

FLIPPING EMPLOYABILITY!

Discovering how to further embed employability into the mathematics curriculum

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Aims of session:

Understand importance of employability for maths students

Fun!

Useful!

- Share ideas for employability provision
- Experience a taste of flipped classroom
- Think whether some aspects of employability could be presented in a 'flipped' way

Did you do your homework?



- Bradshaw, N., 2014. Employer-endorsed employability assessment: an assignment delivered in an operational research course to second year mathematics students. HEA STEM 2014.
- Challis, N., Robinson, M. and Tomlinson, M., 2009. Employability Skills in Maths Courses. MSOR Connections, 9(3), pp. 38-41.
- Hibberd, S. and Grove, M., 2009. Developing graduate and employability skills within a mathematical sciences programme. MSOR Connections, 9(2), pp. 33-39. York: The Higher Education Academy.

 Pegg, A., Waldock, J., Hendy-Isaac, S. and Lawton, R., 2012. Pedagogy for employability. York: The Higher Education Academy.

• Yorke, M. and Knight, P.T., 2006. Embedding Employability into the Curriculum. York: The Higher Education Academy.

We will find out...

Do you have an assessed employability assignment like mine?

- 1. Yes in year 1
- 2. Yes in year 2
- 3. Yes in year 3
- 4. Yes in several years
- 5. Similar but not assessed
- 6. No
- 7. Not sure what your assignment is!



CV

Do you run any of these events in your department?

- 1. Events with graduates
- 2. Mock interviews
- 3. Sandwich placements
- 4. Careers fairs
- 5. Projects with employers



IRS

NERYOUS

Which of these is one of the generic skills mentioned in the paper by Neil Challis et al?

- 1. Written and oral communication skills
- 2. IT skills
- 3. Team working
- 4. Giving presentations
- 5. All of the above





What do Stephen Hibberd and Michael Grove suggest the mathematics community is mindful of, when preparing undergraduate programmes?

- 1. Employers wanting maths skills
- 2. Students feeling frightened of the application process
- 3. Employers reliant on graduates having particular competencies



Pedagogy for Employability' by Pegg et al includes case studies on which of the following?

- 1. University Skills Awards
- 2. Incorporating PDP into the curriculum
- 3. Placements and work experience
- 4. Project pitch assessment
- 5. All of the above



What does USEM stand for?

- 1. Understanding Statistics in Education Management
- 2. Useful Stem Employability Material
- 3. Unsatisfactory Sessions in Education Meetings
- Understanding Skilful practices, Efficacy beliefs and Metacognition



Activity: skills required



In groups look at the job ads you have been given.

What skills will maths graduates need to be able to apply?
How can we ensure (or should we ensure) that our students have these skills?

• Write answers on white board / paper provided.



Feedback from groups

Activity: Enhancing skills (based on Challis et al) Choose 1 (or more) and discuss in groups.

- Is it desirable to have a separate skills module, or to integrate skills development into other activities in the course, or a combination ?
- How can skills such as writing, presenting, and working with others be developed through mathematical activities, eg through modelling or project work, or mathematical modules?
- If skills are to be assessed, what part should that assessment play in the overall pattern of assessment?
- How do we ensure students understand what transferable skills they have gained and how they can use them?

Final thoughts....

- What else can you include in your curriculum to enhance employability of maths students?
- Should this be assessed?
- Will students get more from active sessions rather than listening to a talk?

THE OR SOCIETY

Shameless plug! (there is a tenuous link)

- ORAiS (OR Ambassadors in Schools)
 - Pilot project 2 years ago 5 Ambassadors in schools in Cardiff and Greenwich.
 - Worked on OR resources
 - OR Society interested in seeing more OR Ambassadors
 - Matched funding MAY be available
 - If you are interested talk to me (n.Bradshaw@gre.ac.uk)
 - https://www.heacademy.ac.uk/sites/default/files/resources/msor-o6opaper.pdf

Links to useful papers

- Bradshaw, N., 2014. Employer-endorsed employability assessment: an assignment delivered in an operational research course to second year mathematics students. HEA STEM 2014. Available at: https:// www.heacademy.ac.uk/sites/default/files/resources/MSOR-130-Paper.pdf [Accessed 25 May 2015].
- Challis, N., Robinson, M. and Tomlinson, M., 2009. Employability Skills in Maths Courses. MSOR Connections, 9(3), pp. 38-41. Available at: http://journals.heacademy.ac.uk/doi/abs/10.11120/msor.2009.09030038 [Accessed 25 May 2015].
- Hibberd, S. and Grove, M., 2009. Developing graduate and employability skills within a mathematical sciences programme. MSOR Connections, 9(2), pp. 33-39. York: The Higher Education Academy. Available at: http:// journals.heacademy.ac.uk/doi/abs/10.11120/msor.2009.09020033 [Accessed: 25 May 2015].
- Pegg, A., Waldock, J., Hendy-Isaac, S. and Lawton, R., 2012. Pedagogy for employability. York: The Higher Education Academy. Available at: https://www.heacademy.ac.uk/sites/default/files/ pedagogy_for_employability_update _2012.pdf [Accessed: 25 May 2015].
- Yorke, M. and Knight, P.T., 2006. Embedding Employability into the Curriculum. York: The Higher Education Academy. Available at: http://www.employability.ed.ac.uk/documents/Staff/HEABriefings/ESECT-3-Embedding_employability_into_curriculum.pdf [Accessed 25 May 2015].