Exploring Learning Gain in Higher Education
8th February 2017, The University of Nottingham
Learner analytics and enhancement

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King’s College London
LEGACY ‘Exploring Learning Gain in Higher Education’ Seminar 2017
8th February, 2017 University of Nottingham
Overview

• Learning analytics
• Into policy
• Learning gain projects
Learning analytics

Learning analytics: refers to the measurement, collection, analysis and reporting of data about the progress of learners and the contexts in which learning takes place. (Jisc)

Descriptive → Diagnostic → Predictive → Prescriptive

- Improve teaching and learning
- Contribute to student success
- Design interventions & support
- Predict student outcomes
- Evidence-based ‘nudge’ behaviours
- Marketing, admissions
Types of learning analytics

Static: Track behaviours, record actions, summarise progress/performance, predict

Dynamic: Reveal understanding, quantify learning, identify patterns, measure effectiveness

Reporting data
- ‘Knowing your students’ (individual, module, course, institution)

Analysing trends
- Measure the effectiveness of teaching and support (across levels)
- Identify patterns for success

Predictive analytics
Uses of learning analytics

- Personalise learning process
- Compare progress with other students
- Early alert/warning systems
- Personal tutoring/advising
- Interventions
- Adapt teaching and learning styles
- Data visualisation
- Predict performance
“gains in critical thinking, complex reasoning, and writing skills (i.e., general collegiate skills) are either exceedingly small or empirically non-existent for a large proportion of students”;

36 percent of students experienced no significant improvement in learning (as measured by the CLA) over four years of schooling;

less than one-half of seniors had completed over 20 pages of writing for a course in the prior semester;

total time spent in academic pursuits is 16 percent; students are academically engaged, typically, well under 30 hours per week;

scholarship from earlier decades suggest there has been a sharp decline in both academic work effort and learning;

“students...majoring in traditional liberal-arts fields...demonstrated significantly higher gains in critical thinking, complex reasoning and writing skills over time than students in other fields of study. Students majoring in business, education, social work, and communications had the lowest measurable gains”;

35 percent of the students sampled spent five hours or less a week studying alone; the average for all students was under 9 hours.
<table>
<thead>
<tr>
<th>Aspect of Quality</th>
<th>Teaching Quality (TQ)</th>
<th>Learning Environment (LE)</th>
<th>Student Outcomes and Learning Gain (SO)</th>
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<td>Areas of teaching and learning quality</td>
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<td>Core metrics</td>
<td>• Teaching on my course (NSS scale 1) • Assessment and feedback (NSS scale 2)</td>
<td>• Academic support (NSS scale 3) • Non-continuation (HESA)</td>
<td>• Employment/further study (DLHE) • Highly-skilled employment/further study (DLHE)</td>
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<td>Additional evidence (provider submission)</td>
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<td>Statement of findings</td>
<td>Brief description of why a particular rating was awarded including particular strengths</td>
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<td>Overall outcome</td>
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Learning Gain Pilot Projects

HEFCE funding 13 mixed method projects involving 70 institutions over three years, using:

- Learner analytics/Grades
- Self-reported surveys
- Standardised tests
- Multiple measures of a specific theme
What to measure

What are student expectations of higher education?

What do you want your students to achieve?

General benefits vs specific to course or institution?

• Social democratic values and action; civic engagement
• Advanced intellectual skills
• Advanced communication skills
• Interpersonal skills
• Vocational & employment preparedness
• Personal life quality enhancement
• Personal integrity
• Graduate school education preparedness
• Family expectations/ reasons (Chan, Brown & Ludlow 2014)
Project types I

Conceptual

Embedded

Applied

External
Project types II

Existing data: high numbers, lots of sources
But what is it telling us?

New data: smaller numbers, selected subjects
How do we interpret findings?
Input and entry measures

How do you know your students?

Entry qualifications and background characteristics
## Process measures

<table>
<thead>
<tr>
<th>Affective</th>
<th>Behavioural</th>
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<td>• Transition experience</td>
<td>• Student engagement</td>
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<td>• Self efficacy</td>
<td>• Placements/ work-based learning</td>
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<td>• Well-being</td>
<td>• Employability experiences</td>
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<td>• Disposition to learning</td>
<td>• Co-curricular activities</td>
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<td>• Confidence</td>
<td>• Skills self-assessment</td>
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<td>• Resilience</td>
<td>• VLE engagement/ Learner analytics</td>
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<td>• Satisfaction</td>
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Process measures

Cognitive

- General cognitive gain
- Disciplinary cognitive gain
- Critical Reasoning Skills
- Situational judgement
- Research methods
Output and outcome measures

What have your students gained?

Cognitive gain
Employability skills
Grades, progression
Other outcome measures

Back to purposes...

Is it critical thinking, generic graduate skills, disciplinary mastery, developing employability or something more holistic?
Learning gain projects

- The Open University collects data from satisfaction surveys (affective measures), data from the Virtual Learning Environment (VLE) (behavioural measures), and on academic performance (cognitive measures). The behavioural elements include attendance in class, discussion forums, chats, essays and student evaluations. This data is matched with central records to account for student characteristics and entry measures.
- Different behaviours linked with outcomes for satisfaction and learning gain
Learning gain projects

- University of Reading: analyses existing student characteristics, progression and academic performance data, used in discussions with heads of department.
- UEA: Found that positive learning gain is associated to confidence gain. When students learn from each other in the classroom, their confidence at tackling similar problems in the future also increases.
- Careers Group: Data on work-readiness used to target students for 1:1 sessions, and to direct Careers Service interventions for certain courses.
- The Manchester College: develop data profiles to market courses to students and to nudge students towards positive educational behaviours (e.g. attendance).
Ethical and legal concerns

- Beneficence (doing good)
- Non-maleficence (do no harm)
- Autonomy of learners (self-determination)
- Fairness

- Privacy
- Cost/benefit
- Mitigating risks
- Consequences of non-action

- Staff performance (are academics “delivering” on learning)
- Admissions (Drown the bunnies scandal)
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Exploring Learning Gain in Higher Education
LEGACY Seminar

Ways to Enhance Students’ Employability

Dr Heike Behle, LEGACY, Warwick Institute for Employment Research, University of Warwick

8th February 2017
The 11 UK universities which produce the most employable graduates

Thomas Colson

28.11.2016, 08:00

1,976
What is employability?

From UK HEIs websites

“The University of XXX is proud to announce its best-ever rate for the employability of its students six months after graduation. According to the Destination of Leavers from Higher Education report, we've achieved an outstanding 96% employability rate.”

“YYY is in the top third of all UK institutions for employability with 95.3% of its graduates employed or in further study within a year of graduating, a figure higher than the national average.”
What is employability?

Frequently used term.

Includes those in employment + those (currently) unemployed or studying

Employability is **not** the same as employment rate.

@HeikeBehle
What is employability?

- Dichotomic employability (from the beginning of the 20th century)
- Socio-medical employability (from the 50s)
- Manpower policy employability (1960s)
- Labour market performance employability (1970s)
- Initiative employability (since late 1980s)
- Interactive employability (since late 1980s)
What is employability?

- Becomes broader over time and has extended beyond the individual with an array of barriers to accessing and sustaining employment more generally.
- Interactive between individual and existing labour market
- Dynamic interaction of individual attributes, personal circumstances, labour market conditions and other contextual factors.
- Absolute vs relative employability
- Objective vs subjective employability

@HeikeBehle
Aspects of employability

Narrow Framework

• Onus on individual to acquire the knowledge, skills, abilities and other characteristics valued by current and prospective employers

• Employability is a psycho-social construct encompassing
  - career identity
  - personal adaptability
  - social and human capital
Aspects of employability

Broader Framework
Four elements (Hillage and Pollard, 1998)
- employability assets
- presentation assets
- development of assets
- context
Aspects of employability

Narrow Framework

- Employability
  - Self-esteem
  - Self-efficacy
  - Self-confidence
  - Reflection and Evaluation

Career Development Learning
Experience (Work & Life)
Degree Subject Knowledge, Understanding & Skills
Generic Skills
Emotional Intelligence

Broad Framework

- Employability
  - Enabling Support Factors
  - Individual Factors
  - Labour Market Factors
  - Individual circumstances
Aspects of employability

Individual factors
- Basic and soft skills
- Subject-specific knowledge, skills and attitudes
- ‘Employability skills’

Other Individual factors
- Person-centred factors
- Subjective employability
- Adaptability and mobility
Aspects of employability

Individual circumstances
• Work culture
• Regional factors
• Networks
• Transitions

Labour Market Factors
• Labour Demand
• Rules and Regulations
• Employers’ practices

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Aspects of employability

Enabling factors

• Labour Market Policy
• Human Resource management, education and training
  - changing labour market and skills requirement
  - skill utilisation
• Different provision in HEIs.
Responsibility for employability

State
HEI
Employer
Individual
Career Service
Academic Departments

@HeikeBehle
Means to enhance employability

- Subject-specific skills and attitude
- International experiences
- Extra-curricular activities
- Work experience
- Careers adaptability
- Careers Advice
Summary

• Employability is not the same as employment rates.
• Employability can be defined as finding, sustaining and progressing in employment.
• The concept of employability needs a broad approach to cover all its potential impact factors.
• Responsibility to keep up individual employability is mainly with the individual; however, both the state, HEI and employers are responsible, too.
• HEIs can enhance students employability by Careers Advice; Work experience; careers adaptability; extra-curricular activities; international experiences; and subject-specific skills and attitudes.
Final remarks

Follow me on  

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For further information  www.legacy.ac.uk

The LEGACY employability briefing can be downloaded here
http://www2.warwick.ac.uk/services/arodar/quality/legacy/hp-
contents/employability_behle_h_uow_2016.pdf
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‘Let’s start from where you are’

Impact & Implications of Careers Registration

Dr Bob Gilworth
Director of The Careers Group
Bob.Gilworth@careers.lon.ac.uk
Employability?

The capability to make well-informed, realistic plans for the future and to be able to execute these in a changing world
Careers Registration Learning Gain project

- A 3-year HEFCE funded pilot project to investigate the use of Careers Registration (CR) as a measure of learning gain in relation to work readiness.
- Led by the Careers Group, University of London
Project members

- 16 Institutions
- 9 Careers Group members
- 11 implemented CR to date
- 5 implementing in 2017
- Representation from England, Scotland, Northern Ireland & Wales

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<tr>
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<td>City, University of London</td>
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<td>Goldsmiths, University of London</td>
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<td>King’s College London</td>
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<td>Lancaster University</td>
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<td>Liverpool John Moores University</td>
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<td>Queen Mary, University of London</td>
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<td>Royal Veterinary College</td>
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<tr>
<td>School of Oriental and African Studies</td>
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<td>St George’s University of London</td>
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<td>St Mary’s University</td>
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<td>Ulster University</td>
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<td>University of Bristol</td>
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<td>University of Edinburgh</td>
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<td>University of Exeter</td>
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Careers registration in action

Careers registration data is being used to:

- inform strategic planning and academic department engagement
- identify individual student careers and support needs
- promote the services offered by careers departments to their student bodies.
Using CR data in HE careers work

**Academic departmental engagement**
- partnership agreements drawn up on the basis of CR data
- CR data used by careers consultants to inform strategy for and planning of careers activities
- data provided to personal tutors for careers discussions with students

**Widening participation initiatives:**
- using CR data to promote relevant events and opportunities to WP students, (data held in student records system, responses can be linked with WP markers)

**Strategic planning:**
- data used in QAA reporting
- data informing institutional level policy and KPIs

**Marketing and communications:**
- targeted event marketing to students based on interests expressed in CR surveys

**Employer engagement:**
- analysis of employer/sector data to identify gaps in employer engagement
- data used to persuade new/existing employers of student interest in their sectors

**Final year support programmes:**
- targeted event for final year students who were identified as not knowing where to begin with their career planning
Project aims

To assess whether a small number of questions asked during student enrolment can:

- **track** development of student employability during their time in Higher Education (distance travelled)
- **measure** if students are engaged in graduate employment activities in line with their plans
- **evaluate** the effectiveness of employability strategies and interventions.
Collecting CR data

Methodology

- Employability-related questions included in student registration data collection
- Completed by all new and all re-enrolling students at the start of each year
- Provides both cross-sectional and longitudinal data

Benefits

- **Current**: Live data vs DLHE data six months after graduation
- **Comprehensive**: Extent and nature of students’ work experience vs limited information from formal placements
- **Consistent**: Same data on all students vs patchy data gathered through departments
- **Connected**: Links employability data to the student record
- **Comparable**:
  - Individual progress (starting points and trajectory) — what support students’ need and when
  - Institutional impact — cohorts, departments, backgrounds — where to target scarce resources
Core CR questions

Career decidedness

Readiness to engage with career management
- Decide, Plan, Compete, All sorted

Please select the statement which best represents your current careers position:
- I am not ready to start thinking about my career yet (Decide)
- I have no career ideas yet but want to start thinking (Decide)
- I have some ideas about my career & am ready to start planning (Decide)
- I have a career in mind & intend to gain relevant work experience (Plan)
- I know what I want to do but not sure how to get there (Plan)
- I am ready to spend a year gaining experience (Plan)
- I am ready to apply for graduate level / professional opportunities (Compete)
- I am ready to apply for further study (Compete)
- I have been applying for opportunities & have not been successful (Compete)
- I have a job, further study or my own business plan confirmed (All sorted)

Employability experience

I have gained work experience through (select all that apply):
- a placement year during my degree
- a summer internship with an organisation
- a vacation internship (not summer) with an organisation
- work shadowing
- a short placement as part of a University module (e.g. 10 or 20 credit module)
- part time work alongside my studies
- a holiday job
- volunteering
- a position of responsibility in a club or society
- full time work prior to my course (two years or less)
- full time work prior to my course (more than two years)
- self-employment / running my own business
- I have no work experience to date
Additional CR questions

- ‘Please select your current top three career interests’
  (drop down options vary by department)
- ‘What do you plan to do after your current programme of study?’
  (e.g. further study, own business, graduate training scheme, take some time off, not sure yet).
- ‘Which sector would you like to find employment in once you graduate?’
  - ‘Have you gained experience in this sector?’
- Interest in Enterprise
  (e.g. I have an idea for a business or social enterprise/ I have attended events/sought advice to help me in creating a business/social enterprise/ I am not looking to gain experience in business or social enterprise)
- Any offer of employment or further study/Careers ideas
  (free text response)
Research priorities

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<tr>
<th>Analysis</th>
<th>Comparison</th>
<th>Impact</th>
<th>Application</th>
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<tbody>
<tr>
<td>• Cross-sectional</td>
<td>• DLHE</td>
<td>• So what?</td>
<td>• Widening participation</td>
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<td>• Longitudinal</td>
<td>• Employability health check</td>
<td>• Impact evaluation of existing implementations of careers registration</td>
<td>• Interventions</td>
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<td>• HEAR</td>
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<td>• Consultants use of data</td>
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<td>• NSS</td>
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<td>• Engagement: Careers services, Academics, Students</td>
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<td>• Self Efficacy (CDSE tests)</td>
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<td>• Individual – Academic records/retention</td>
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**Recommendations**
Career thinking patterns
(partial longitudinal)

Career thinking tracked year 1 – year 2 of study
2014/15 – 2015/16

Career thinking tracked year 2 - 3 of study
2014/15 – 2015-16
Career thinking patterns
(cross sectional STEM data)
Sectors and work experience

Sectors of interest

Work experience in field?

BSc Biomedical Science

- Science & Technology
- Retail
- Other - veterinary
- Law, Policy, Politics
- Hospitality
- Health & Social Care
- Education
- Creative industries
- Business
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<tr>
<th>Action plan</th>
<th>Meta data analysis</th>
<th>Application and review</th>
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<td><strong>February 2017:</strong></td>
<td>Meta data set construction from project partner data sets</td>
<td><strong>February 2017:</strong> Student focus groups – wording of statements, groupings ‘plan decide compete all sorted framework’ compulsory vs voluntary</td>
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<td><strong>March 2017:</strong></td>
<td>Cross sectional CR data by: subject area, socio demographic variables, year of study, mode of study</td>
<td><strong>March 2017:</strong> Measure academic departmental engagement with</td>
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<td><strong>April 2017:</strong></td>
<td>Comparison of final year CR data with DLHE data – institutional and meta analysis</td>
<td><strong>May 2017:</strong> Careers staff survey – how to work with careers registration data</td>
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<td><strong>May 2017:</strong> CDSE Survey roll out to students via project partners</td>
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<td><strong>May 16th Careers registration event</strong></td>
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Any questions?
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