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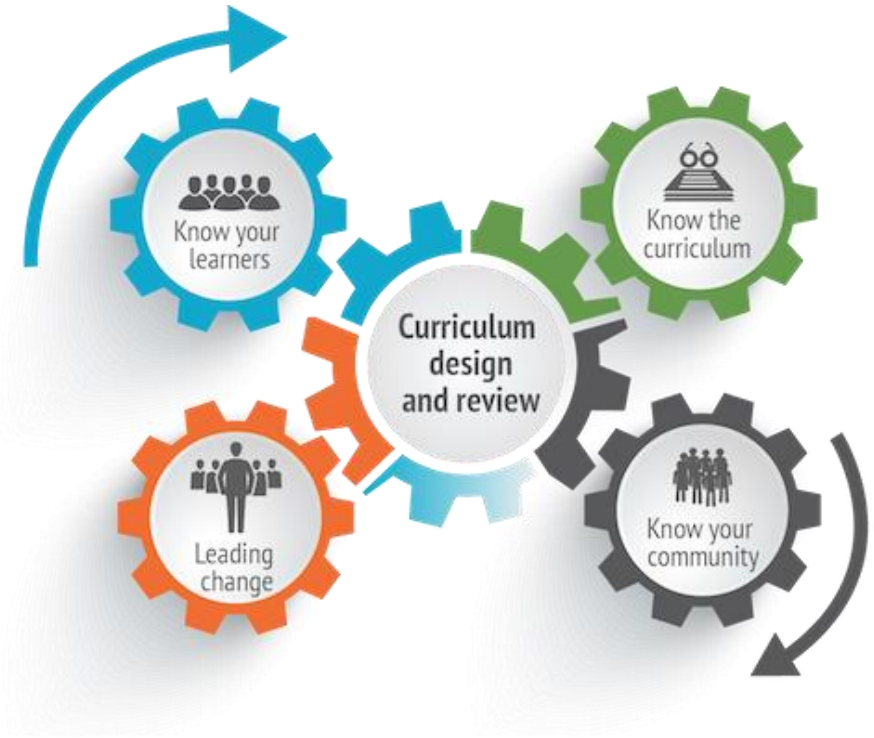
Evaluation of employer engagement in curriculum design: A wise man seeks wise counsel



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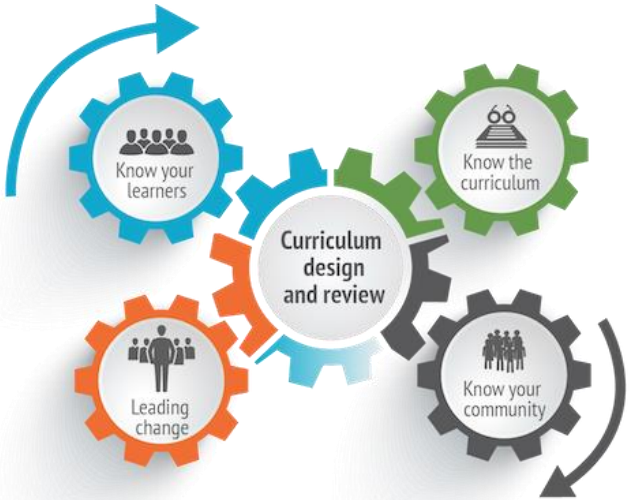
Overview

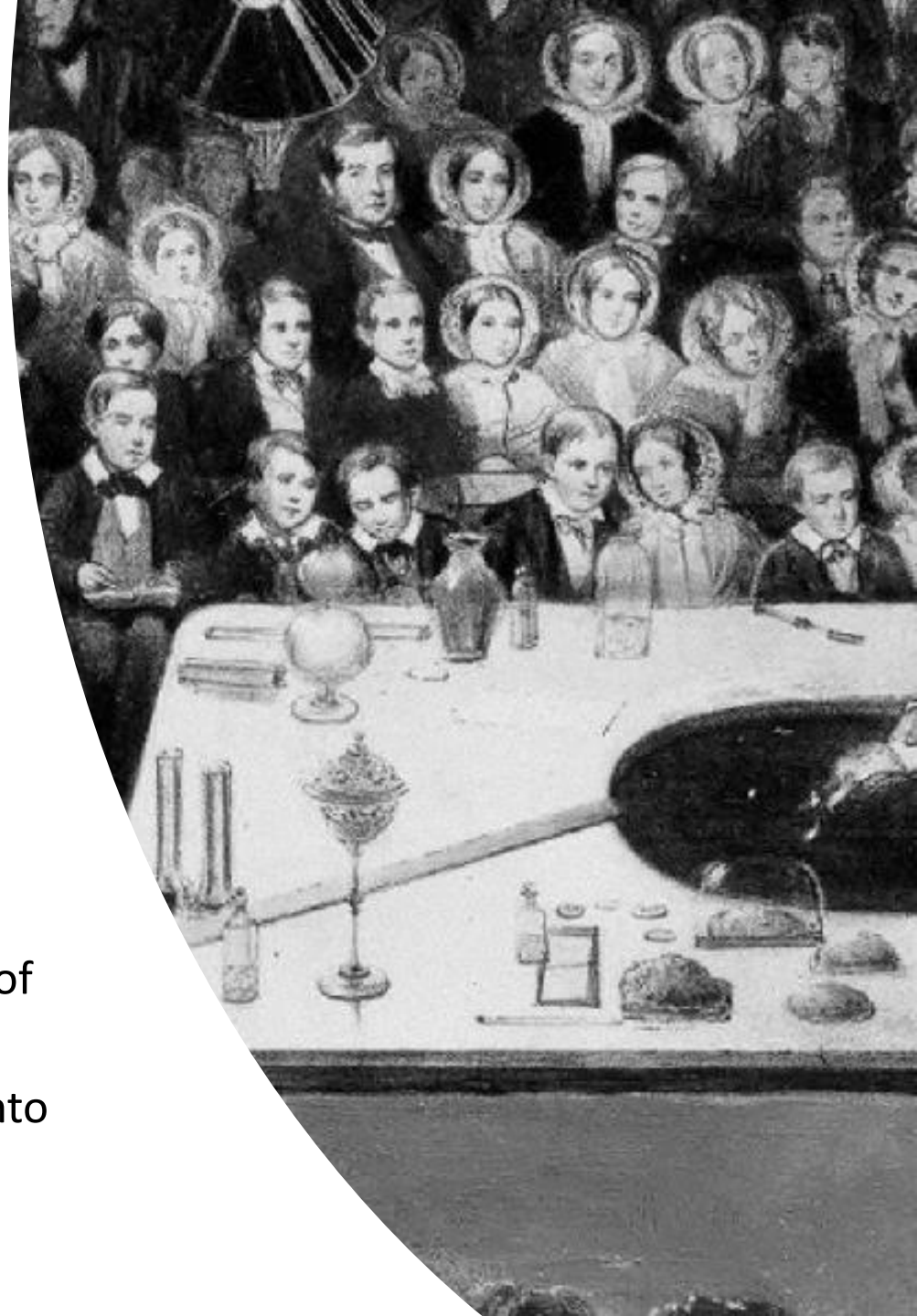
- Employer engagement and curriculum development
- Biosciences WSL ecology pathway
- Three stage approach and results
- Student and Employer Steering group evaluation
- Our evaluation



Questionable underlying assumption:

1. The knowledge and skills we provide are what employers need

- How do academics know what employers need?
- Is there a cultural divide between research-led academic programmes, traditionally focusing on pure theoretical concepts, diverging significantly from the applied nature of the ecological sector jobs?
- How is this effectively incorporated into pedagogic practice and curriculum designs?



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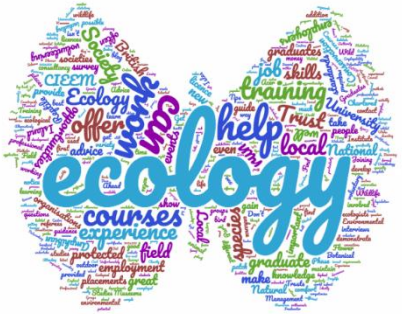
Practice-driven curriculums

- **Engaging employers** with curriculum development has the potential to:

- Create **effective, well-balanced curriculums** that provide the relevant **knowledge, technical** and **transferable skills**
- **Prevent** curriculum/subject **drift**
- **Enhance employability**
- **Refine resource use** and **allocation**



- **Bridge the gap** between **HE provisions** and **employment**
- Encapsulate a curriculum that **supports a diversifying range of student abilities**

Work-simulated learning (WSL) Case study: Field Ecology Pathway

- Developed a work-simulated learning programme
- We **assessed** the **skills employers** within the environmental sector **require**
- **Used results** to **develop** a new **ecology learning pathway** that utilised **WSL**
- Deliver **knowledge** and **skills that employers seek** and **value** therefore **reduce the gaps**
- Aimed to create a **relevant, up-to-date** and **evidence based curriculum**
- **Three stage approach**

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Stage 1: Data gathering (2014/15)

- **Employer questionnaire and job post analysis**
- Consult **subject benchmarks**
- Establish **prior knowledge**
- Identify **institutional resources**

Stage 2: Curriculum design and implementation (2015/16)

- Identify **L&T activities** within the institutional resources
- Create **LOs, activities & assessments** that address **employer requirements**
- Include aspects that **give credit for WSL outcomes**

Stage 3: Reflection and evaluation (2018)

- **Personal, group, students, colleague, examiners, employers**
- **Review Accreditation** and **QAA benchmarks**
- Survey **employment success**

Employer questionnaire

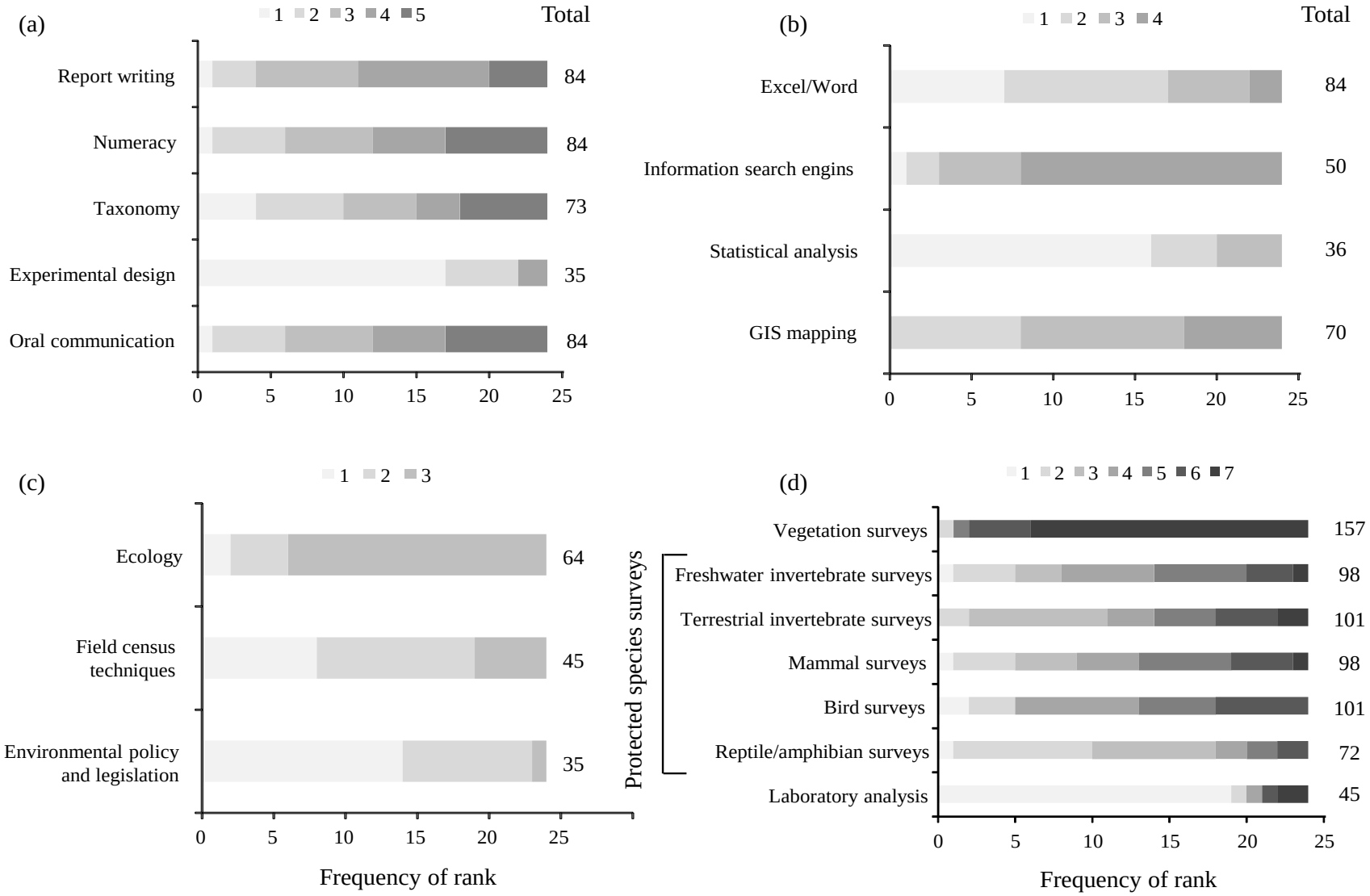


Figure 1. Employer ranking of graduate competencies for (a) transferable skills, (b) ICT (c) knowledge (d) professional technical skills (N = 24), 1 = least valued.

Table 1. Summary and frequency of the top 10 technical and transferable skills and technical knowledge cited in 60 job posts between 2014/2015.

Technical skills	Freq	Technical knowledge	Freq	Transferable skills	Freq
Data (handling, analysis, interp.)	30	Policy and legislation	27	Communication	60
Field surveys	27	Conservation issues	24	Driving licence	30
GIS	27	Habitats	13	IT (Excel, Word)	23
Project design, mgmt., delivery	26	Protected species	13	Stakeholder engagement	16
Ecological reports	23	Habitat (management, creation, restoration)	12	Budgeting	15
CIEEM membership	15	Project design, mgmt., delivery	9	Community engagement	10
Identification	13	Natural history	8	Volunteer engagement	7
Protected species licence	12	Health and safety	4	First aid	6
Protected species surveys	10	Invasive species	3	Social media	5
Risk assessment	10	Protected habitats	3	Working inclusively	5
Habitat management/conservation	8	Countryside management	2	Event management	4

What we did

Used the information to create two new field course modules:

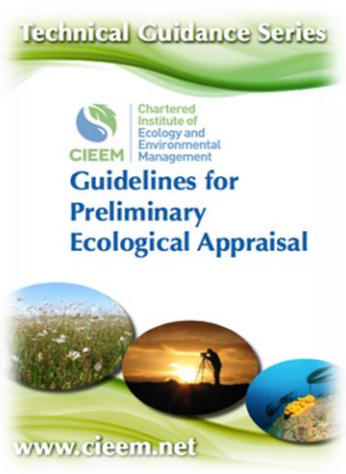
15 credit residential Year 2 course: Introduction to field ecology

20 credit work-simulated learning Year 3 course: Professional skills in conservation

Year 2 Residential Ecology Field Courses

Degree-specific general ecology skills developed during Y2

Year 3 Professional Skills in Conservation



Five work related learning activities incorporating subject **knowledge**, **technical** and **transferable skills** desired by **employers**

	FHEQ Level 5: Introduction to field ecology	FHEQ Level 6: Professional skills in conservation
Technical knowledge	General pure ecology, habitat and species identification, taxonomy, natural history	**General ecology, indicator species identification, community analysis, environmental policy and legislation, protected habitat and species surveying, habitat management and conservation species recording**
Technical skills	Ecological surveying techniques: quadrat and transect sampling, sweep and dip netting, moth and bat recording, abiotic sampling, map reading/navigation, dichotomous keys and guides	**Phase 1 habitat survey, GIS and habitat mapping, Common Standards Monitoring, Phase II habitat surveys, Protected species surveys, River Habitat Surveys, biological quality indicator surveys, dichotomous keys, Preliminary Ecological Appraisals**
Transferable skills	Ecological report writing, data handling, analysis and presentation, oral presentations, problem solving, group work, ICT, time management, organisation	**Professional ecological report writing, data handling, analysis and presentation, oral presentations, problem solving, group work, ICT, time management, organisation, cover letter writing, self-evaluation, risk assessment, critical thinking and evaluation**

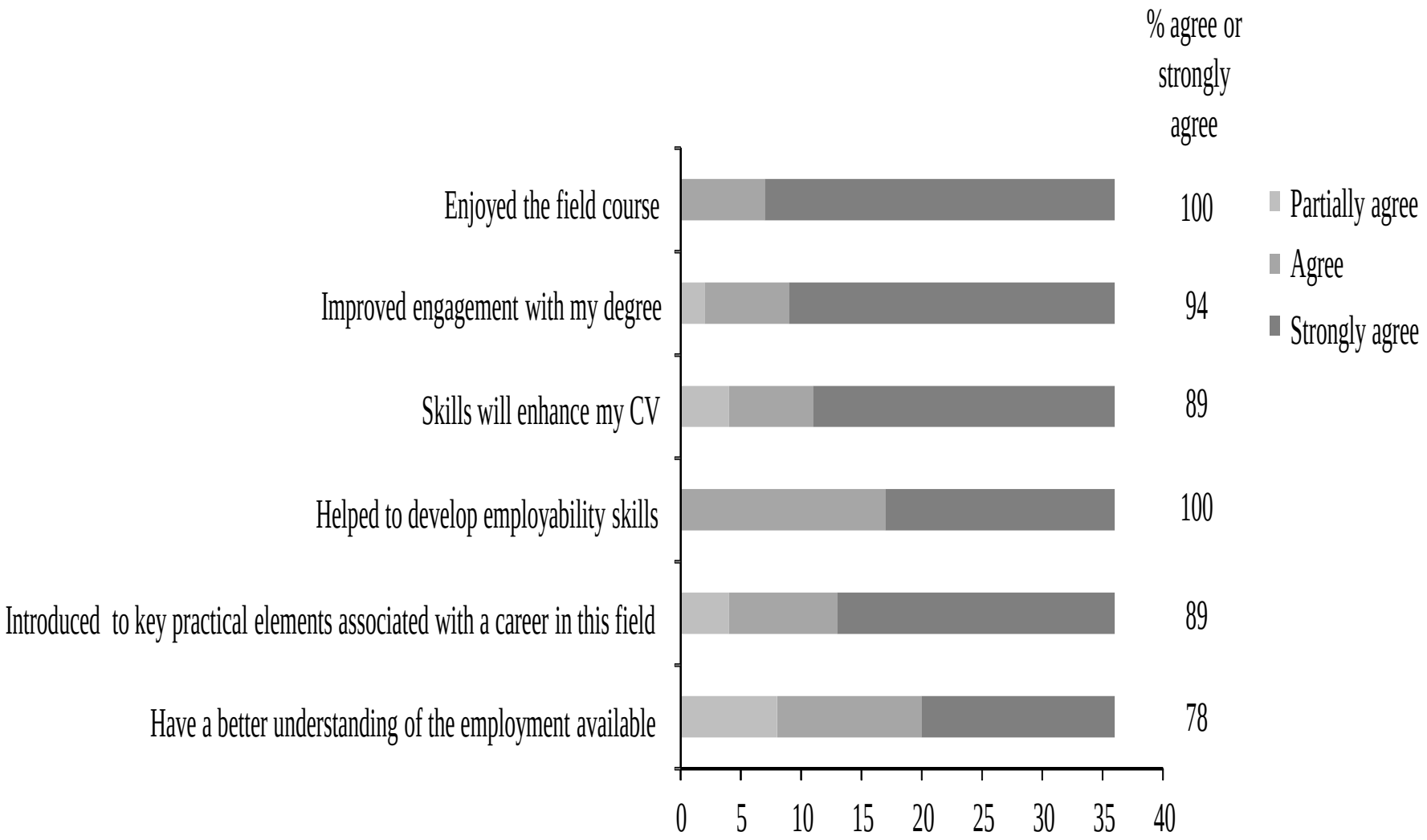
Evaluation and review

Student questionnaire on their experience and skills development

Established a Steering group of industrial partners

Validated the new curriculum in workshop held in Dec 2018

Figure 3. Student evaluation of the technical and transferable knowledge and skills developed during the ecological field course curriculum pathway (*n* = 41).

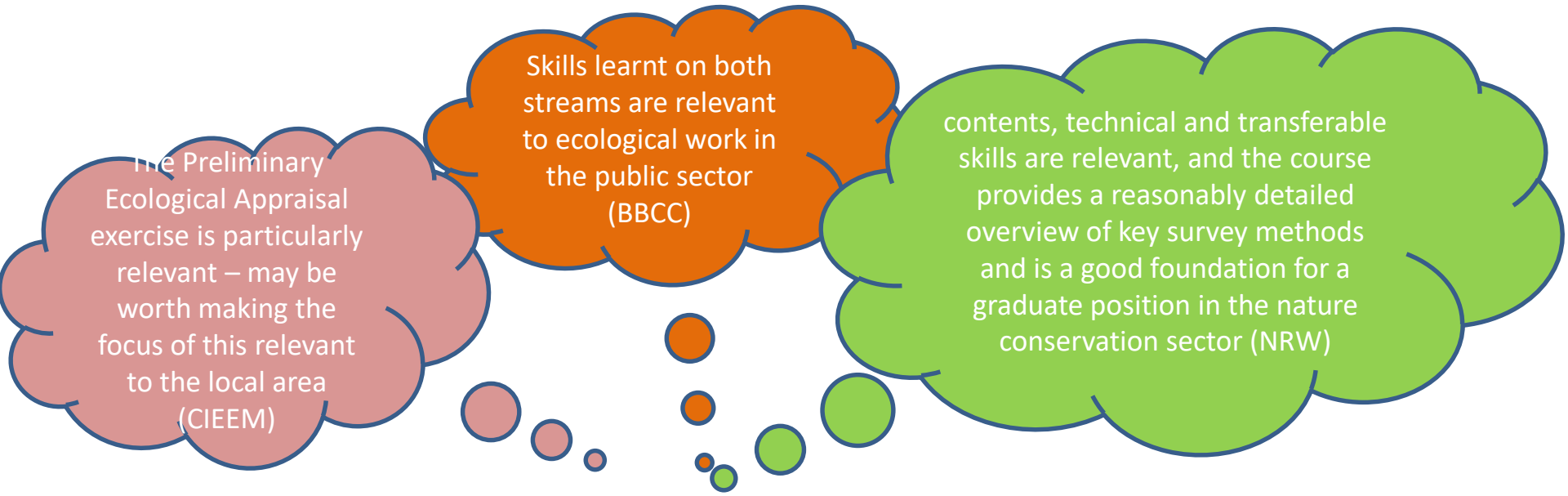


What did employers think of our new curriculum?

- We established **a steering group** including **employers** and **course leaders** to **review** and **quality assure** the process
- Provided **course material** and a **questionnaire**
- Arranged a workshop to review and discuss

Employer review
The positives:

Employer responses
Confirmation of the skills delivered, esp. Phase 1 habitat surveying and PEA
Appraised the overall quality of the courses
Relevant and good range of skills in both levels and programmes
Generally suitable for employment within the sector



So, did we do well?
The challenges:

Employer responses	Faculty Response	Outcome
Identified gaps in the knowledge: - **Key legislation and policy change** - **Advances in technology (e.g. GPS, camera traps)**	- Integrated new legislation - Some gaps already covered in other modules so made links to these during the course	Fine-tuned the knowledge and delivery
Industry focus bias: - **Not enough fluvial geomorphology (NRW)** - **Not enough ID (consultancy)** - **Not enough Zoology (NRW)** - **Not enough biology (NRW)** - **Good assemblage of well-rounded skills that would be applicable to the council**	Aim was to deliver a range of suitable skills for a broad range of industries. Pedagogically constrained so cannot focus	Feed-forward to employers on the constraints within HE and promote management of expectations
Site visits not 'real-world' examples	Constrained to deliver a quality student experience. Reluctant to visit sites that are not appealing	Reiterate pedagogic constrains to employers
Some skills not relevant, e.g. River Habitat Surveys	Pedagogic strategy to promote learning, reflection, understanding and soft skills development.	No action to change teaching strategy

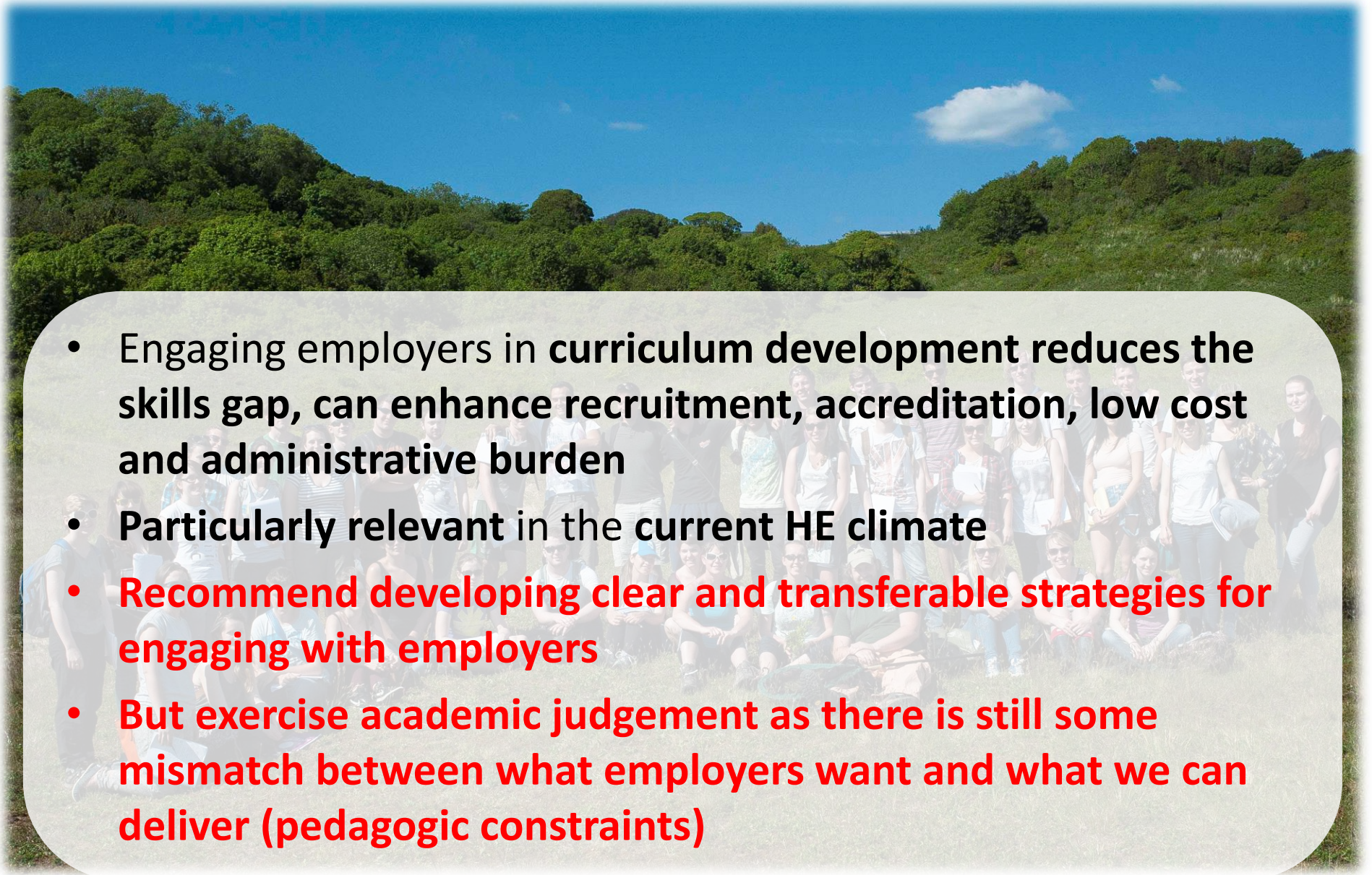
Added value

- Identified future challenges within the sector
- Advice and guidance on dealing with these challenges
- Highly motivated to continue with the relationship
- Offered work experience opportunities
- Ideas and support for student projects
- Secure joint research and funding opportunities
- Contribute to employability events and training
- Also head-hunt our graduates

Our evaluation

- Engaging employers is essential to allow **constructive alignment** of course material and apportion the correct amount of time and effort into **delivering relevant competencies**
- **Fine-tuned** the **skills** and **knowledge** to **employer requirements** and **reduce skills gaps**
- Still require **pedagogic knowledge** of **learning and teaching** activities to **develop effective simulations** that **promote higher learning**
- **Need to consider staffing (training/WLM)**
- Two-way learning process with numerous added benefits

Conclusions



- Engaging employers in **curriculum development reduces the skills gap, can enhance recruitment, accreditation, low cost and administrative burden**
- **Particularly relevant** in the **current HE climate**
- **Recommend developing clear and transferable strategies for engaging with employers**
- **But exercise academic judgement as there is still some mismatch between what employers want and what we can deliver (pedagogic constraints)**


Any questions?