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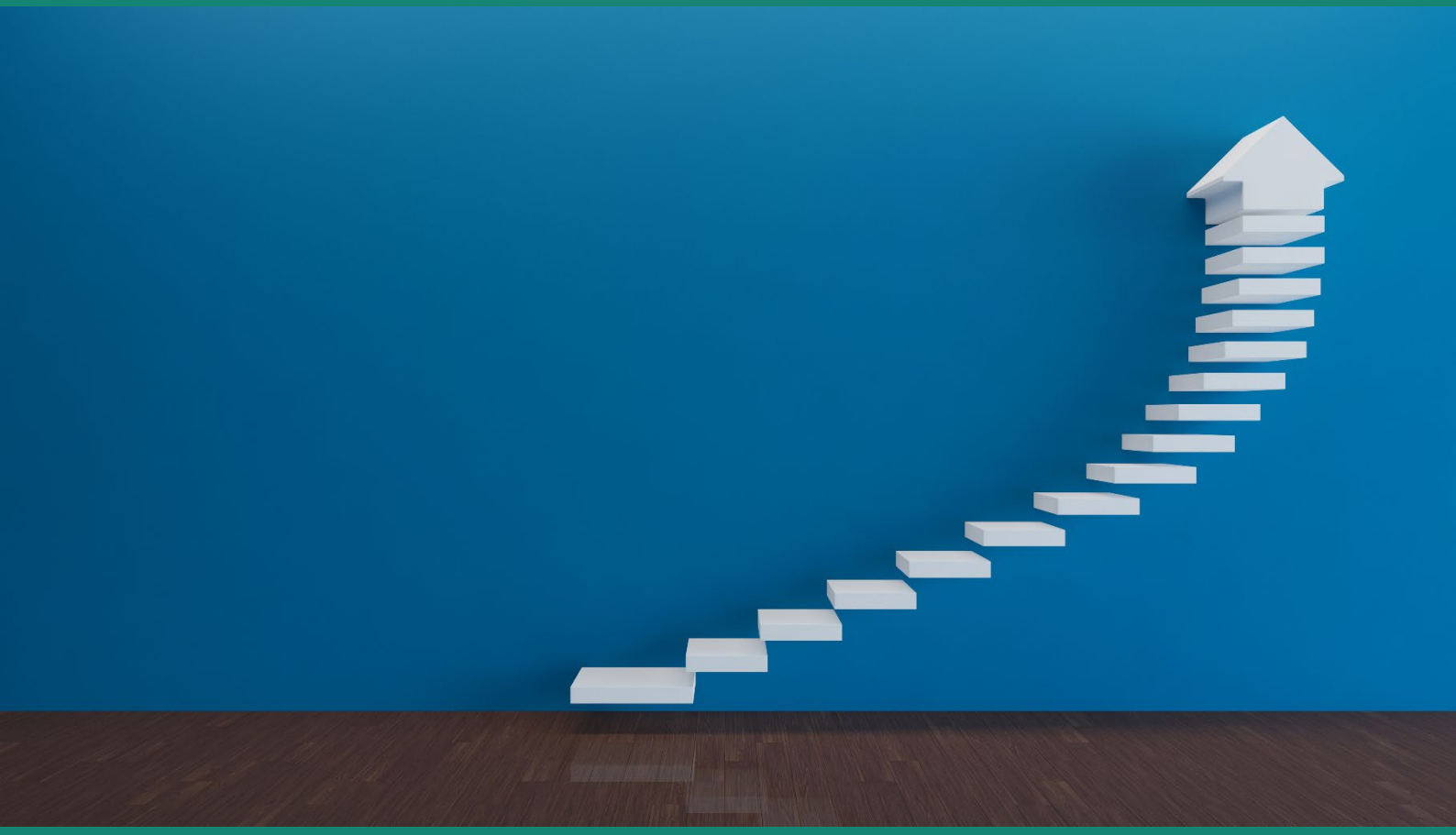
University of Reading

FOCUS ON: LEARNING DESIGN

# INTEGRATING SKILLS DEVELOPMENT INTO YOUR MODULES



# INTEGRATING SKILLS DEVELOPMENT

**It is generally accepted that higher education (HE) should go beyond imparting disciplinary knowledge – it needs to explicitly equip students with essential skills to ensure both their academic success and their future beyond university.**

This guide introduces the concept of *integrating* skills development into your modules. At the heart of this transformative approach is the principle of scaffolding or supporting skills development, embracing the perspective that learning skills is inseparable from the disciplinary content and the process of learning itself.

## CHALLENGING SKILLS ASSUMPTIONS

**In recent years there has been a trend towards performance-focused approaches in both UK and international secondary and tertiary education systems.** This shift means that many students arrive at university lacking key skills, such as the ability to critically evaluate information.

Additionally, it is essential to recognise that not all students have had equal preparation before entering university. Any assumptions about prior knowledge or skills can disadvantage those who haven't had the same opportunities, reinforcing educational inequalities. One of the primary goals of HE should be to level the playing field, ensuring that all students, regardless of their background, have the chance to succeed. This involves actively creating learning experiences that not only impart disciplinary knowledge but also teach essential skills like research, problem-solving, and critical thinking. For many academics, these skills have become second nature, a phenomenon known as tacit knowledge. However, for novice students, these processes can seem opaque and daunting (Advance HE, 2023).

## WHY INTEGRATE SKILLS?

**The growing consensus in educational research underscores the importance of integrating the development of skills directly into subject content and module design, moving beyond the limited efficacy of the traditional 'bolt-on' approach.**

Skills development integration is increasingly significant in an era where technological advancements (such as generative AI tools) and evolving employer expectations are reshaping the modern workplace and society. Such skills, integral to the workplace, are best nurtured within the context of the discipline, ensuring relevance and authenticity in the learning experience (Brown, 2023).

"When students encounter a gap between their knowledge or skills and a particular task in learning and cannot clearly see a way to span that gap, it can impact negatively on their wellbeing" (Advance HE, 2023).

**Skills Development Methods**

**Bolt-on:** This stand-alone method, often delivered through separate modules or workshops focusing on generic study skills, has been critiqued for its detachment from the actual learning process, leading to a lack of contextual learning and application. Despite making skills acquisition visible, it often fails to engage students deeply, as it does not connect with their immediate academic needs or interests (Hattie, Biggs, & Purdie, 1996; Wingate, 2006).

**Embedded:** Embedded skills development focuses on inserting distinct skill-building sessions into (often specific) parts of the curriculum, where the sessions wouldn't otherwise be there, remaining somewhat separate from the rest of the curriculum.

**Integrated:** On the other hand, integrated skills development involves merging various elements, for example the skills that a module convenor wishes their students to develop, and the module curriculum itself, into a unified, more effectively functioning whole (Webster, 2023).

## GRADUATE ATTRIBUTES

Adopting the UoR Graduate Attributes framework can guide integration of skills development, ensuring that students develop skills relevant to their academic success and future career needs. The framework has four pillars:


## HOW TO INTEGRATE SKILLS DEVELOPMENT INTO YOUR MODULES IN FOUR STEPS

"Additional classes tend not to attract those students who most need the intervention, because of other commitments, lack of awareness or anxiety … necessary knowledge, understanding or skill must therefore be taught and embedded in the curriculum" (AdvanceHE, 2023).

We have broken down the process of how to integrate skills development into your modules into four sequential steps as shown below.

### 1. Where are the skills?

When starting this process, it is always best to collate all the paperwork associated with your module first to help identify where particular skills have been referred to, for example:

- The module description form (MDF) contains the module learning outcomes (MLOs), aims and objectives.
- Details of the module's formative and summative assessment(s) including the assessment criteria.
- Curriculum / programme / module pathway maps or similar which indicate where in the programme(s) your module sits.
- Any other material or documents (e.g. marketing material online) that indicates any specific skill development from your module?

### 2. What skills to integrate?

Inspect the MLOs first – how many feature development of specific skills? If there is no mention of skills, consider rewording MLOs to include some - focus on how you intend to measure the MLOs via the assessment to help you. The table overleaf also provides some examples of skills as a guide.

Ensure you collaborate with the Programme Director / team to help establish the following:

- Have these skills been referred to in any other modules? When?
- Are there opportunities to introduce, develop or master (IDM) these skills?

### 3. When to integrate?

- What is the most appropriate time to start IDM-ing these skills?
- Ensure your timing fits with what other modules may be doing (revisit step 2).
- Timing around assessments can help i.e. taking a formative approach.
- Any other practical and logistical considerations?

### 4. How to integrate?

- Start off small e.g. simply signpost to existing resources - toward a more integrative approach (see Case Studies for inspiration).
- Ensure you make skills development explicit, thus avoiding the risk of them becoming 'hidden.'
- In the MDF, consider refining MLOs, aims, objectives, T&L activities and assessments to help present skills as an integral and legitimate part of the curriculum.
- Ensure you provide students with opportunities to reflect on and articulate the skills they have developed. This 'meta-learning' can be very powerful.

## VARIETY OF SKILLSETS

**As educators, our role in developing well-rounded graduates extends beyond imparting subject knowledge. Our students are continually developing numerous skills during their time at university, some of which may be naturally integrated into their modules, while others may require more deliberate attention and planning.**

The table below presents a range of key skills that your students are likely to develop. We've included it here to assist you in identifying skills currently covered in your modules and highlight those that may require more intentional planning to develop. The table also **signposts** links to various UoR Library and CQSD support webpages and resources for several key skillset areas, in addition to other useful external resources:

| SKILL TYPE | DESCRIPTION |
|---|---|
| **Academic literacy** | Encompasses critical thinking, academic writing, support for academic language and literacy for international students, research methodologies, argument construction, and subject-specific discourse, integral for deep discipline understanding. |
| **Communication** | Covers skills in oral presentations, clear, persuasive and reflective writing, active listening, negotiation, advocacy, effective note-taking, and engaging in constructive dialogue, vital for effective personal expression and interaction. |
| **Digital literacy** | Involves navigating digital tools and platforms (e.g. VLEs such as BlackBoard), understanding, and effectively/ethically using Generative AI tools (GAIT), digital ethics and security, coding, data analysis, and digital content creation. A 'Building digital capabilities framework' supports developing digital capability. |
| **Emotional intelligence** | Encompasses self-regulation, empathy, motivation, social skills, and resilience, key for effective personal and professional interactions e.g. group/teamwork. |
| **Global and cultural awareness** | Involves cross-cultural competencies, understanding global issues, language skills (including academic language and literacy) and an appreciation for sustainability, diversity and inclusion. |
| **Information literacy** | The ability to locate, evaluate, and effectively use information, referencing, crucial for research, decision-making, and continuous learning. |
| **Leadership and personal development** | Focuses on self-awareness, self/time-management, understanding leadership styles, motivational strategies, and personal goal setting. |
| **Lifelong learning skills** | Curiosity, the ability to self-direct learning, adaptability to new environments and challenges, and the capacity to reflect and learn from experience. |
| **Numeracy and data literacy** | The capability to work with numbers, understand and interpret statistical information and data in various forms, fundamental for discipline-specific analysis. UoR offers comprehensive maths support e.g. Integral for HE is designed for reviewing and recapping 'A' level topics. |
| **Professional / ethical conduct** | Understanding professional responsibilities, ethical decision-making, integrity, and the societal and environmental impact of one's work. |
| **Research / problem-solving** | Includes analytical thinking, creativity, innovation, adaptability, and the application of knowledge to real-world scenarios, essential for research within disciplines. |

**ⓘ Note that LinkedIn Learning provides an ever-expanding collection of courses designed to improve a variety of skills, accessible at no cost to University staff and students.**

**Taking a programme-level approach to skills development**

While this guide has predominantly focused on integrating skills development within individual modules, adopting a programme-level approach facilitates a smoother, more coherent integration of skills development throughout the entire programme duration. This approach is likely to result in a more organised, scaffolded learning experience for students. However this strategy requires time bringing programme teams together and careful planning. On the contrary, the advantage of a modular-level approach is the potential for more rapid alterations to the curriculum in helping students develop skills. If module convenors feel empowered to integrate skills development, taking greater control of how their module addresses broader, overarching programme learning outcomes, they will likely put their changes into more immediate effect.

## CASE STUDIES

The case studies described below have been included to help offer you some valuable insights and inspiration toward the development of skills for your modules.

### Embedding Information Literacy Skills

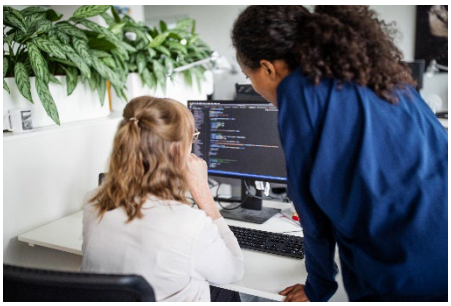
In Week 5 of a Part 1 English Literature module, students attend a one-hour seminar at the University Library. Led by the Academic Liaison Librarian, the session involves exploring key texts related to the week's pre-reading. Students, guided by their seminar leader, identify resources to enhance their understanding of the pre-reading or to initiate research on relevant topics. They search for print resources, discuss findings, and receive guidance on evaluating texts.

This session, held in the Library, develops skills like formulating search queries and utilising library resources. It familiarises students with the Library's physical space, easing any intimidation about using print and online collections. The seminar integrates with the curriculum, emphasising the value of information literacy crucial for the entire programme.

*- Kim Coles, Academic Liaison Team Manager, University of Reading*

### Integrating the Development of Programming Skills in Maths

Programming requires the ability to break larger, complex tasks down into smaller, more manageable tasks. The first year module MA1MSP has previously been taught as a compulsory module for single subject Mathematics programmes and an optional module for Joint programmes (taken in Part 2). The aim of this module was to introduce fundamental programming skills and applying them in Matlab.



However, we overhauled this module in a couple of ways in order to 1) become consistent with the programming language familiar with / taught to students during their secondary and tertiary education (Python) and 2) to better prepare students for the duration of their Mathematics programmes with respect to developing their programming skills. We did this by taking part of the stand-alone module and integrating it into MA1CA. We anticipate that this will have the effect of better contextualising / application of the programming skills being taught, in relation to the subject content of this and subsequent modules, leading to deeper and more meaningful learning for our students.

*- Peter Sweby, Associate Professor Mathematics & Statistics, University of Reading*

## Taking a Meta Approach to Skills Development

This case study illustrates how a group work activity effectively facilitated the enhancement of skills in Team-Working, Cultural Awareness, Leadership, and Personal Development among students. This initiative took place during the Autumn Term of the Informatics Masters programmes, with a focus on the introduction of Team Theory and Contracting within module INMR9, convened by Professor Kecheng Liu.

In this module, students were required to collaborate in groups for the first time to complete their assignment. To prepare them for this group work, a dedicated 50-minute lecture was conducted immediately before the initial team meeting. This session provided a concise overview of effective team working and allowed the groups to engage in discussions about the behaviours they appreciate and dislike from their team mates. The culmination of this exercise was the creation of a team contract, specifying how each team would work together. Importantly, this team contracting process was designed to be applicable to all subsequent group work scenarios throughout the programme.

The self-referential nature of this exercise was highlighted as beneficial, as it aligned authentically with the topics being taught. It was particularly effective due to the cohort's notable diversity in nationality, age, and experience. This diversity facilitated a deeper understanding among students, encouraging them to consider how their behaviour could impact others within the team.

*- Graham Philpott, Head of Careers Consultancy, University of Reading*

**ⓘ UoR App: Currently the university are developing the Study Advice Self-Reflective app which will help students to reflect on their own skills development, offering tailored resources and enabling students to set realistic goals, all of which can be shared with their personal tutors. Access to this app is currently available from here**

## Identifying and Supporting Student Digital Competencies

Some programmes within Henley Business School have introduced Jisc's Building Digital Capabilities framework to help staff and students identify their digital competencies and development needs. Jisc describe 'Digital capabilities' as "the skills and attitudes that individuals and organisations need if they are to thrive in today's world".

Students are directed to a dedicated BlackBoard area which serves as a one-stop-shop on Digital Capabilities. This signposts them to the resources and tools of the Jisc framework, and further on-line resources carefully curated by the Library and Careers team such as LinkedIn Learning and OpenLearn.

For a module on the MSc Finance programme (ICM333 - Emerging Leaders in Finance: Applied Professional Development), carefully constructed activities are used to support their summative assignment. Students are required to reflect on their transferable soft skills, as well as their digital skills by referring to the Building Digital Capabilities framework. Students are encouraged to reflect on their future career path, consider the digital skills that will be required, and identify what digital skills areas they need to develop to maximise employability success. This helps students build the confidence they need to articulate these skills to future employers in application and recruitment processes.

Whilst the Jisc framework was introduced as a pilot with selected programmes there are plans for it to be implemented across the rest of the School.

*- Jenny Philips, Dominic Prosser, and Edith Rigby, Henley Business School*

### Critically Evaluating the Output of Generative AI Tools

The following case study is taken from the University of Glasgow:

We gave ChatGPT the following prompt "Conduct a literature search on the topic of lecture recordings and student attendance. Give me a list of peer-reviewed journal articles to read" and it produced this list:

1. Ambler, T., Bacon, M., Slater, A., & Waterman, B. (2015). Lecture Attendance and Use of Lecture Capture in a First-Year Psychology Course. Australian Journal of Psychology, 67(1), 37-42. https://doi.org/10.1111/ajpy.12088
2. Song, L., & Benson, R. (2017). The Use of Lecture Capture in Higher Education: A Review of Institutional, Student, and Lecturer Issues. Education and Information Technologies, 22(5), 2371-2390. https://doi.org/10.1007/s10639-017-9619-3
3. Russell, P., Laney, D., & Ma, E. (2015). Lecture Capture and Attendance: A Preliminary Investigation of the Impact of Lecture Capture on Students' Attendances and Attrition. Journal of Geography in Higher Education, 39(3), 375-387. https://doi.org/10.1080/03098265.2014.1000923

We asked students to use Google Scholar, the library, and Scopus to figure out which ones are real and which are "hallucinations" (the term for when AI makes things up), and why. Students would later find that the first and third reference listed are hallucinations, the second is tricky – it is a real reference however the authors, page and issues numbers are all wrong.

*- Emily Nordmann, Senior Lecturer & Deputy Director of Education, University of Glasgow*

## SUMMARY AND NEXT STEPS

This guide highlights the evolving and critical role of HE in providing not just disciplinary knowledge but also essential skills for students' academic success and their future beyond university. We have focused on the importance of recognising assumptions about our students' initial skill levels to guide an equitable and inclusive approach. We have specifically explored the advantages of adopting an integrative approach to skills development, offering a clear four-step process for implementation, signposting various online skill resources and offering a variety of practical case studies to inspire your practice.

**To contact us to discuss more about integrating skills development in your modules, and to explore other guides in our Focus On: series, please visit https://www.reading.ac.uk/cqsd/teaching-resources**

## References and further reading


Advance HE. (2023). Explicitly prepare students for learning and assessment tasks. https://www.advance-he.ac.uk/teaching-and-learning/curricula-development/education-mental-health-toolkit/scaffold-design/explicitly-prepare-students-learning-assessment-tasks

Brown, R. (2023). The AI generation: how universities can prepare students for the changing world. Demos. https://demos.co.uk/wp-content/uploads/2023/11/The-AI-Generation-2.pdf

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