

EMBEDDING EMPLOYER INFORMED APPLIED RESEARCH AND QUANTITATIVE SKILLS INTO THE CURRICULUM- UNIVERSITY OF READING



**SARAH
JEWELL**

**COSTANZA
BIAVASCHI**

**VICKI
WILES**

UNIVERSITY OF READING



Co-funded by the
Erasmus+ Programme
of the European Union



**EPD
Feedback
Loop**

CONTRIBUTORS

SARAH JEWELL

Email :

s.l.jewell@reading.ac.uk

COSTANZA
BIAVASCHI

VICKI WILES

SUMMARY

The aims of this project, which was funded by the University of Reading Partnerships in Learning and Teaching (PLanT) Projects Funding Scheme in 2016/2017, were to explore ways to embed practical research skills into the economics curriculum, to help students engage in research, and to develop practical research and quantitative skills that are sought after by employers. The work has continued since the initial funding and this case study provides a review of that work.

The project fed into the Department of Economics' review of its curriculum in line with the University's curriculum framework. In particular, the Department was keen to explore how their teaching could further develop research and enquiry skills and how these skills could be applied to real world problems and to aid critical thinking. Secondly, it was interested in how these skills could be developed in a way which aligned closely with students' future work environments. The main aim of our work within the Department, was not to radically change the curriculum but rather to look for ways to add and enhance skills development within the existing curriculum and modules. This approach was in line with Daubney's 'surfacing skills' process of supporting students to surface the skills developed within the curriculum (2020).

The project led to a range of recommendations for embedding these transferable and work-related skills which were identified as part of the project, particularly at level 2. Examples of changes included increasing the amount of Excel use across level 1 quantitative modules and embedding careers education within core modules at level 1 and level 2. Ultimately, the project has also inspired colleagues from across the department to review other parts of the curriculum and the broader student experience, including reviewing student feedback and developing course content to enhance additional key transferable skills.



CONTEXT



The University of Reading's curriculum framework is a set of programme principles which underpin the design of the portfolio of programmes across the University. This framework also sets out the attributes expected to be developed by University of Reading graduates. One key component of this curriculum framework is the mapping of skills across all levels and subject pathways within a programme. In this way, skills such as research and enquiry skills are embedded across the programme, from start to finish, an approach which ensures students are able to complete independent research. These particular skills of research and enquiry also feature in the University's key graduate attributes and were also key to our review of economics.

The focus of this particular intervention was on economics undergraduate degree programmes. At the University of Reading, economics cohort sizes are around 150-200 students, so the project had the potential to impact a large number of students. The Department of Economics sits within the School of Politics, Economics and International Relations. In recent years the Department of Economics has embedded quantitative skills into a number of modules throughout the degree programme and introduced several assessed projects to develop research skills. However, there were still concerns by module convenors that by level 3 students lack a number of key skills. In particular, skills relating to the application of economic tools to research questions and the construction of logical arguments. In addition to teaching staff concerns, employers had also stated that students lack certain data skills, such as the proficient use of Excel. The Economics Network's fourth Employer Survey of employers of economics graduates (Economics Network Research: Employers' Survey 2014-15, <https://www.economicsnetwork.ac.uk/sites/default/files/Ashley/Employers%20survey.pdf>)

[Accessed: June 7, 2023]) listed the application of economic theory, communication skills and quantitative skills as areas that required further development. They also had concerns that students lack the ability "to apply what has been learned in a wider context and general creative and imaginative powers" (2015). Therefore, the project aimed to identify the research and quantitative skills gaps in the economics curriculum with particular reference to skills sought after by employers. The second stage of the project was to then consider how to incorporate these skills more comprehensively into the economic degree programmes to increase the employability of our economic students. In particular, this project aimed to meet two of the University's Teaching and Learning Enhancement Priorities by further developing students' research and enquiry and employability skills, in line with the University's Curriculum Framework.

METHODOLOGY AND IMPLEMENTATION

The project had three main elements. The first element involved meetings with researchers and employers to discuss the skills needs of graduates. Employer discussions took place during placement visits and through conversations with employers and hiring managers involved in both the hiring of placement students and graduates. These were all individuals who were very engaged with the employment process. We spoke to a range of employers, including those in the civil service, banking, business and energy sectors. On average discussions lasted about 20 minutes.



The second element of the project was to conduct 2 student focus groups, with the second of these focus groups attended by the department's own dedicated careers consultant. The aim of the focus groups was to understand the particular research and employability skills students felt they had gained through the programme and how these skills had been developed. We also explored the skills students would like to see developed. The focus group consisted of 7 students from a range of levels and subject pathways, including at least one from each level, 1 joint student (International Relations and Economics), 1 embarking on placement, 1 who had returned from placement, and 1 student who had completed their degree and was currently pursuing postgraduate study at Reading. The focus group also included both BSc and BA economic students who study separate modules on econometrics. Students were recruited by direct invites and a general invitation sent to mailing lists.

The third part of the intervention was to hold discussions with module convenors, particularly focusing on those who taught quantitative skills or were level 1 core module convenors. There were two elements to these discussions. Firstly, to find out more about the skills that the convenor had already introduced into the modules and, secondly, to share the recommendations that had already drawn from our student and employer surveys.

ANALYSIS AND EVALUATION

The employer interviews and focus groups were analysed using thematic analysis. The key findings are outlined below:

Thematic Outcomes from Employer Interviews

One of the main themes which emerged from the focus groups related to software skills. All employers noted that they use Excel extensively in the workplace and that this was the most useful software skill required for graduate roles. Employers also stressed the importance of being able to make effective use of PowerPoint and email, particularly how to write an email suitable for a professional context (a skill they felt that many new graduates lack). Employers stated that with respect to econometric software, they are more interested in the skills that are developed through the use of such software than the knowledge of the particular software itself. In particular, employers mentioned key skills which emerged from the use of econometric software, related to the ability to interpret the data and outputs, and to then “tell the story” of the data and “see the bigger picture”. They also referenced analytical skills.

Employers also commented on other skill gaps they would like to see further development of, including presentation, communication (both to technical and non-technical audiences), planning, organisation and teamwork skills.

Thematic Outcomes from Student Focus Group

A key finding of the project was the importance of striking a balance between developing the skills that students need early enough on in their programmes but not so early that they could not see the relevance. I.e. we found that students generally do not engage with skills development unless they see their relevance in the near future. Another finding was that students like a mix of theory and practice - for example, having a tutorial followed by a PC class where they apply what they have learnt, or demonstrations followed by exercises where they apply the tools demonstrated in a different way.

Equally, students are keen to see an increased use of Excel and to be introduced to advanced Excel use much earlier and consistently throughout the degree programme. This is consistent with employers' desire for greater Excel use. Students also want to improve their data handling skills: I.E. greater experience of sourcing (good) data, cleaning data, using real world (up to date) data, and undertaking real world tasks. They also want to have more practice at interpreting data and opportunities to “tell the story” of their data and communicate its key importance.

Outcomes of Employer Feedback and Student Focus Groups on Curriculum development:

There were four key actions that took place as a result of the project surveys and evaluation. Namely:

1. Discussions with level 1 quantitative module convenors which led to significant modification of the undergraduate curriculum. In particular, it was agreed to increase the students' exposure to Excel at two key points in the curriculum:

- At level 1: Increased emphasis is now placed on the introduction of pivot tables, collecting data (sample vs. population), include distribution of real data (skewed), colour formatting, stress the idea of the underlying story of the data, formulas (averages, standard deviations), and the inclusion of graphs. At this early level, the focus is mainly on smaller samples.
- At level 2: At this level, the focus moves to large samples as opposed to smaller samples. This particular module includes the revision of formulas, graphs, and scatter plots.

2. A significant revamping of the career's education content of the undergraduate economics programme, following discussions between the Microeconomics and Macroeconomics module convenors and their Careers Consultant. It was agreed that students would start developing careers skills (particularly those identified as lacking by employers) within core modules from level 1, through a range of new module activities. These activities will predominately take place in level 1 and level 2 core modules that are undertaken by the full economics cohort (including joint honour economics students). At level 3, there are no core modules taken by all students, so activities are instead spread across key core modules and additional add-on sessions. It is hoped that by level 3, students will have the key career skills needed to choose the sessions that are relevant for them to attend, so there is less need to embed activities directly into every one of their core modules.

3. In addition, the Department of Economics played a significant role in the University's broader embedding employability in the curriculum project being run in line with the curriculum framework project. The Department was the first department in the University to engage with this work, which started in the academic year 2017/2018 and which has been continuing ever since. Specifically, we brought in study advisors and career advisors at an early stage to deliver short sessions within lectures focusing on areas such as group work, sourcing data, and referencing. The idea is to run these sessions on a "just in time" basis, just before the students need the skill.

4. There was also a broader impact of our work within the Department of Economics on the University as a whole. The author of this paper, Sarah Jewell, presented at a university-wide workshop, 'Embedding Employability in an Undergraduate Curriculum: Getting Started', in the summer 2017. This workshop was designed to help other departments and faculties who were starting to embed employability in the curriculum to learn from our approach. This workshop was well attended by a range of departments.

REFLECTION AND NEXT STEPS

Following on from this initial project, there has been further work going on within the Department of Economics to embed quantitative and research skills. This has, in part, been through the development of a non-credit bearing module entitled 'Core competencies' and also through Placement training modules. There are plans to expand Core competencies to include employability skills, particularly focusing on key skills that can be learnt through platforms such as LinkedIn Learning – a service the University of Reading subscribes to. We are also doing work to further embed Excel skills as the main software platform at level 1, embedding it into a wide range of modules. There has also been a move to provide employability skills matrices within modules, so that students can quickly understand which skills they possess. There are also plans to roll this out at a programme level.

Other areas we are already starting to focus on for the future include:

- Making greater use of current and real-world data in exercises and coursework;
- Providing a chance for students to develop software skills, such as Python, by providing optional additional sessions (potentially embedded in the Core competencies module). This develop may draw on LinkedIn learning courses;
- Placing more emphasis on the development of presentation skills through assessed presentations, particularly at level 1.

The project has now influenced others within the Department who have taken inspiration to look at other parts of the curriculum and student experience, such as focusing on student feedback and developing a broader set of transferable skills. The current Director of Employability within the Department of Economics continues to attend placement visits with our Placement Coordinator, to talk to employers about how University of Reading students are performing and any areas for improvement.



REFERENCES AND HYPERLINKS

Daubney, K. (2021) Surfacing the employability value of the Humanities. Higher Education Policy Institute Economics Network Research: Employers' Survey 2014-15, <https://www.economicsnetwork.ac.uk/sites/default/files/Ashley/Employers%20survey.pdf> [Accessed: June 7, 2023]



Co-funded by the
Erasmus+ Programme
of the European Union



EPD
Feedback
Loop