary step. It is the actual learning process. It's the struggle that builds competence.

Once you've had a go, bring AI into the process. Either let it work through the same problem so you can compare outcomes or ask it to review your attempt and suggest improvements.

By working this way, you gain twice: first from the cognitive effort that builds your competence, and second from the insight that comes from comparing and refining your work.

ℹ **Do it yourself. Then refine with AI.**

Finding, Analysing and Using Information

For any task that involves finding and analysing information, begin by clarifying your primary learning goal. Is your aim to develop skills in data collection and analysis, or is that process merely a stepping stone toward the core activity, such as synthesising findings or applying them in context? If you're not sure, then ask.

When the goal is to develop your information processing skills, make sure to do the work yourself first, without AI assistance. Once your own work is complete, AI can then be used to supplement your findings or provide a comparative analysis.

Do it yourself. Then refine with AI.

If information processing is just a preliminary step toward your actual learning task, consider using AI to help you. Do so only if you are confident in your ability to evaluate and validate the AI's output for relevance and accuracy; if not, complete the work yourself first and then refine with AI. If you can validate its output, let AI assist with collecting and analysing information, apply rigorous checks, and then use the time saved to focus on the core learning task.

Let AI assist. Validate. Invest the time gained.

Writing & Communication Skills

Effective writing combines a wide range of skills: planning structure, organising points and evidence into a coherent argument, and articulating complex ideas clearly while adapting to disciplinary styles required for essays, reports, or theses. Communication skills extend further, encompassing visual aids such as diagrams and graphs, as well as spoken forms like presentations.

For any learning task, it is important to understand whether developing communication skills is the primary goal, or whether your existing skills simply serve as a tool to demonstrate learning. If you're not sure, then ask.

If the learning goal is to improve your communication skills, then complete the work yourself first. Once you have a finished draft, use AI to create a parallel version for comparison or ask it to review your work and suggest improvements.

Do it yourself. Then refine with AI.

If the communication task is secondary to the main learning goal, then consider using AI to help craft your message. Give it clear guidance on what matters and how the output should be styled. Most importantly, review the AI's work for both relevance and accuracy and then make good use of the time that has been saved.

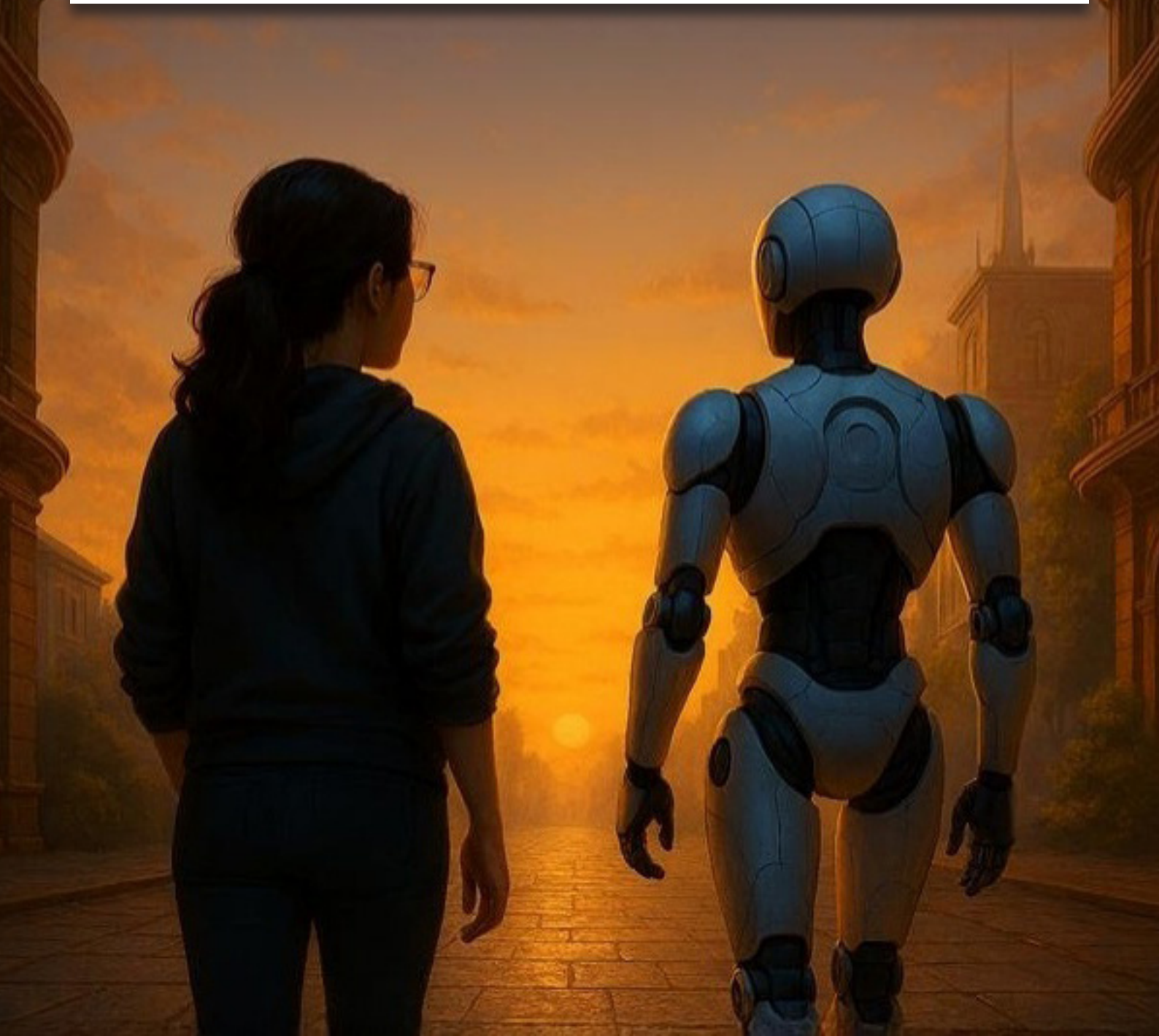
Let AI assist. Validate. Invest the time gained.

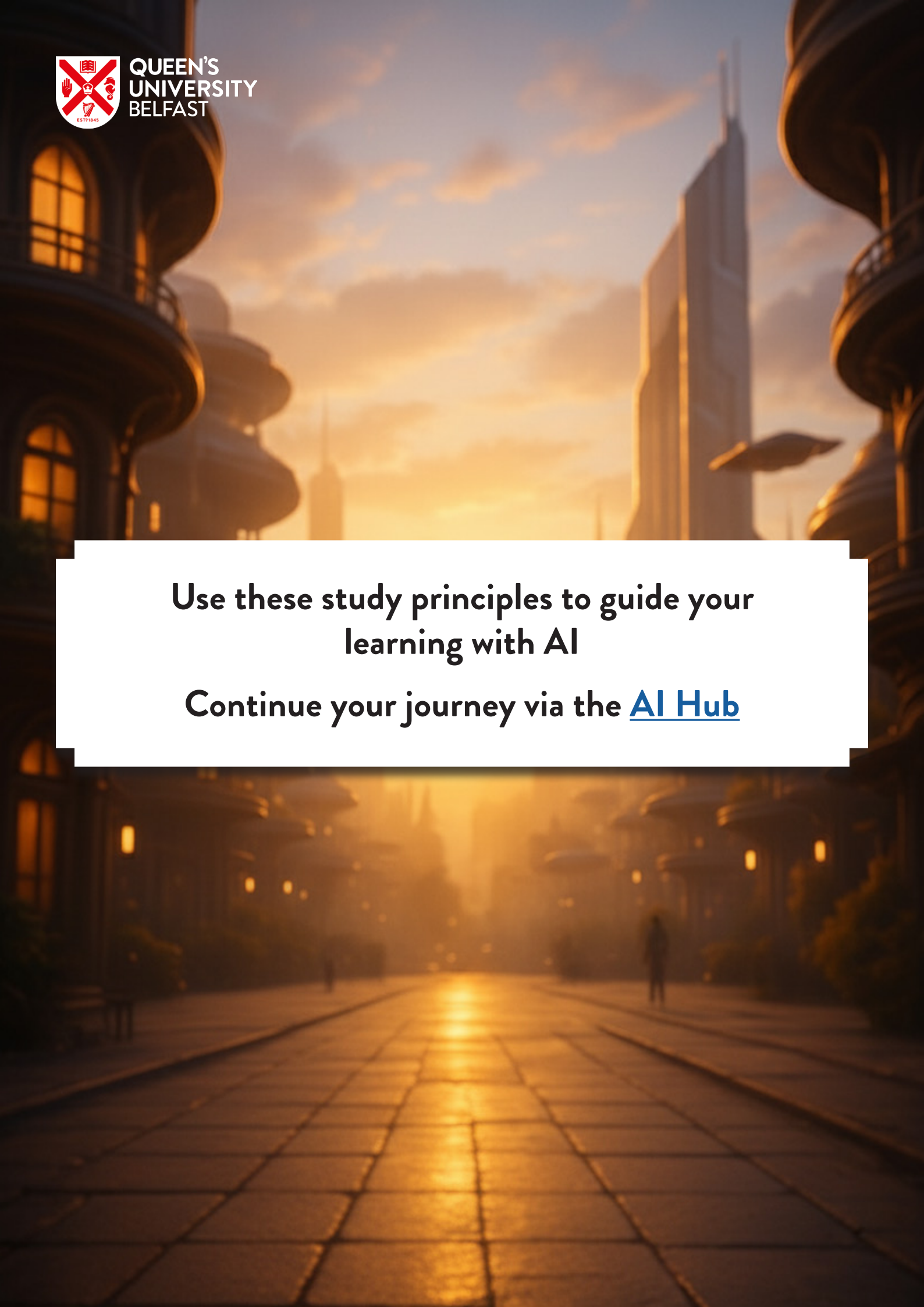
Your Future

AI is not just another convenience. It can shape the way you learn, think, and grow. Used well, it deepens your effort and sharpens your skills. Used poorly, it erodes the very struggle that makes learning real, leaving only hollow answers and fragile understanding.

The challenge is not whether you will use AI, but how you will use it. Every choice you make - to think first, to test yourself, to validate and refine - determines whether AI strengthens your competence or undermines it.

Technology has handed you a revolutionary tool. Use it to build an even better version of yourself.





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Use these study principles to guide your learning with AI

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