A collaborative approach to improving graduate employment outcomes

October 2018
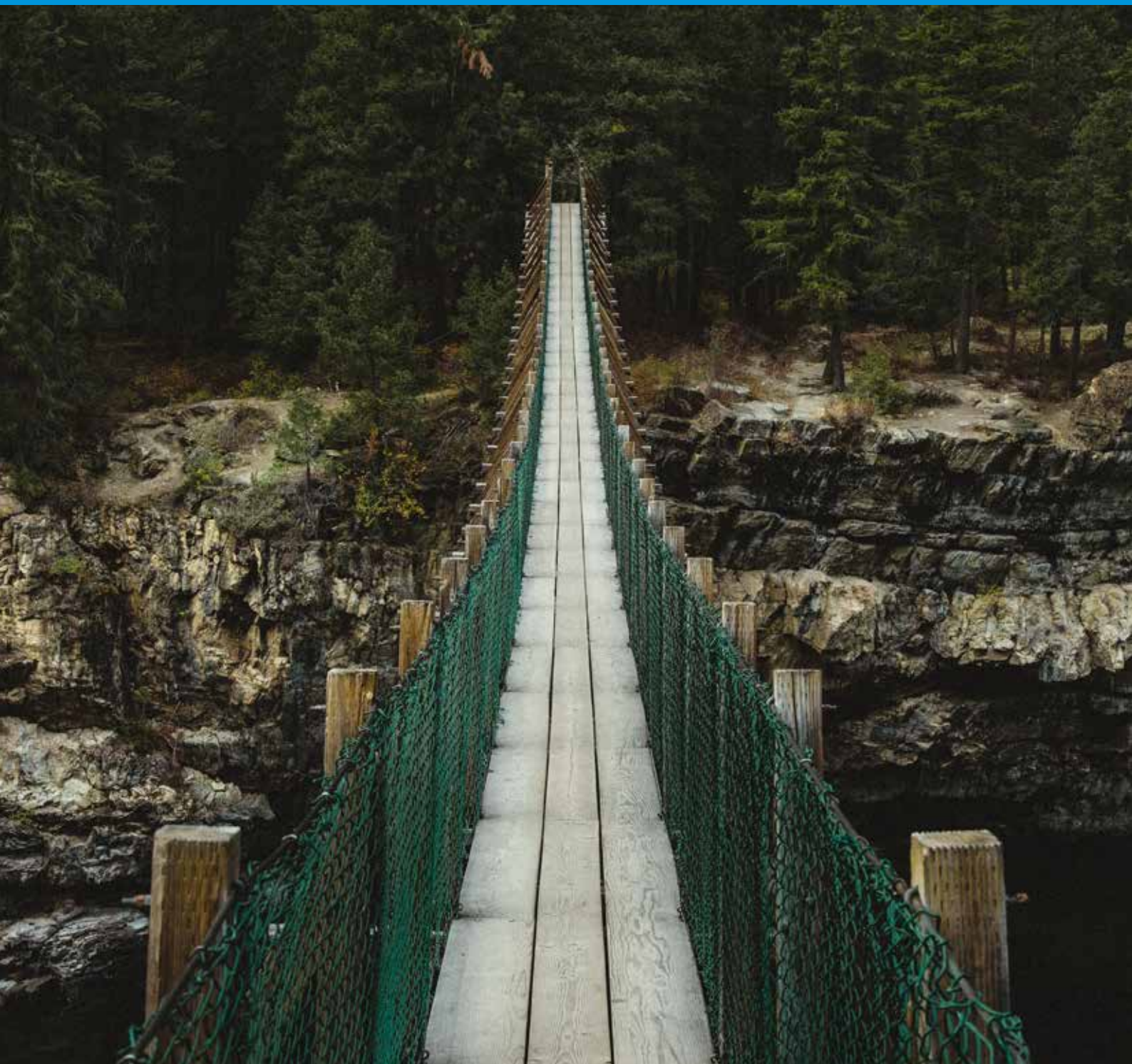
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Acknowledgments

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About the Institution of Environmental Sciences (IES): The IES activates a network of professionals, educational institutions, researchers and policy-makers to stand up for science, scientists and the natural world. We create an environmental science profession that is informed, trusted and a positive contributor to a healthy, sustainable society, economy and environment.

We represent professionals from fields as diverse as air quality, land condition and education - wherever you find environmental work underpinned by science.

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About the Committee of Heads of Environmental Sciences (CHES): CHES is the collective voice of the environmental sciences and its related disciplines. Founded in 1991, CHES plays a leading role in both Higher and Further Education environmental science communities, representing member interests and influencing on their behalf.

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Purpose of this report

The 2016 *Wakeham review of STEM Degree Provision and Graduate Employability* identified poor graduate employability statistics across a number of STEM subjects, including Earth, Marine and Environmental Sciences (EMES).

Whilst we, the Institution of Environmental Sciences (IES), are not entirely convinced by the methodology used to attain these employability statistics - most notably the bundling together of three distinct subject areas and the survey sample size - we do recognise the conclusions of the report ring true for the sector, namely:

- above average unemployment for graduates from high and medium tariff institutions;
- lower unemployment from low tariff institutions;
- high proportion in non-graduate roles; and
- high proportion in low-pay roles.

In September 2018, the Office for Students (OfS) revealed that 22% of graduates are not in graduate employment within six months of graduation, referencing data from the Higher Education Statistics Agency. In the Wakeham Review, this is estimated at 33% in STEM subjects and up to 47% in EMES, with the latter attributed to graduates lacking soft skills, work experience, engagement in career planning, commercial awareness or mathematical application.

The Committee of Heads of Environmental Sciences (CHES), the collective voice of the environmental sciences and related disciplines in higher and further education, sits in an excellent position to make a difference for the employability outcomes of graduates from EMES subjects. With over 100 accredited courses at 40 universities and further education institutions worldwide, CHES supports students who are currently undertaking, or who have graduated with, a degree in an environmental science related discipline. Their connection to the profession through the IES means they are able to support individuals throughout the entirety of their careers, from initial journeys in academia through to becoming established environmental science professionals.

This report constitutes a record of the Employability Workshop hosted at Manchester Metropolitan University on the 11th of April, 2018. Collectively, it documents the workshop outline and activities undertaken, the primary discussion points from the day, established outcomes, and the intended future actions to be taken forward by both CHES and the IES.
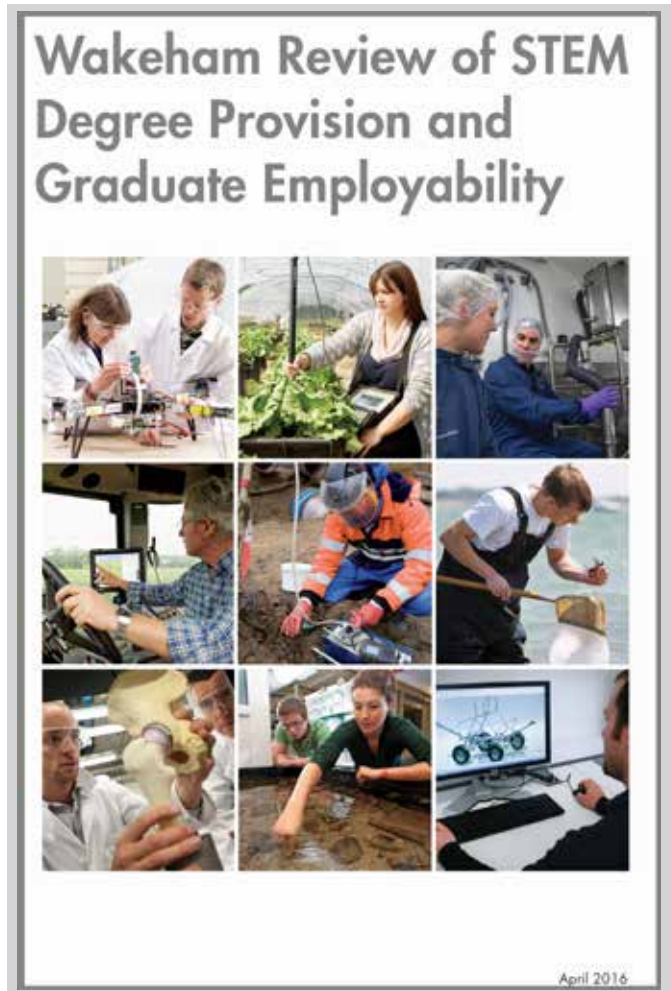
Terminology

In this report, the terms "professional" and "academic staff" are used to describe the two groups of attendees. We realise that professional staff exist within universities and further education colleges, but, for brevity, we have used:

- Academic staff - to define any attendee working within the confines of academia including, but not limited to, research, teaching, administration, and support staff.
- Professionals - to describe those working in a professional capacity outside of the higher and further education institutions.

The workshop

When & where

The workshop was held on the 11th of April 2018 at Manchester Metropolitan University with representatives from over 30 UK universities and further education colleges, and 10 professional environmental scientists.

Pre-workshop exercise

Prior to the workshop, academic staff were asked to think broadly about the employment and career services offered by their institution. They were asked to list these employment provisions and skill acquisitions under the following sections of the distributed *pro forma*:

1. as an integrated part of compulsory units/core curriculum (e.g. research skills);
2. as a part of optional or elective units (e.g. business module);
3. as a part of extra-curricular exercises and informal careers experiences (e.g. conversations with personal tutors, non-academic staff, PhD students, the activities of clubs and societies, careers fairs and external speakers);

...and detail:

4. whether they offered a placement year, a summer placement or an internship? If so, what is the uptake? How do they support students finding placements? How are these assessed?
5. additional examples that do not fit into the sections above.

Attending professionals were asked to think of:

1. examples of interactions they have had with institutions and students, such as guest lecturing, live project work or summer placements;
2. how frequent these interactions were, and how well received they were in terms of student attendance and engagement;
3. whether they have identified gaps in soft skills in science graduates and whether they were expected to fill in the gaps through training; and
4. whether the training provided in their workplace to graduates complemented what the institutions taught; was this the first time students were learning these skills or were they building on existing learning?

Examples of current provisions

To begin the workshop, 4 universities shared examples of their employability and career service provisions currently available within their institutions: the University of Northampton, University of York, Lancaster University, and Staffordshire University.

The attendees then separated into groups of 6-8 individuals comprising of 1-2 professionals and 5-7 academic staff for the 3 activities: employability mapping, persona journey and what next?

Activity 1: Employability mapping

Academic attendees were asked to use their pre-workshop exercise to map out the employability provisions available at their institution, sharing outcomes with their group. Different colour post-it notes were used to represent whether these provisions were managed by the department, career services or students themselves. This provided insight into how different institutions allocated responsibility for employability, allowing for direct comparisons to be drawn.

Simultaneously, the professionals noted any engagement activities they had undertaken with students and graduates, and considered how frequently these were organised and how well participants typically interacted.

Afterwards, both parties reconvened to discuss which skills were most valuable for enhancing graduate employability and how well the presented provisions addressed these. Each group then mapped out the optimal time for students to engage with each provision, from their first touchpoint at their institution to the end of their first year of employment.

Activity 2: Persona journey

Each group was provided with one ficticous environmental science student persona (see opposite page). The personas were discussed in groups and suggestions were made to add or remove certain traits in order to better encapsulate a range of student stereotypes. There was also an opportunity for the professionals to discuss whether they recognised these traits in colleagues or graduates they have employed.

Using the maps produced in Activity 1, the groups discussed how their persona was likely to interact with the employability provisions, with the academics considering:

- Which activities would this persona engage with? Which would they actively avoid?
- What would their level of enthusiasm and learning gain likely be?
- How could engagement be enhanced?
- What alternative services would be of value to students who fall through the cracks?

...and the professionals considering:

- What workplace struggles or successes is this persona likely to have?
- Which activities do you think would best prepare this persona for the world of work? Which ones would prepare them least?
- Are there any additional activities which should be offered to better equip them for employment?

To get an idea of how career services at each institution accommodate a diverse range of individuals, the maps for each institution were amended to include only the provisions

they believed a particular persona would interact with. The purpose of this was to identify gaps where certain students may miss contact with vital services, consider how this may impact their employability prospects and how this could be rectified through alternative approaches.

The groups then came together in a plenary to discuss the exercise in relation to the following:

- Does it matter whether a student does not engage with every provision?
- How well suited are your university's or further education college's provisions to the persona you were given?

- What other provisions could be implemented at your institution to better equip this persona?
- Should the processes around recruitment provide all personality types with equal opportunity for success?
- How could employers address the gaps between training provided at the university or further education college and at their organisation?
- Is it possible to have an employability service that caters to all personality types?

The following stereotypical personas are fictitious and any resemblance to actual persons is purely coincidental.

1. One chance Warren
Attended one employability event at the beginning of his study which he didn't find useful so he subsequently wrote off all future related activities. He can't be bothered to interact with his cohort or network at events. Quite intelligent, but achieves average grades; always late to lectures and lazy with assignments. Fairly social, but only in his small circle of like-minded friends. Unsure of what he wants to do when he graduates. He has had little exposure to work. His tutors feel he would best suit a structured workplace where there is a reward to work towards.

2. Wingin' it Wahida
A very confident and charismatic student. She won't engage with employability opportunities until the panic sets in three months before the end of her degree. Engages heavily with the social side of the student union. Intelligent and consistently achieves good grades, but always leaves assignments to the last minute. Member of a sports team. Likely to go travelling 6 months after graduating. A student rep but values socialising over academia. She has always excelled, but struggles with failure. Entrepreneurial and creates own opportunities.

3. Introverted Isaac
With excellent attendance at the core and optional sessions, he engages with selective employability activities that do not involve networking or career fairs. He does not interact much with his cohort but asks questions in tutorials. Very intelligent and achieves consistently high grades. Commuter student. Aims to be a transport modeller. Tutors suspect he will struggle with interviews due to nerves. He may be comfortable in roles and work hard, but may not seek progression due to confidence. Strong exam performance. His support needs may not be recognised as grades are suitable for multiple lines of work.

4. Eco Ed
Not interested in working for a mainstream consultancy or large company. He only engages with employability activities which align with his values. He doesn't believe in capitalism and objects to any exploitation of the environment for commercial gain. Intelligent and a high achiever. Volunteers in a soup kitchen. Calls himself an eco-warrior and wants to work in the field rather than in an office. He seeks out thrilling experiences and therefore can be engaged by a range of speakers. A motivated student who is focused on raising the profile of environmental science.

5. Academic Anna
She believes that university should solely teach you a discipline and that employability is not a useful part of a degree. A very theoretical thinker and strong problem solver. Achieves high grades and excels in exams. Sings in her local choir. She wants to do a Masters or PhD after finishing her undergraduate degree and aspires to be an academic. She has no work experience, having decided that part-time work is a distraction from her studies. She has a small group of like-minded friends who she often studies with. Her tutors feel she may misunderstand the skills required to be an academic.

Activity 3: What next?
In the final plenary of the workshop, participants were asked to reflect on what they had learnt and to determine:

1. What they could do differently with employment provisions or training within their institution or workplace
2. What CHES could do to support universities and further education colleges
3. What the IES could do to improve graduate outcomes

Workshop outcomes

The following sections provide a write up of the main themes which emerged from the workshop. They do not represent a chronological record as topics recurred throughout the day.

What skill set should an environmental graduate have?
Broadly, skills required by employers can be categorised as either discipline-specific skills (e.g. fieldwork, systems thinking, taxonomy, laboratory techniques) or soft skills (e.g. communication, teamwork, problem solving, business ethics).

The professional environmental field is incredibly diverse, with graduates taking various career paths after completing their course. For example, some may work directly in the field collecting technical data in collaboration with a small group of researchers, and others in a client-facing role helping to disseminate information to a less technical audience. Therefore, across employers, requisites for graduate skills are likely to vary considerably, with alternative careers requiring different balances between discipline-specific and soft skills.

The IES - with its broad membership drawn from the private sector, public sector and academia - is well placed to provide assistance here in facilitating varied panel discussions, resources and networking opportunities that encompass a broader spectrum of employers and environmental careers.

At the workshop, the conversation largely focused on soft skills development as the professionals considered these to require the most attention. However, communicating these facets to universities and further education colleges can be challenging as engagement is often patchy, temporary or representative of only a small subset of employers (e.g. large, private or arms-length bodies).

Whose responsibility?
There was a debate about where the responsibility to teach soft skills lies: schools, colleges, universities or employers? It was generally recognised that schools, further education colleges and universities were taking on more responsibility for this training, but there needed to be limitations to prevent this impacting on the development of discipline-specific skills.

After some discussion, no unanimous decision was made by the attendees; many felt that universities and further education colleges are already too over-stretched to cope with students' needs and are therefore unable to provide further tuition in this arena. On the other hand, many professionals in the room agreed lacking soft skills can leave candidates ill-equipped for employment, leading to lower graduate recruitment.

CHES and the IES feel that education providers and employers share responsibility for soft skills training; the former initiating ideals and the latter reinforcing them. However, in education, the onus should not fall solely on universities or further education colleges; soft skills should be instilled as early as primary school level, implying greater coherence is needed at every stage of the education journey.

Teaching soft skills

Students behave rationally; they recognise that pursuing grade-bearing modules - and putting aside investments in soft skills until a later date - offers a higher return on their time. The emphasis in educational institutions is still (perhaps rightly) on getting good grades rather than building soft skills that may help students in their future careers. Therefore, academics reported that they were increasingly focusing on embedding soft skills into the core curriculum design.

Compulsory units with a soft skills focus were found to be ubiquitous. Examples include: writing outside of the academic style; commercial awareness; working alongside business and law departments to bolster business skills; and budgeting (the application of numeracy ranks far higher for businesses than simple core mathematical ability). However, outside of the taught curriculum, soft skills can also be developed through a mixture of tutorials, work placements and group projects.

Although, it was acknowledged that students often do not see value in group exercises as increased effort does not assure a higher grade. This contrasts with the workplace where an individual's ability to interact with and manage groups often enhances their likelihood of promotion. In education, group sessions provide a good vehicle for teaching soft skills, however

students can be dissuaded from valuing the practice when designated grades are based upon the final product rather than individual effort or effective teamwork.

Skills training is often a major selling point to prospective students and their parents as enhancing graduate career prospects is often a key factor in deciding whether to enrol on to a certain course. It was recommended that advisory employers boards could be developed to inform on the facilitation of soft skills modules, providing inside knowledge of the most valuable and most lacking skills from across the sector. This could be extended to the development of forums to increase knowledge sharing between academia and the professional sector, perhaps through CHES.

Gaining experience

With many graduate roles requiring work experience from their applicants, the importance of giving students the opportunity to add to their CVs before, during and after higher or further education is invaluable. By learning team dynamics, problem-solving and communicating in difficult situations, these students are often found to be more employable than their peers.

A common method for students to gain the skills required by employers is to undertake a year in industry, professional placement or an internship. For an increasing number of programmes, a professional placement is mandatory as academics recognised the transformative effect this has on employment outcomes (see The Wakeham Report).

The importance of work experience has been clear to CHES, which is why we have focused attention on incentivising the accreditation of additional year derivatives. In 2017, fees were changed so that variants like 'year in industry', 'professional placement' and 'year abroad' could be accredited alongside the parent programmes at no additional cost.

Some attendees even suggested placements or internship conducted prior to higher education could be of greater benefit to students as those who have worked, or even travelled, before starting their studies tend to have better-developed soft skills.

In most cases, students are responsible for sourcing placements completed during their course or degree themselves. However, with opportunities sparse at the best of times, they are often hotly contested and it is therefore common for students to struggle to find appropriate placements.

Considering the recent call from the Industrial Strategy to the OfS to encourage greater collaboration between institutions and businesses, there is potential for professional bodies, such as the IES, to provide a brokerage service to connect student members with employers and to aid employers in setting up these schemes. Furthermore, CHES may be able to ensure the quality of placements through the development of guidelines and, in the longer-term, introduction of more stringent accreditation standards for placement years.

Access to provisions

It is important to note that not all students or graduates have equal access to employability provisions. Many factors may affect accessibility, including age, caring responsibilities, disabilities, ethnicity, income, regional domicile and socioeconomic status. Therefore, additional challenges faced by some individuals should not be neglected.

To address some of these disparities, the OfS launched a consultation in September 2018 into improving access, participation and progression within Higher Education. In the long term, they aim to improve long-term engagement with students from underrepresented communities; reduce gaps in participation, non-continuation, attainment and progression to high-skilled jobs; and enhance institutional transparency and accountability. Professional bodies, such as the IES, could work closely with bodies like the OfS to inform on discipline-specific issues regarding accessibility.

Work placements

Whilst work placements are valuable for enhancing employability, embedding these elements into programmes with limited resources, support or intervention can leave many disadvantaged, and may subsequently diminish access to graduate roles. For example, unpaid work experience can adversely impact students from low-income households, particularly if these individuals are in roles divergent from their career goals in order to maintain a steady income. Students with disabilities or with caring responsibilities may also face additional barriers when finding or undertaking placements, potentially with respect to time, amenities, travel or abilities. Furthermore, if students are responsible for independently sourcing placements, those from first-generation or lower socioeconomic backgrounds may have less connections or prior exposure to prospective career paths. Although degree apprenticeships seek to combat this disparity, there is an onus on institutions, and perhaps accrediting or professional bodies, to enhance access to placements through increased signposting of work placements, career mapping and promotion of inclusive practices.

Regional disparities

Many students return to home regions to seek employment post-graduation. In the UK, there is undeniable regional disparity in the labour market, with the environmental sector being no exception. It is therefore vital that students encounter real-life examples of careers within their localities throughout their educational journey, and are made aware of challenges they may face when entering the workforce. Additionally, professional bodies could do more to build in remote access and participation to support underserved regions, and facilitate greater outreach opportunities.

Core curriculum

Field and laboratory work are critical elements of the environmental curricula as they equip graduates with both practical and soft skills which enhance employability prospects. However, due to often physical or financial constraints, barriers may be faced by students with disabilities

or from low-income backgrounds. Efforts are underway within some UK institutions to increase accessibility in fieldwork through technological aides, virtual environments or direct assistance, which have shown to be successful. Although some of these provisions can be costly, institutions must be prepared to put such contingencies in place to ensure all students are afforded equal opportunity.

Mental health
Regularly brought up in the discussions was the role that educational institutions play in aiding students with mental health problems. There are many challenges that students face during education including the stresses of leaving home and support networks, keeping on top of finances and achieving good grades, all while ensuring that they are taking care of themselves. For this reason, it is imperative that employability and support services are coordinated, and signposting to wellbeing services, provided by the institution as well as the NHS and other external agencies, is clear. Identification of vital signs of students suffering from any issues outside of education should be acted upon and directed to the appropriate authority.

Catering for different personas
Student engagement with career services can be a major issue within many institutions. Even where soft skills training forms part of mandatory tutorials, attendance is often still low.

With no unifying student persona, there is no single preparatory path to secure a career in the environmental science sector. To ensure that all personality types can engage with career services, universities and further education colleges must provide a broad range of provisions that cater to differing needs. This will likely include a mixture of one-to-one sessions, group workshops and career fairs. Whilst these offer many routes towards connecting individuals, they all involve a face-to-face interaction that may not suit some personalities. In these cases, online resources allow for both a do-it-yourself approach to careers advice as well as opening the door to a greater number of students. Many students prefer this route as it is pressure-free and allows for independent exploration in their own time. Thus, ensuring these resources meet the same standard as face-to-face interactions is crucial.

The importance of careers support from year one was echoed across workshop attendees, but students in their first year of further education perceive the world of work to be temporally distant. Therefore, employability in year one should be part of compulsory units or woven into the curriculum.

Personas revisited
The personas from the second activity were revisited with regards to how they would interact with careers and employability structures. The following are comments made on each individual persona by the workshop as well as an analysis of the appropriate methodology to engage them.

One chance Warren

There are many opportunities for this persona to engage with employability services, if engagement can be incentivised or combined with another activity. Placement and work experience modules are the best methods for engagement as they demonstrate value in activities. An inspirational speaker or work placement is likely to reignite his interest. He would benefit from soft skills embedded in the curriculum as unlikely to engage with optional units after a poor first experience.

Wingin' it Wahida

cademics noted that this persona was very familiar. The persona is likely to miss placement opportunities. Refresher courses in the final year or post-graduation may be very valuable. Emdedding employability through the compulsory curriculum would also help. They may contact the career service in the three years post-graduation (perhaps after travelling). They would also likely engage with graduation services provided by the IES.

Introverted Isaac

There is a need to identify the 'right' type of work. Needs training for interviews, and advice about the environments in which introverts can thrive in the workplace. In the 'age of the extrovert', it is important to highlight the benefits that introverts can bring to a team. Emphasis on the theory of soft skills, not just its practice, may help. Not likely to attend all welcome events or networking events, so may need picking up one-to-one. Would benefit from small group tutorials, an open-door policy and many touch-points with tutors. Engagement with a mentoring scheme might build confidence.

Eco Ed

Likely to attend career fairs and optional employment provisions, but engagement would be limited by 'values screening' of potential employers. Inspirational and entrepreneurial speakers, who worked in controversial industries but are challenging practices, may incentivise broader career paths. IES services with contact to employers would be useful. There is a chance this student may be disappointed upon graduation when they realise the limited number of conservation and NGO jobs in the sector. A placement could be very beneficial for adjusting expectations. They may negatively impact the university's employment statistics as they are likely to travel or work in voluntary positions when they graduate.

Academic Anna

University may reinforce the behaviours that lead to this persona not making contact with careers service by telling her to focus on her studies. As she is likely to dismiss optional soft-skill and employability opportunities, she may benefit from curriculum-embedded skills. Mentoring with an academic could help her realise that a broader skill set is essential for her chosen career path. She will engage with provisions that directly align with her goals so the 'why' needs to be emphasised.

Alternate destinations

Not all environmental science students go on to work in environmental science. The routes for these students must also be open and provide for their needs outside of the traditional pathways. A buddy or mentoring system could help these students to identify placements and support them during the job-seeking and adaptation period.

There is a case for highlighting the opportunities provided by institutional or, where applicable, departmental career services in connecting students with relevant professional bodies. These organisations can continue to enhance a graduate's employability prospects once they move out of education, for example, highlighting potential career pathways with an environmental science qualification.

Actions

What are the IES already doing?

IES members currently attend induction weeks and careers fairs, and host talks throughout the year to raise awareness of the variety of roles available to environmental graduates.

The IES offers tailored career services for members, including students and graduates, looking to enhance their employability, such as a dedicated Mentoring Scheme, CV Clinic and regional graduate workshops.

Free student membership is available to students on programmes accredited by the IES throughout the duration of their studies, up until 31st December of the year they graduate. Furthermore, graduates from accredited programmes can apply for the professional grade of Associate after finishing their course; from September to December this will be offered completely free of charge.

What are CHES already doing?

CHES provides a professional accreditation scheme for Honours and Masters programmes in Higher Education and Further Education institutions to enhance the quality of outcomes for all colleagues and institutions. Several parts of the accreditation application focus on employability provisions, career planning and preparing students for professional practice.

The Committee also hold employabilityworkshops for education providers and professionals regarding, such as the one referenced in this report, and provide a forum for these individuals to come together, share knowledge, and discuss the role each other plays within the sector.

CHES also work with accredited institutions to inform on the enhancement of inclusion within environmental education.

Proposals for IES
- Collate a list of organisations with over 10 employees that have either offered placement positions in the past or that could be approached by students seeking a placement.
- Run a dedicated conference where student members present their work and share ideas. This could include networking opportunities with providers of internships and graduate positions as well as young professionals who graduated from accredited programmes speaking about their experience of finding a job and settling into the world of work.
- Create more engagement opportunities directly with students through a student ambassador scheme.

Proposals for CHES
- Produce guidelines for placements offered by accredited courses to ensure that they are of a high standard and are aiding the development of the soft skills required within the workplace.
- Incorporate diversity and inclusion into the accreditation framework for both universities and further education colleges to aid in enhancing equal opportunities for all, both in regard to student attainment and graduate employability.
- Produce, provide and share examples of best practice for enhancing graduate employability across accredited universities and further educational colleges.