

AdvanceHE STEM Conference

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¹JHD couldn't attend on 30th.

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Chapter 1

Session 6.3

1.1 Y.J. Moogan: How technology can be used in delivering Apprenticeship Level 7 Programmes

The speaker¹ became Director of Apprenticeships at Leeds by default, recruited as Head of Online. Leeds had its first Level 6 programme in CS² in september 2018. The speaker was in FE in 1990s, when we did have apprenticeships. In previous university, took out 30 credit module from MBA and added 30-credit on strategic leadership in Education.

1.1.1 Timeline

Which was amazing in a place as bureaucratic as Leeds.

May 2018 Think of Programme

Oct 2018 Validation: 38 people with 23 academics and two externals.

Nov 2018 Marketing

Dec 2018 Recruit students for January 8 2019 induction. 15 for this, and 30 for June.

* But we have two students doing Healthcare

1.1.2 Details

30 credit “Positive leadership” module leading to End-Point Assessment. So this is integrated into the process. Every module has a 500 word reflective

¹JHD has slides as [Moo19].

²Digital Skills with PWC.

diary component. On the MBA, this is F2F, but in the L7 we do 2-day residential every six months, with online drip-feed between. People don't sign up to discussion fora if there not credit-bearing. Our EPA is also externally-assessed: ILM or CMI.

45 credit Dissertation. Presentation.

Induction On-line to be completed within three months — 3 hours. Borrowed from Leeds online digital learning centre. An exercise (500 words on fracking) to be submitted online via TurnItIn (technology has changed since these guys were students!).

Modules each 15-credit over 12 weeks: 1-5 online; 6 residential; 7-12 online. Some optional modules are purely online.

Mentor University mentor visits every quarter (chosen from academics used to sandwich methodology). Meets student and line manager. At least 2 meetings (per year??) must be F2F, rest can be by Skype etc.

EPA 2 year apprenticeship plus 3-month window for EPA.

Q Why blended?

A I'm a strong believer in blended. We collect feedback after modules, so we'll know feedback. But students want to network. 3 posts within a 14-day window is worth 10% of module assessment.

1.2 JHD: Institute of Coding

See <http://staff.bath.ac.uk/masjhd/Slides/IoC-STEM2019.pdf>.

1.3 Helen Hook+ (Birmingham): Embedding Entrepreneurial Skills

Second year of LH final year modules: 8 in 27/18, 20 now.

HH spent half a day with ?? learning entrepreneurial journey.

FY students work in groups to develop their own line of products from business ideas to pitching to a panel of industry specialists.

1,12 Group Dynamics 20% individual, 80% group. Allocated groups. Use GeniusU to match personality profiles.

2-4 Ideation

5,13,14,18 Digital Marketing Website development and gaining traction.

7, 18 Financials Critical Thinking: they get £150K (notional) to be paid back in three years.

10,11,21 Pitching Business Plan Development.

External Partners Google fro online marketing, IBM a lot, a CS graduate to talk about coding etc. Second year round, and no fall-off in industry involvement.

Assessment Business Plan, Business Pitch, Reflective essays; Business Investent Proposal, Investment Pitch, self-reflective/employment interview.

Students 2 historystudents went into startups: “never thought of this”.

Testimonials from externals.

1.3.1 Challenges

Partners A lot of work.

Students Positive at end, but very painful during journey. 5 members/team is as much as we can handle.

NSS worried about this. Should be done later than final year!

Chapter 2

Session 7.1

2.1 Kristian Evans (Swansea): Teaching module in Maths

Cap on numbers and students need vetting, so an application process.

Size 15c in Maths (S2), Physics 10c in S1 [different assessment]

Placement 8 half-days (Wednesday). Roughly shadowing then support then teaching (for most).

Assessment Resources (double weighted), Diary, School report, presentation (Maths only)¹.

Why different from lectures+exam format. Also students need work experience before applying for PGCE. Also a taster might be valuable.

Training My colleague in Physics manages invigilators, and one was a retired teacher (PB).

Schools Get paid for PGCE, not these, so why? Used former students now teaching. But PB's contacts more useful.

Application Due Monday of Freshers' week, interview Thursday and decision Friday, so that students can make alternative plans.

Timetabling gave us Wednesday morning, with nothing else against it. Everyone happy.

DBS checks required. Another reason for early selection. Department pays.

Training Day Mostly about assessment, and general teaching do+don't. Not subject-specific.

¹Better than other students by miles.

2.2 Bagdasar (Derby) Improving Numeracy Skills with Vretta

1992, but Gold TEF. Comments about personal journey (Romanian IMO; ICM 2014).

Students Anxious (after ten years out, GCSE only etc.).

Tests Developed 800 tests (Maths in \LaTeX ; then PDF and uploaded each individually). But very popular with students.

Review Needed it across college. Worked with Mobius — unwilling to write all material myself.

So Essential Numeracy Skills Certificate (30q) and Advanced (60q). Vretta now have 6M users in French Primary.

Numbers 30 in Maths1, 130 Computing1, 110 Foundation0, 30 associated college Greece.

Typically 120 minutes Pre-Test; 230 minutes Remediation, 46 minutes testing. Calculus improvement was 14%, 20%, 14%, 17%.

Now Looking at partnerships with Mobius and Vretta — in procurement.

Questions

2.3 Neil Cooke (Birmingham): Integrated Design Projects

Unified school of Engineering: questions of weakening disciplines. 70 staff, 1200 students. Looks at CDIO curriculum

LO1 Demonstrate interdisciplinary PBL skills

LO2 Strengthen discipline.

+ “Birmingham Engineer”.

Runs all four years of the degree.

Industry Don't necessarily change the specification of assignments, but add comments that make the specifications look authentic.

Chapter 3

Session 8.6

3.1 Bowers (OU): IoC Accreditation Standard

No-one else turned up, but a useful discussion. [Sou14, Roy14].

See [Bow19].

Chapter 4

Session 9.3

4.1 Sypek/Ramsay (Strathclyde): Does blended learning enhance students' satisfaction

“Digital Natives”, “life-long learning” etc. [Gor14].

Example was a compulsory, formative exercise. Done via “Moodle Lesson” and its MCQ operation. Cohort is competitive, 30% female. 90% white Scottish, 110 on all/. Confusing results from student questionnaires.

4.2 Mateos (RHUL): A scalable blended approach to student diversity

Various backgrounds. One major course is OOP. First year CS and joint. Some require a lot of help, some do but never ask, and many more could benefit from it.

So change of approach. each checkpoint verified by TA. Expensive. Students can carry forward, so weekly check. Exams are pass/fail Average grad increased, but more failed. A little gamification goes a long way.

TA Time Yes, expensive.

Manual Record-keeping Now some Right/wrong from automated testing.

Numbers Grew from 80 to 230.

Problems Vary the problem sheets based on past performance.

Feedback Students complain the Y2 labs aren't as well organised.

4.3 Pena-Fernandez (DMU):

DMU failure rates 18%. Needs intensive induction week with social and networking events. Increased foundation lectures in STEM. Weekly surgery hours. Dropped to 9% then 4.6%. Many BTEC students come without enough STEM. Virtual Laboratory on skills like microscope. Also make these resources available *before* starting the course, and this should increase engagement.

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