



# **Assessment strategies and employability in the environmental and engineering sectors**

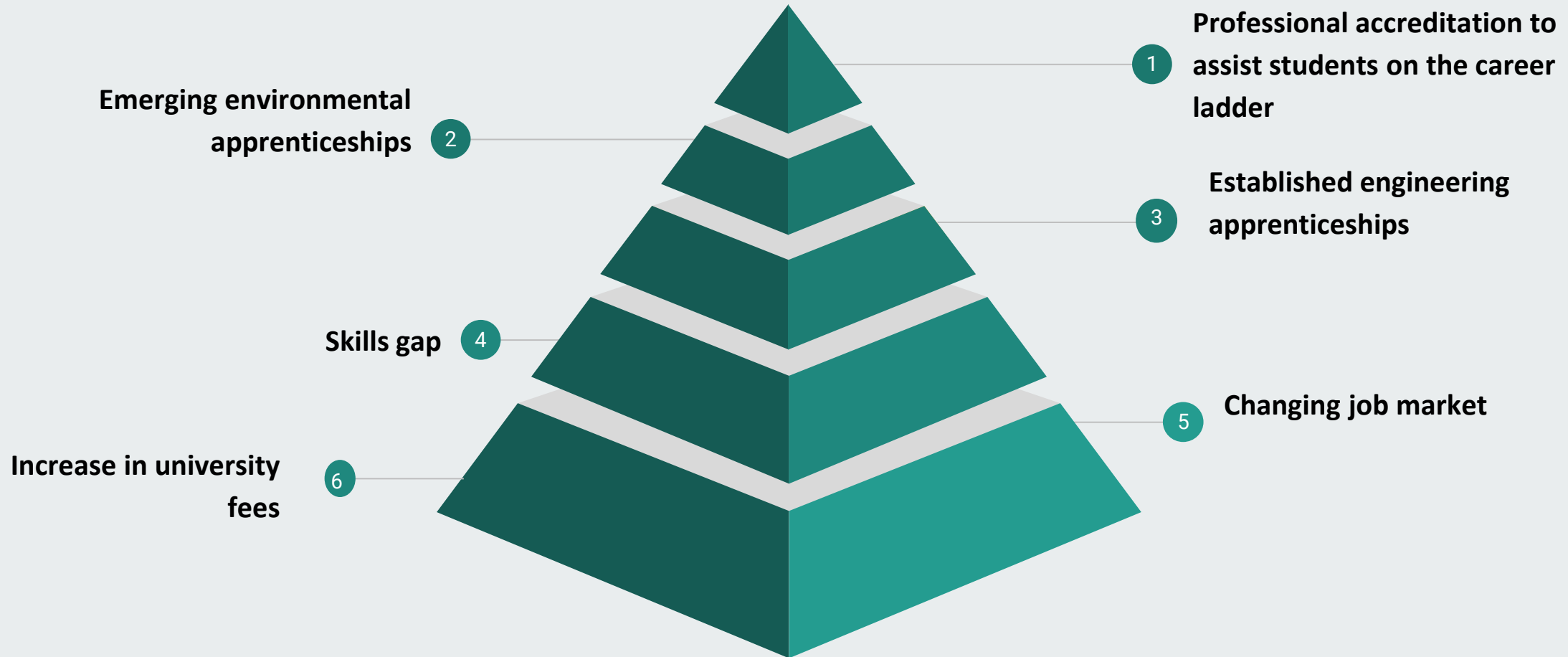
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and Teaching Fund

# The Problem



Is traditional education providing **Knowledge**, **Skills** and **Behaviours** required by professional bodies and employers?

## What does the literature say?

**Mueller (2005)** raised the need for ‘authentic assessment’ to measure students knowledge and skills.

Higher Education need to look as developing learning rather than just measuring it **Fook & Sidhu (2010)**

**Morini (2019)** student’s focus on attainment rather than improvement impacts mental health and retention

**Haak (2019)** Focusing on summative assessment ignores decades of research on how formative feedback can enable genuine transformative learning, key to professional success.

**THE** TimesHigherEducation   
@timeshighered

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Does university assessment still pass muster? Most universities continue to rely on exams and assessed essays to grade students. But many experts suggest that assessment must more closely resemble real-world tasks. [@annamckie](#) marks the arguments [bit.ly/2LWe3I8](https://bit.ly/2LWe3I8)



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# Rationale for research

- Close links to professional bodies
  - Research into the Skills Gaps
  - Talking to graduates and employers
  - Concern about employability
  - Competency based interviews
  - Feeling traditional assessments are missed opportunities
  - Interest in authentic assessment
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- Having been taught in both a traditional and authentic context
  - Variation in assessments made it easier to provide evidence for professional careers.

# Method

- Professional bodies agreed to distribute questionnaires to graduates



Institution of Civil Engineers

- Research Ethics Committee approval
- Two separate questionnaires: one for recent graduates, one for employers
- Piloted on 12 recent graduates in February
- Revised and put into 'survey monkey' for distribution.

# Problems

- The questionnaires were ready in early March
- Needed to avoid the Easter holiday
- CIEEM were running a survey on wellbeing in the workplace
- So the survey was delayed until early May,

# Graduate Survey Questions

- Of these common assessments please indicate how useful they were in preparing you for your professional role?
- To what extent did the feedback you received on your assignments enable you to improve?
- To what extent did the feedback you received at university prepare you for the type of feedback you have experienced in your job role?
- What is your current role?
- Do you have any other comments about your university assessments?

# Results

- Graduate survey received 62 responses
- 100% completion
- 3 engineers (which have been removed)
- 59 from a ecologist/environmental management profession.

# Lack of engineering engagement

Talent 2050 – skills & education for the future of engineering

ECITB Leading Industry Learning 2020 - 2022

Royal Academy of Engineering – Engineering graduates for industry February 2010

Industry Insights – Construction Skills Network Forecasts 2018 - 2022



# Ranking the usefulness of assessment methods

## Top 10

Practical Field Investigations	51
Presentations	51
Risk Assessments	48
Critical Review of Documents	47
Group Projects	45
Plant Identification	44
Practical Tests	44
Method Statements	42
Dissertations/ Research project	42
Phase 1 Habitat Survey	41

## Bottom 10

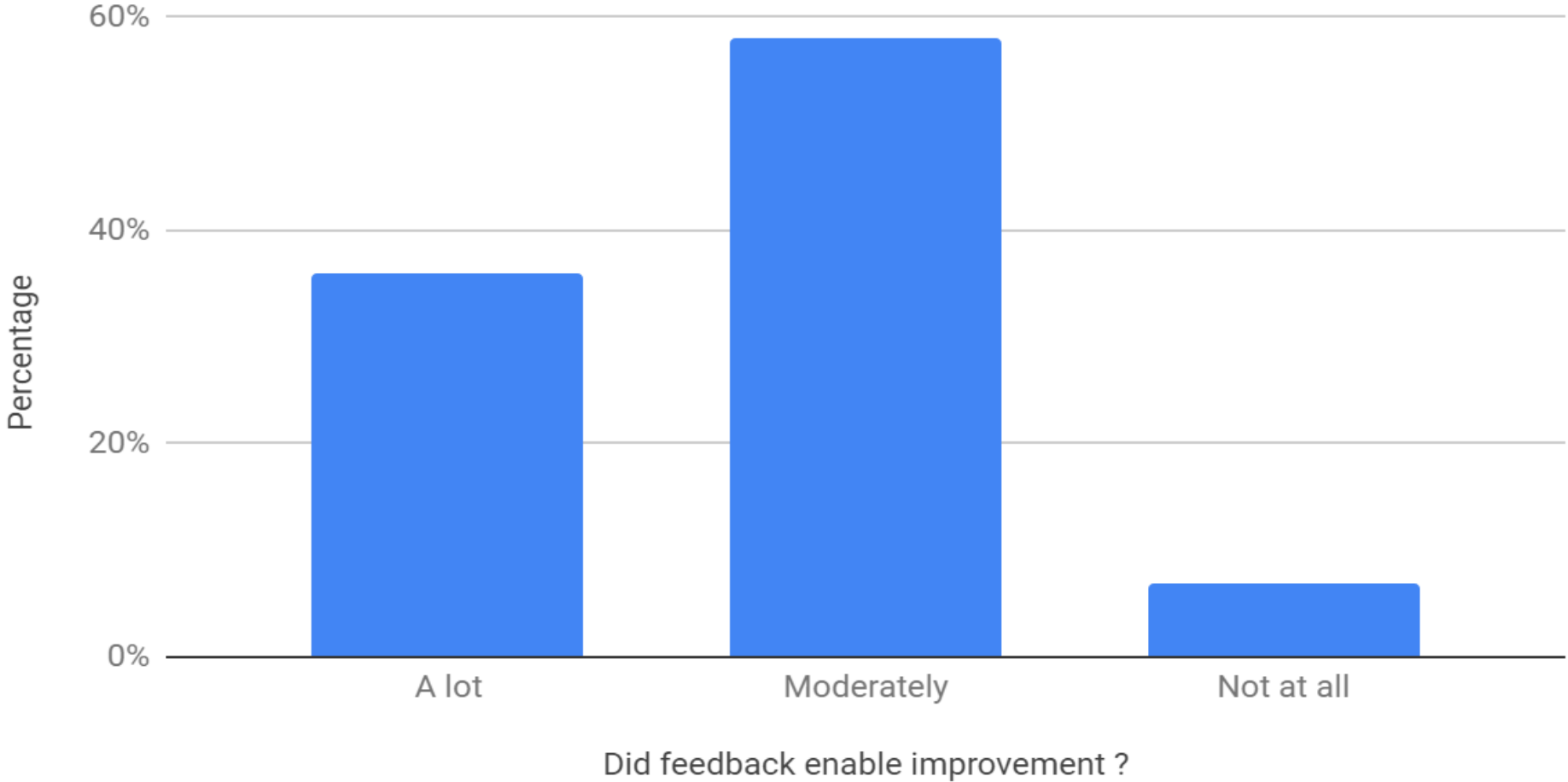
Role Play	23
Prototypes	21
Exams	20
Contract Documentation	18
Videos	18
Writing Business Plans	18
Compiling Risk Registers	17
Mock Advice to Clients	16
Ecological Assessment	13
Computer Modelling	13

# Most useful assessments in their jobs



# Responses on feedback were mixed

Did assignment feedback enable improvement?



# Open question responses



# What do our graduates think?

*"The assignment that really helped me get work as an ecologist was my portfolio – it demonstrated my surveying experience and made it easy to display my competency to employers"* **Emma Griffiths Ecologist, Bioscan UK**



*"Evaluating an Environmental Statement for the EIA module has been invaluable as I now assess environmental project cases at the Ministry of Defence"* **Alex Gazi Defence Maritime Regulator**



*"I found it really helpful doing a practical skills based MSc programme because it meant at a job interview I could say what I've done, instead of just knowing the theory"*  
**Sylvia Myers Manager, Centre for Wildlife Gardening, London**





*“Learning key practical field skills such as bottle trapping, method statements and phase 1 habitat surveys, with opportunities for work placement has led me to my current role as an assistant ecologist”*

**Kieran McGranaghan Ecologist, Ecology Partnership**

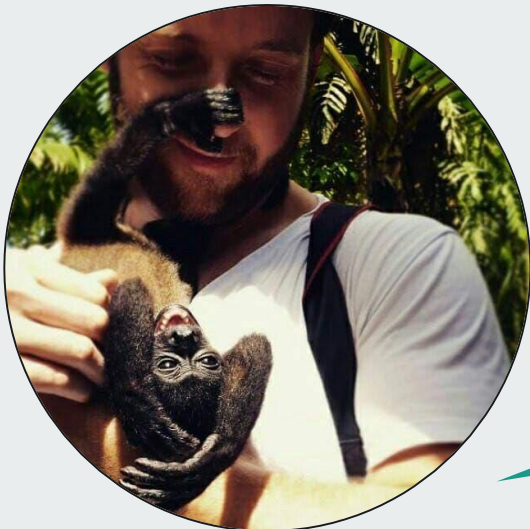
*“Report writing, presentations and critical analysis has been far more valuable than just testing how much I have remembered in exams”*

**Kirsty Lee Kent Wildlife Trust**



*“Developing public speaking and presentation skills has been invaluable - employers are increasingly looking for evidence of social skills and confidence in interviews”*

**Kyle Cullen Environmental Advisor, Metropolitan Police**



# Employer survey questions

- Are your graduate employees able to adequately carry out tasks you require?
- Are there any specific assessment tasks you feel would be useful to increase employability?

# What do employers want?

## Technical skills

- Building Information Modelling
- Surveys using professional kit
- Experience with up to date equipment
- Great crested newt and reptile surveys
- Designing mitigation
- Interpreting legislation
- Understanding the NPPF (planning)
- Understanding policy
- Health & Safety

## Transferable skills

- Communication skills X 3
- Project management
- Work-private life balance \*
- Ability to set goals
- Basic office tasks
- Reporting progress to line managers
- Using initiative \*
- Professional behaviour \*
- Enthusiasm \*
- Being present & leaving the phone alone \*
- Delivering to deadlines
- Effective collaborative working



# What do employers think?

*"Wants to employ graduates with evidence of practical fieldwork and realistic expectations of the job"*

**Guy Newman, Director at Greenspace Ecological Solutions**



*"We look for evidence of competency across transferable skills, combined with common sense and most importantly - a positive attitude to developing technical skills"*

**Sam Bower Technical Specialist , Balfour Beatty**



*"When recruiting I'm looking for evidence of initiative and clear, concise, report writing. The ability to critically review policy documents and summarise the key requirements is particularly useful."*

**Liz Fagg Environmental Manager , Port of Dover**



# Recommendations

- Teaching teams need up to date industry links or be supported by subject specific advisory groups
- Assessments should be based on real tasks likely to be encountered in the workplace
- Flexible Quality Assurance requirements to enable realistic assessments to be set
- Learning outcomes should make the links to KSBs explicit
- More emphasis on evidencing transferable skills
- Module content must be flexible enough to respond to new legislation/guidance
- Detailed feedback on formative assignments – are we scared of perfection?

**If you want a better  
answer,  
ask a better question!**