Learning gain in higher education

Conceptualisation and measurement

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Background

HE Green & White Papers
“Success as a Knowledge Economy”
Teaching Excellence Framework staged implementation beginning 2016/2017, on the basis of existing QA procedures

Higher Education Funding Council for England (HEFCE)
Large programme focused on understanding and measuring learning in higher education
Commissioned research: 12 projects with 70 HEIs involved
Background

Main aim of HEFCE-commissioned research: Test and evaluate measures of *learning gain* in the UK context
LEGACY

Four interrelated work strands:

1. *R2 Strengths* (Warwick)
2. *Career adaptability* (Nottingham)
3. *International experience and employability* (Birmingham)

In a consortium of 18 Russell Group institutions
The Cambridge Strand: Aims

Develop a context-appropriate theoretical understanding of learning gain

Develop an instrument to measure learning gain

Test measurement instrument: reliability, validity and at-scale usability

Test a longitudinal model of learning gain in relation to student background characteristics, contextual factors, and existing measures of ‘academic success’
The Cambridge Strand: Approach

In-depth interviews with students
   *Exploring their understandings and perspectives on learning gain*

New measurement instrument
   *Developed from combination of existing evidence and new input from students, tested and piloted*

Longitudinal study using above instrument
   *Three points in time, tracking learning for ~3000 students*

Matching to administrative data wherever possible
Disciplines

Medicine
Business Studies (or equivalent)
English
Chemistry

In 10 partner institutions, all Russell Group universities
What is learning gain?
What is learning gain?

The improvement in knowledge, skills, work-readiness, and personal development made by students during higher education (RAND, 2014).

The change (potentially, progress) in the knowledge, skills, and competencies that are relevant across disciplines made by students during higher education (Vermunt, Vignoles & Ilie, 2016).
## Knowledge, skills, and competencies

<table>
<thead>
<tr>
<th>Cognitive</th>
<th>Meta-cognitive</th>
<th>Affective</th>
<th>Socio-communicative</th>
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</thead>
<tbody>
<tr>
<td>Critical thinking</td>
<td>Self-regulation</td>
<td>Attitudes towards own discipline and learning/studying in general</td>
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<tr>
<td>Analytical thinking</td>
<td>Life-long learning attitude and motivation</td>
<td>Motivation</td>
<td>Levels of belonging in social learning networks</td>
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<tr>
<td>Cognitive abilities</td>
<td>Learning to learn</td>
<td>Engagement</td>
<td>Social embeddedness</td>
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<tr>
<td>Synthesising</td>
<td>Need for cognition (information seeking)</td>
<td>Professional and academic interest</td>
<td>Communication skills</td>
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<tr>
<td>Analysing</td>
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<tr>
<td>Evaluating</td>
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<tr>
<td>Problem solving</td>
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## Cross-cutting dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Attributes</th>
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<tbody>
<tr>
<td><strong>Openness dimension</strong></td>
<td>Open-mindedness; View of intelligence; Epistemological stance</td>
</tr>
<tr>
<td><strong>Research dimension</strong></td>
<td>Curiosity; Interest in research ; Interest in knowledge; Attitude to sharing ideas</td>
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<tr>
<td><strong>Moral dimension</strong></td>
<td>Moral reasoning</td>
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</tbody>
</table>
Students: ranking of dimensions

Critical Thinking

Time management

Communication skills

Curiosity

Motivation to learn

Problem solving

Engagement with subject

Interest in knowledge

Open-mindedness
Students’ own dimensions

- Adaptability
- Emotional resilience
- Perseverance
- Abstract thinking
- Self-management
- Remembering there is life outside the degree

- Flexibility
- Resilience
- Efficiency
- Strategic thinking
- Team work
Students’ perspectives

Large variability in students’ ability to reflect on their own learning processes, but high engagement throughout

Content knowledge and skills/abilities/competencies inextricably linked

Extra-curricular activities and work further support students’ development

A lot of the skill/ability/competence development is implicit
  When explicit, it is seen as better when clearly related to content knowledge
University staff: ranking of dimensions

Critical Thinking

Problem solving  Open-mindedness

Curiosity  Communication skills  Synthesising information

Engagement with subject  Motivation to learn  Making ethical and moral decisions
How do we measure learning gain?
Measurement

- Deep thinking and reasoning abilities
- Self-regulation, including time management, and resilience
- Engagement with learning and subject
- Communication skills: conceptions of academic writing
- Epistemological beliefs
Measurement

On-line tool:
3 times, next 2 years:
  November 2016
  April/May 2017
  March/April 2018

With support from partner institutions

Personalised link to each student, to facilitate longitudinal tracking

Linkage to administrative data
Outputs

The core dimensions of student learning gains across a select number of different disciplines identified

Empirical assessment of the tool developed to measure learning gain, and establishment of its validity and reliability

Empirical evidence as to the development of students’ learning gains over time

A better understanding of the potential to measure learning gain at scale
How are these student learning gains related to teaching excellence?

A longitudinal explanatory model of student learning gains by a range of personal and environmental factors (including teaching excellence factors)
Thank you

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