EDGE FOUNDATION

Rethinking higher education

Case studies for the 21st Century

February 2021

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Making Education Relevant

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Foreword

This report is, quite rightly, a showcase of how higher education (HE), powered by employer ambition, is having a profound consequence on the world of work and on the talent, skills and career progression of individuals. It also recognises that the diversity of the higher education sector is a strength that should be celebrated. The potential to radically change our understanding of the role of higher education, working with employers, to develop the skills needed by local and regional economies cannot be underestimated.

These case studies collectively raise and promote a number of important issues, debates and achievements which will help frame, inform, influence, and impact upon, skills and apprenticeship policy and practice internationally. Quite importantly they remind us that HE is not just about the delivery of an academic education. Rather, HE has a very important role in vocational, technical and professional education; one that needs to be captured and universally emphasised.

Covid-19, while first and foremost a global pandemic and public health emergency, has had a profound consequence on the ability of HE providers and employers to continue to collaborate and drive innovation. It has caused us, amongst many things, to re-examine the status quo and consider the nature of jobs for a post-pandemic future. If we are to avoid a return to the old normal, then we require new and alternative ideas on how to build prosperity and provide pathways to the professions and higher-level occupations. What is certain is that we will require the expertise of all types of HE provider to be the go-to organisations for employers wanting to up skill and re skill their workforce. This will call for new partnerships, more collaboration and innovative ways of developing and designing new, bespoke programmes delivered through flexible work-integrated, work-based, online as well as classroom-based programmes, building on existing good practice. Colleges, universities and other HE providers do and may want to increasingly provide a joint offer to employers. Indeed, we need more collaboration, not less. Even less so a polarised version of our skills system.

The achievements and prospects described in this special report are testament to the determination and innovation of our community of practitioners, innovators and researchers in HE.

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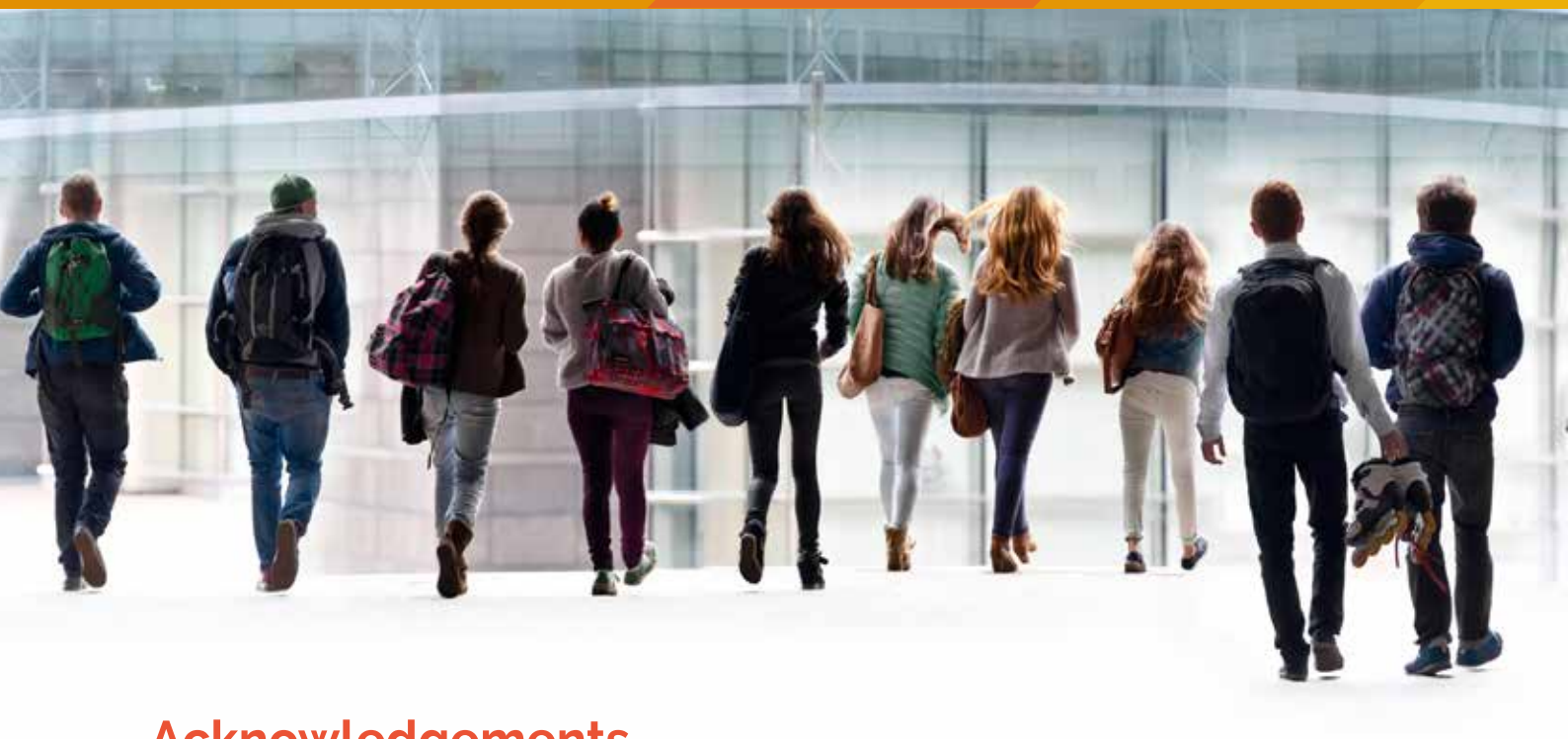
Reference as: Emms, K., Laczik, A. & Dabbous, D. (2021). *Rethinking higher education: Case studies for the 21st Century.* London: Edge Foundation



Acknowledgements

We would like to thank all those that took time to contribute to this report. In particular, special thanks go to Kayla Cohen, Anthony Brigden and Vesi Nedelcheva for researching and conducting interviews for the Minerva Schools and Dyson case studies. Many thanks to the universities for providing additional information and photos.

Overview of the report

As we start 2021, higher education looks significantly different to how it looked only a year ago. The global pandemic is affecting the migration of students, both internationally and domestically, the delivery of courses and university services, as well as the social lives and mental health of students at all levels.

This report gives a brief overview of the higher education landscape and touches on some of the overarching issues of the sector - some that existed before the pandemic, and some of which have been exasperated by the changes of the last year.

As higher education learns to adapt to our new world, opportunities arise to rethink its curriculum, delivery, and priorities, as well as how it could be supporting its students who will indeed go on to shape our world over the coming decades. Ensuring these students are equipped with the knowledge, skills, and aptitudes to tackle the important issues in the world today is of paramount importance. This report describes five higher education case studies - four from across the UK and one international example - which outline practice that looks vastly different from centuries past. They are forward-looking and prepare students for life in a very differently evolving 21st Century.

The five case studies are:

1. **Cardiff University's National Software Academy**
2. **Dyson Institute of Engineering**
3. **Minerva Schools at KGI**
4. **Eden Project Learning**
5. **The University of Salford**

These very varied institutions are each reimagining the traditional university campus and prioritising the holistic learning and development of its students in a different way. The development of student employability is emphasised to ensure their graduates are ready and confident to approach the working world. Making a clear link between theory and practice, external stakeholders meaningfully engage with teaching staff and students at various levels. This report pulls out some key features for each of these institutions, which it is hoped can provide inspiration to others.

Introduction

England has a strong global reputation for having some of the top universities in the world, which generate world-class research and teaching. Universities also provide life-changing opportunities for people, both economically and socially (e.g. Husbands, 2020).

The higher education (HE) landscape in England has witnessed a decade of extraordinary change, from growing enrolments of both UK and international students, skyrocketing tuition fees to concerns around grade inflation, mental illness, and graduate employability. Then, in 2020 coronavirus and the consequential lockdown brought about a rapid shift to online and distance delivery, as well as bringing about, and perpetuating existing, challenges. For instance, the loss of part-time jobs and financial support for students, the widening disadvantage gap for those who are unable to access suitable study space and resources (for example, stable internet connection or a laptop), an increase in mental health difficulties, and uncertainty over the graduate job market and loss of work experience opportunities.

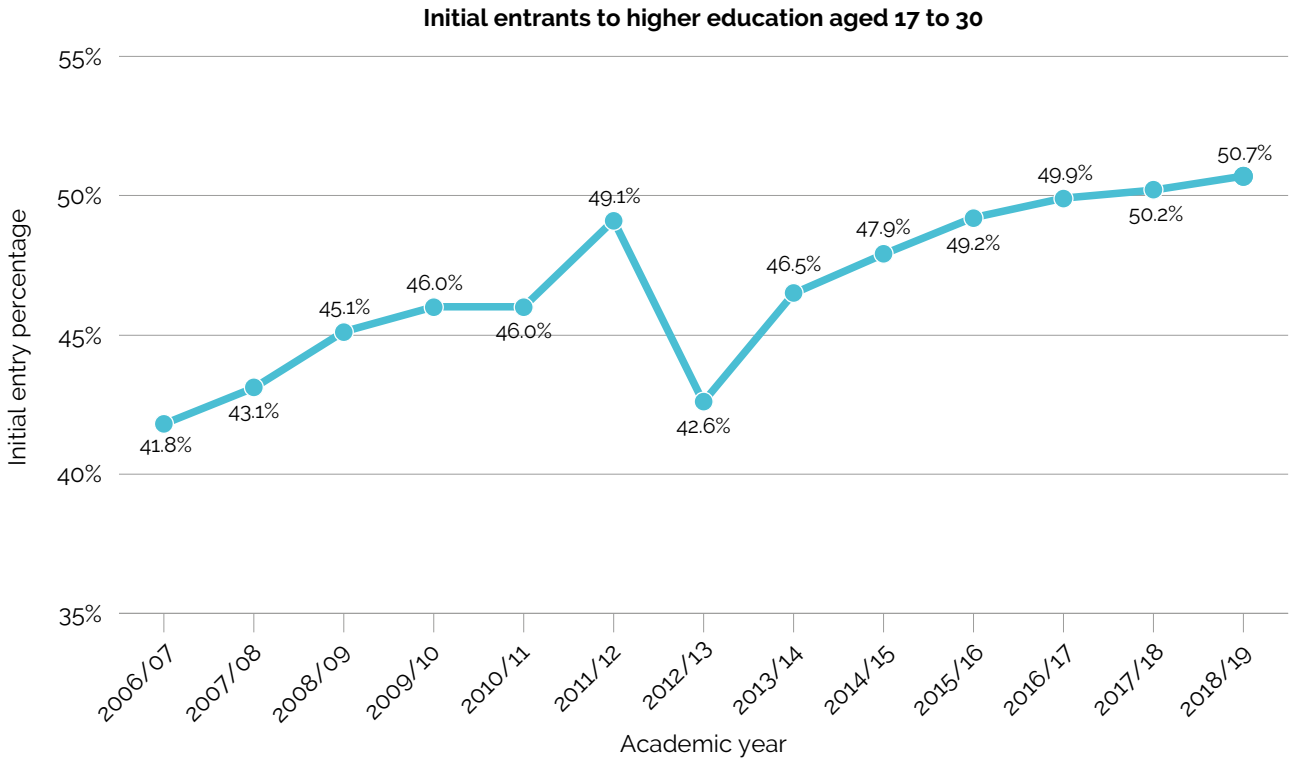
Many of these are entwining issues that are having a significant effect on students and wider society. Nevertheless, we have witnessed incredible responses from universities who have developed ways to deliver their courses which could be regarded as different from a 'traditional' university education. This report will outline some of the issues the HE sector has faced over the last few years, followed by a series of short case studies from the UK and abroad, which the Edge Foundation believes are leading in changing the nature of today's HE landscape and better preparing students for their futures.

Participation in higher education in England

The latest HE participation rates for England show that the number of young people starting undergraduate studies is continuing to rise. In 2017/18, the Higher Education Initial Participation Rate (HEIPR) finally reached Tony Blair's 1999 ambitious threshold of 50% (at 50.2% for 2017/18). This means that by 2030 half of the population will have participated in HE by the age of 30. In 2018/19 this has risen again to 50.7% (DfE, 2020a).

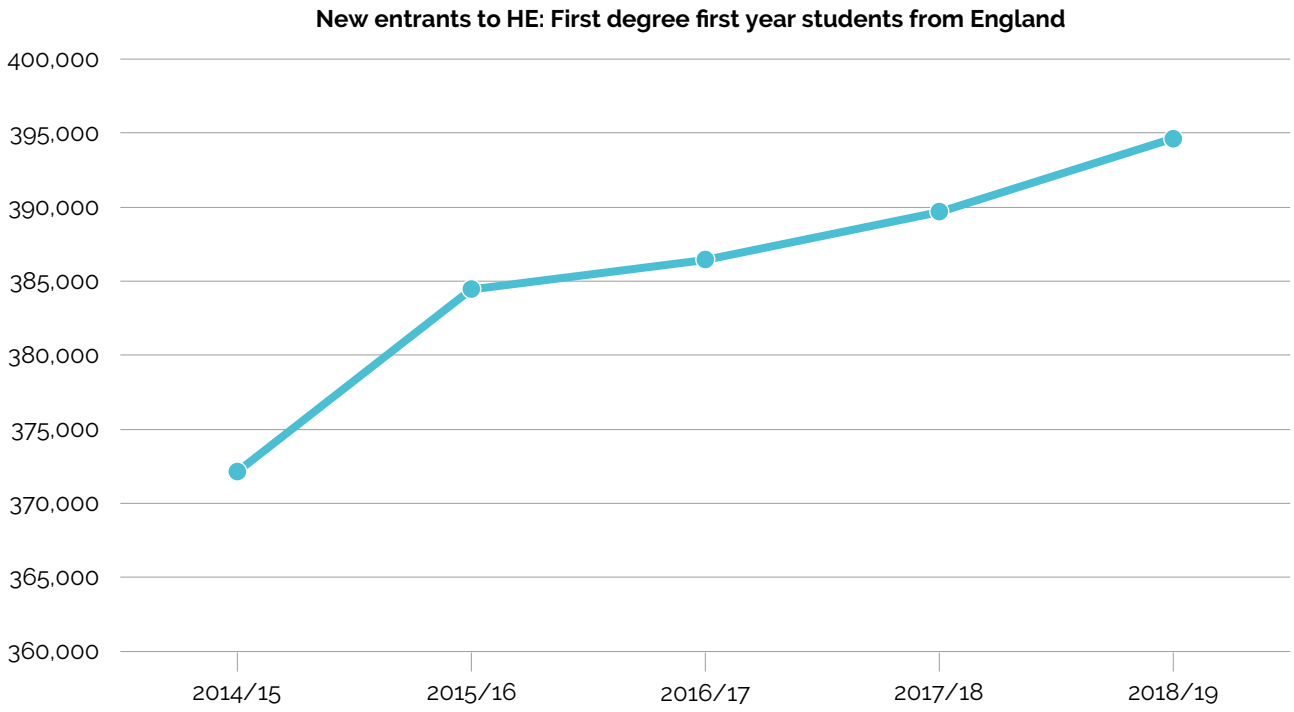
As Figure 2 shows, there has been a continuous rise in entrants since 2012/13, with entry to first degrees in 2018/19 increasing by a further 2.4% on the previous year. On the face of it, increased participation in HE seems healthy, particularly as there has been improvement in the proportion of people from underrepresented groups, meaning increased opportunities for them in the labour market and a more diverse student population. However, the expansion has not benefitted all equally, with some groups still missing out, for example regionally, when considering the lower participation rates in some coastal areas and areas in the north of England. Furthermore, some disadvantaged groups who are going to university are still not entering some high professional roles that should be available to them given their qualifications (OfS, 2019). When considered in light of other issues facing the sector, such large numbers now entering university may not be aligned with the needs of young people and the country as a whole.

Figure 1. The Higher Education Initial Participation Rate (HEIPR)[1] for England from 2006/07 to 2018/19



Source: Department for Education (DfE), Participation Rates in Higher Education 2006 to 2019

Figure 2. Number of new entrants to higher education from England from 2014/15 to 2018/19



Source: HESA, Higher Education Student Statistics: UK 2018/19

1 The HEIPR is an estimate of the likelihood of a young person participating in Higher Education by age 30, based on current participation rates.

Student admissions and access

UK universities, unlike the majority of post-industrial nations, make their applicants a provisional offer of a place at university based on predicted grades – traditionally this offer is dependent upon eventual exam performance. However, over the last few years we have witnessed a noticeable trend from universities in their increased use of 'unconditional offers' made to applicants who are still studying for their A levels or equivalent qualifications. Since 2014 UCAS have reported seeing a rise in these unconditional offers made to 17- and 18-year-olds, whereby universities are guaranteeing applicants a place on their course regardless of their final exam results (Office for Students (OfS), 2019). The HE environment has become more competitive, and in the process, universities are competing to attract high numbers of students with the tempting offer of a place that is not dependent on their final achieved grades.

One consequence of this approach is the negative impact on pupils' attainment at A levels, BTECs or equivalent since they do not need to achieve specific grades in order to guarantee them a place on their course of choice. Indeed, OfS's research (2018) found that those accepting unconditional offers were less likely to reach their predicted grades. Further research has also found that, generally, predicted grades are not always accurate – UCL's research (2016) found that 75% of students between 2013-15 were predicted to do better at A level than they actually did and only 16% of students' grades were predicted correctly. More worrying still, university offers based on predicted rather than achieved grades have been shown to unfairly impede the prospects of some groups more than others. For instance, high-achieving students from disadvantaged backgrounds are more likely to be given under-predicted grades than high-achieving peers from better-off backgrounds (Centre for Social Justice, 2020).

A further concern around this is whether such unconditional offers are leading to applicants making sub-optimal decisions, since they may be choosing a university or course purely on the basis of it being a 'safer' option (i.e. not dependent on their actual performance) rather than opting for a university or course that would better suit their abilities and career aspirations (OfS, 2018).

Fortunately, there has been some acknowledgement from the sector and policy makers regarding the unfairness and negative impact of an admissions system based on predicted grades. In November 2020, Education Secretary Gavin Williamson announced that the Department for Education will review a post-qualification university admissions (PQA) system, whereby students in England would receive university offers once they have obtained their final grades (DfE, 2020b).

One of our case studies below – Minerva School – exhibits how taking a more holistic approach to admissions can allow a university to better judge an applicant's potential to succeed at their institution.

University choice

For many young people, pursuing an HE degree is a very suitable and desirable next step after completing school or college. People choose to go to university for a variety of reasons, mainly to pursue a subject and learning that they are passionate about, and in order to follow the path to pursue a particular career (QS, 2017). Recent surveys have shown that young people's main motivation for going to university has not changed significantly from previous generations. Winchester University's research (2020) found that young people still see a university education as a path to a good job in the future – 24% said their motivation was for a professional qualification, while 22% felt it was to get a good job that motivated their undergraduate study, while love of a subject was not far behind on 18%.

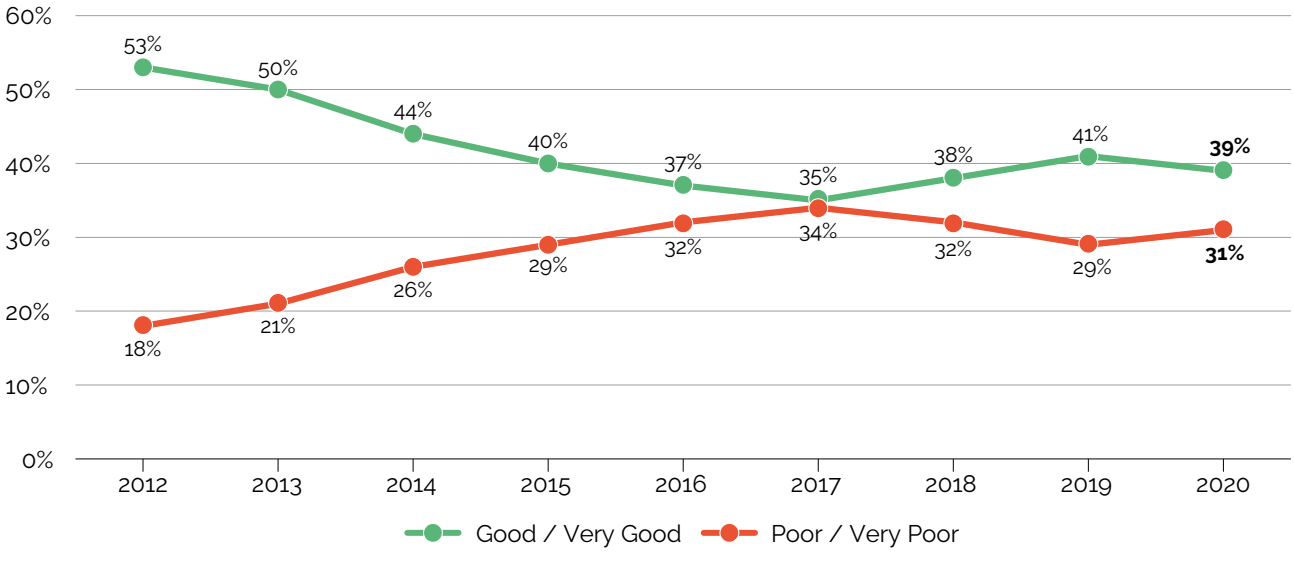
Schools have been criticised for putting pressure on young people to go to university to the detriment of giving them wider advice and guidance about alternative pathways, such as apprenticeships and trainee schemes. An AAT (Association of Accounting Technicians) (2019) survey of 1,500 British school leavers found many felt 'pushed' down the university route, whereby two thirds claimed their teachers were most likely to urge them down the path of university. Furthermore, one in five school leavers wished their parents had given them more in-depth advice and guidance about what to do after secondary school. The evidence seems to suggest that the university route is often taken as the 'default' option in the UK, with awareness around alternative options being less palpable.

It is important that young people making decisions about their next steps at age 18 are presented with realistic opportunities which truly reflect the range of options available to them. Furthermore, it is important that they are presented with realistic and impartial information on what all these opportunities may entail and what they are likely to get out of them, for instance what are the realistic job opportunities from a particular degree course. This should be a responsibility of those giving advice and guidance to students in schools, colleges, and universities.

The student experience

The HE sector within the UK has changed dramatically in the past few decades, increasingly resembling more that of a marketplace than ever before, with the student being likened to the role of a consumer. Nowadays the student is a fee-paying individual, who in most cases must take massive high interest loans to cover tuition fees. In return for their financial investment, students are expecting value for money for their student experience. What students' university experience should encompass in order to provide them with value for money is hotly debated, and it ranges from the knowledge and development of skills (Harris-Hummert, 2020) to the support of attaining a graduate-level job, along with the social and cultural capital to navigate the world. How its value is measured is also contentious and has given prominence to such structures as the Teaching Excellence Framework (TEF) and graduate outcome data. Above all, student satisfaction has taken precedence. One way this value has been measured is by asking the students to assess the value they believe they received from their programme through, for example, the national Student Academic Experience Survey (HEPI, 2020). There

Figure 3. Value for money of your present course (full-time undergraduate students in the UK)



Source: HEPI, Student Academic Experience Survey 2020

has been a general downward trend since 2012, with fewer students believing they have received good value for money from their course, which coincides with the large hike in tuition fees in 2012. Although there seemed to be more optimism that students' perceptions were improving from 2018, this year has seen a reversal in that upward trend, most likely given to the disruptions caused by the pandemic.

Although students' reasons for pursuing university in the first place have been relatively stable over time, what students are expecting from their university and course experiences is changing. Research by Winchester University (2020) showed the factors of a university that were most likely to be rated as very or quite important when deciding where to go to study are 'having a culture or atmosphere which I like' (88%) followed by 'supports graduates into high-paying jobs' (83%). Furthermore, stated or perceived 'values' of an institution are increasingly seen as a key deciding factor, with 82% saying that it is very or quite important to them. For instance, a commitment to social justice and equality are increasingly seen as important.

Looking beyond what students have claimed to value from their course and university, we can see that establishing an environment which is nurturing, caring and supportive as a place to study is important. For example, looking at the increasing incidences of mental health issues and dropout rates across universities goes to show that some new approaches to the student experience are needed to ensure students are engaged and supported.

Mental health and dropout rates

In recent years, the number of those reporting mental health problems at UK universities has soared, with two percent of first year UK students disclosing a mental health condition in 2015/16, five times the proportion of that in 2006/07 (Thorley, 2017). The same study found that 94% of universities witnessed an increase in demand for counselling services, while 61% of universities report an increase of over two percent. Where support is lacking in response to these cases, poor mental health can lead to disruption to students' studies, poor performance in exams and an increased risk of dropping out. The consequences of the pandemic have only exasperated this already alarming issue. One survey by YoungMinds in March 2020 found that for young people with mental health needs, 32% agreed that the pandemic had made their mental health much worse, and 51% a bit worse. Furthermore 26% said they were no longer able to access their support.

Whilst many factors can affect students' mental health, academic and financial stressors have been put forward as having a particularly negative impact (EPI, 2018). Findings from Unite Students 2016 Insight Report found that for students who had considered dropping out of university, the strongest factors related to this were due to 'stress or worry' followed by feeling 'under strain'. Considerations of leaving university are related to factors such as loneliness or isolation (Unite Students, 2016), suggesting both social support and other pastoral support from the university are important structures for helping to combat this. One of the main causes of stress and overwhelming pressure comes from the academic requirements of the course. Students need their studies to be engaging and relevant to them, as well as appropriate for their individual needs. It is not helpful if the work is not gratifying and they do not see its relevance. Also highlighted was how important the sense of community is for students, which universities must now ensure that they are able to nurture virtually as well as, or instead of, only in-person.

Therefore, ensuring students' learning and pastoral environment is supportive and engaging should be of high priority. In our case studies we see how some institutions foster peer and staff-student relationships to encourage a better learning environment, such as the Dyson Institute and Eden Project Learning.

Graduate outcomes and preparation for the world of work

Looking towards the end of the student journey, on completion graduates should be gaining a qualification as well as a range of experiences which can support them into employment and help them contribute positively to the world of work. Some of the case studies we outline below show how students are being prepared with a wide range of skills, aptitudes and experience that makes them more attractive to prospective employers. We need to have confidence that students are receiving a world-class education that is giving them the knowhow and aptitude to succeed in the workplace and their lives.

Although we should not view university as a 'jobs factory', students' time as undergraduates should be giving them good leverage and preparation for the world of work that many hope to enter upon graduation. In reality, alongside other reasons for attending university, such as to become more independent, passion for a subject, and personal growth, one of the key motivations for gaining a degree is to equip oneself with the skills, knowledge, and aptitude to pursue a successful career. However, this is not an easy task – the jobs of today, and how we do these jobs, have changed, and will continue to do so as we develop and adopt new technologies and systems. Just over the last decade for instance, the job market has been changing at a dramatic pace, with many roles being automated or changing in line with technological developments (ONS, 2019). In addition, new jobs are being continuously created. We have already seen noteworthy changes in job roles over recent years with emerging occupations, which not long ago were unheard of, now becoming well-established, for example, cloud computing specialist, social media manager and driverless car engineer (Hallett & Hutt (WEF), 2016). The pandemic has brought further extraordinary changes to the job market, with some sectors, such as hospitality and the arts, cutting jobs dramatically, while others, such as tech specialists and healthcare sectors continuing to recruit (e.g. Prospects, Goodley & Ambrose, 2020). Across all sectors, what it has signified is the need for an adaptable and digitally-literate workforce.

These new and changing jobs, require a new and evolving skills set, with which graduates need to be equipped. In particular a need for human skills such as creativity, originality, initiative, critical thinking, persuasion and negotiation, have all been emphasised (World Economic Forum (WEF), 2018). These human aptitudes go beyond what technology or AI is able to offer. However, recent results from employer surveys has shown that employers are not entirely satisfied they are able to find suitable employees. The Open University's sample of over 950 business leaders found two-thirds (68%) of UK employers have struggled to find workers with the skills they need in the past year (Open University, 2019).

Findings from the Skills and Employment Survey 2017, a survey of a nationally representative sample of workers, observed that since 2012 demand for jobs requiring higher education qualifications has plateaued (Henseke et al., 2018). A qualification in itself seems to be becoming less significant and not an automatic pathway into a job. Graduates also need to prove that they have the skills and capabilities to deal with the realities of the workplace. The Institute of Student Employers survey (2018) compares the skills and knowledge that employers look for in graduates with what new employees actually possess, and found that, for example, only 12% of graduates were good at dealing with conflict and 17% could negotiate effectively. Further studies have found that transferable skills and personal behaviours are becoming increasingly important when recruiting, beyond qualifications. Further research cites proficiencies such as interpersonal and communication skills, team working skills, emotional intelligence and resilience to be of high importance (e.g. Clarke, 2008; Bennett, 2002; CBI, 2017). Furthermore, the pandemic has accelerated the digital transformation of both education and the workplace, and so the need for good digital skills for young people is even more pressing, both for their success in education and in their careers.

When we do not know what the future holds, and what new jobs may appear in the coming decades, it is difficult to know what to teach students as content can become outdated and some technical skills redundant. Experts have agreed that whatever the future does hold it will demand creativity (Swain, 2019). Indeed, a study conducted by LinkedIn (2019) surveyed over 5,000 employers from across 25 countries and concluded that creativity is the most in-demand skill in short supply. It is not just arts subjects that can develop creativity skills but subjects across the spectrum can establish powerful learning opportunities for students to develop creativity as well as sets of other important skills and behaviours that can help prepare them for whatever the future may hold. We will explore some of these approaches in the case studies that follow.

Innovative practice for the 21st century

In this chapter we have outlined just some of the issues facing the HE sector. For many young people, university is a big step - personally, socially, and academically - and it is crucial that their new environment offers a stable, smooth transition from school or college to higher education. It is also essential that the university experience suits the needs of its learners and prepares them appropriately for their careers. This involves not just loading students with knowledge but also equipping them with the appropriate capacity for self- learning and life-long skills and personal capabilities which will support their transition to the workplace and beyond. The university experience should inspire and engage students in providing supportive environments and relationships within which they can flourish. Many university courses continue to deliver as they have done for many years, despite the changing environment of our world today. We need to ensure that graduates are ready to face the challenges of tomorrow, whatever they may be. The following chapter lays out five case studies which showcase some exciting and innovative approaches to higher education, which attempt to do just that.

KEY FEATURES OF THE UK HE LANDSCAPE IN 2021:

- The undergraduate participation of 18-year olds is continuing to rise and is now above 50% of the population.
- Unconditional offers from universities are associated with poorer performance in assessments, unfair admissions, and sub-optimal course choices.
- However, there are expectations of moving towards a post-qualification university admissions (PQA) system in the coming years.
- Young people are still not getting adequate access to up to date and impartial information, advice, and guidance for post-18 options, including apprenticeship and training opportunities.
- Students' perceptions of whether they are getting value for money from the HE experience is not recovering anywhere close to pre-2012 levels.
- Students expect a supportive university environment, support in getting into high-paying jobs, and increasingly, strong institutional values/ ethics.
- Incidences of mental illnesses amongst students is rising and problems have been exacerbated further by the pandemic.
- There has been a rapid move to online delivery, with many universities using blended approaches going forward.
- Jobs, and the way we do jobs, is rapidly changing. Students must be prepared with the skills and attitudes to thrive in a complex labour market to tackle interdisciplinary issues - interpersonal and communication skills and creativity are highly sought after by employers.

1 Cardiff National Software Academy

The National Software Academy (NSA) was established in 2015 by Cardiff University in partnership with the Welsh Government and industry experts, aiming to **respond to the unmet demand for skilled software engineers in the region of South Wales**. The NSA is part of Cardiff University but is based in Newport, South Wales, a town 14 miles from the main university campus. South Wales is an area of high deprivation, with issues such as above-average levels of unemployment and skills shortages.

In 2015, the NSA recruited their first cohort of undergraduate students on their Bachelor of Science (BSc) in Applied Software Engineering. Within the NSA there is a great emphasis on working in close collaboration with businesses so as to '***not only … strengthen [students'] professional skills, making [them] ready for work, but it will also increase [their] employability through consistent engagement with practising professionals***' (Cardiff University, 2019). From the outset, the NSA's undergraduate course was developed with input from industry experts to ensure that the content is both current and relevant. At the NSA, all students engage with employers in a variety of ways to develop their employability and technical skills, for example by working in teams on client-facing projects in each semester throughout their course, taking part in relevant work placements, and through more informal encounters such as 'lunch and learns' and networking sessions with employers.

Delivery methods

The methods of teaching employed at the NSA are unlike traditional university courses, which are generally lecture based and theory heavy. Instead, **teaching at the NSA is structured into 2.5-hour sessions and involves much more student participation**. Sometimes this takes a flipped classroom approach, whereby students must have watched or read theoretical content before the class and arrive armed with this knowledge. The sessions are based on a **cycle of introducing theory and integrating this with practical elements**, for example through individual or team tasks. This cycle allows students to continually consolidate what they have learnt through grounding the learning in real-world examples. Taking an approach that cycles between theory and practice is credited for developing problem-solving skills in students which will be useful for employment. Some employers noted that during placements students had applied new knowledge quickly to find solutions to work tasks.

Curriculum design and content

Employers' input into the design of the curriculum has been present and emphasised from the outset. The curriculum content was not simply 'checked' by employers to ensure that it was relevant to industry needs, but **the designing of the curriculum was a partnership process between the NSA and multiple employers**. Software engineering is a rapidly developing field and the NSA is conscious of keeping their **curriculum up-to-date and relevant**. Through regular conversations between teaching staff and employers, and students' internship experiences, timely knowledge and processes of the sector are included in the curriculum. The NSA takes steps to ensure that the mutually beneficial partnerships between industry and the NSA are maintained. For example, in Edge's research (Emms & Laczik, 2020) one employer highlighted this strength of the NSA approach saying:

> **They don't just talk about steering groups and getting industry involved. Lots of universities will want industry participation in their programmes… [The NSA] create steering groups but they maintain those steering groups.**

Taking an approach that cycles between theory and practice is credited for developing problem-solving skills in students which will be useful for employment.

Furthermore, the NSA **explicitly teaches 'employability skills' and competencies** - these are transferable, self-management-type skills, attitudes and behaviours relevant across different jobs and sectors (not just as software engineers). The NSA teaches these alongside the technical software engineering skills. Employers have noted that the extent to which NSA students and graduates have developed employability skills is above and beyond what they would expect from a new graduate. In particular, the course **supports students' development of communication skills, ability to deal with a range of people, confidence, resilience, problem solving abilities, and the ability to self-reflect**. At the NSA the development of these skills has been successful through the direct referencing of particular skills that will be developed within each module and then ensuring they are taught explicitly and made reference to throughout the teaching and learning. This includes bringing in experts to deliver sessions on, for example, a one-day workshop on 'how to deliver a presentation'. These skills are then developed further by the students given ample opportunities to put them into practice, for example in practical exercises in class and through the client-facing projects, again reflecting the NSA's model of cycling between introducing theory and linking it to continual practice.

Client-facing projects

Throughout the three years of the course at the NSA, during each semester students must carry out a 4-6-week client-facing 'real-world' project in small student teams (i.e. twice a year). This means that **by the end of the degree a student will have taken part in around six large real-world projects**. The 'clients' of these projects are a range of external organisations, often an employer, across a range of industries, and including private and public organisations, and charities. These projects are defined by the client and of current relevance or priority to them. The projects are not only important to the organisation but are also scrutinised by the teaching staff to ensure that the project is fully in line with the course learning objectives and relevant to the students at that stage of their programme.

Throughout the three years of the course at the NSA, during each semester students must carry out a 4-6-week client-facing 'real-world' project in small student teams.

For example, previous projects have included one set by Transport for Wales, who tasked the student team with developing an app to support people to make up-to-date and informed decisions about public transport bus routes throughout Wales. Another client was a local bar that challenged students to develop a mobile app to use for customers ordering drinks. These **projects are grounded in real-world issues and require students to consider the wider context beyond their project brief**. For some clients, the projects have been such a success that they have taken them forward in their organisations.

The projects operate through distinct stages which ensure the clients have continuous engagement beyond outlining the task. Students begin by meeting with clients and gathering requirements and all other information to ensure they fully understand the task. They then have regular meetings throughout the projects to receive ongoing feedback and to make sure they are on track. These meetings happen either face-to-face or through other lines of communication, such as by phone or email. Various benefits are associated with the use of projects in curriculum delivery and skills development. For example, **students develop strong and effective communication skills and build their confidence by being exposed to terminology used by businesses and acquiring the ability and confidence to ask questions in order to more fully understand the client's requirements**. Students gain the ability to communicate and present their products to both technical and non-technical stakeholders. Students also benefit from working in a team and developing their problem-solving skills.

The NSA learning environment

The NSA brings the realities of the industry into the teaching and learning space in a way that ensures **students become familiar with and feel safe in a work-like environment** which prepares them for employment. Simulation of an open office, starting the day with briefings and having business-like lunch events are examples through which students develop an understanding of the workplace. Having a modern work-like environment while studying for a degree encourages more **professional, respectful relationships and communication between the staff and students, resembling that of one between colleagues**.

Feedback so far from employers who have engaged with NSA students, either through the projects or placements, or have taken them on as graduates, has been overwhelmingly positive. Particularly, NSA graduates have been credited with being extremely well prepared when entering the workplace and '*hit the ground running*' contributing to the business immediately. The NSA seems to be effectively teaching the skills and knowledge students need to develop into work-ready software engineers and supporting their transition into suitable job roles, where so far they have proved to be successful members of the workplace.

Adapting in a post-Covid world

For the NSA, as for other education establishments, the switch to remote working had mixed consequences. The fact that students were already working together in teams at the NSA, and using online collaboration software, meant that the project-based learning aspects of the delivery were able to transition smoothly when going into lockdown. This was particularly the case for Year 3 students who were better prepared and used to working in this more self-directed way. It meant relatively few changes were needed to the way the students were assessed, and the fundamental elements of the projects were able to stay the same, such as working with peers and employers.

During the 2020/21 academic year, the NSA will be delivering a minimum of one hour a week face-to-face, yet socially distanced, learning. The need for a high level of virtual content though means even **more emphasis on a flipped-classroom approach, thus ensuring that the face-to-face time can be used as meaningfully as possible**. For instance, sessions where students are given the opportunity to highlight areas which they are struggling with should ensure that they can receive targeted and useful support from the staff face-to-face, further ensuring that staff and student relationships are nurtured.

The NSA brings the realities of the industry into the teaching and learning space in a way that ensures students become familiar with and feel safe in a work-like environment which prepares them for employment.

KEY FEATURES

- **Client-facing projects designed by employers** – based on real client issues, students work in a team and develop their communication skills and how to manage relationships with clients.
- **Curriculum content is authentic to the sector** – content is developed and up-dated with employers to reflect industry needs.
- **Delivery cycles between theory and practice** – students are exposed to theoretical learning of both technical knowledge and skills and then given ample opportunity to practice in order to develop the skills and knowledge sufficiently.

For further details on the model of the National Software Academy, see: *A contemporary approach to employable graduates: Cardiff National Software Academy (Emms & Laczik, 2020)*

THE DYSON INSTITUTE

2

The Dyson Institute of Engineering and Technology

Since launching in 2017, The Dyson Institute of Engineering and Technology now offers one of the most competitive engineering degree programmes in the UK. Its four-year undergraduate qualification in BEng (Hons) Engineering is a **degree apprenticeship** programme, meaning students are employees of Dyson, **earn a full-time wage throughout the course and pay no fees for studying**.

The Dyson Institute's current students are enrolled at the University of Warwick, and University of Warwick lecturers travel to The Dyson Institute to deliver the academic curriculum. Students combine this with paid work rotations at Dyson Ltd.'s engineering campus in Malmesbury. In October 2020, The Dyson Institute became the first HE provider in the UK to be awarded New Degree Awarding Powers. This means that from September 2021 The Dyson Institute will be both delivering and awarding its own degrees.

Founded by Sir James Dyson after a conversation with former Universities Minister Jo Johnson MP, The Dyson Institute **aims to cultivate well-rounded individuals, as well as technically brilliant engineers.** Sir James states that:

[The Dyson Institute] is not a traditional university education, it is not for the faint hearted. Technology is developing at such speed that rigorous academic study benefits from immediate application. Dyson Undergraduate Engineers work in a global team, with the best labs, working alongside the most ingenious practising engineers and scientists, solving big problems. We have a culture where they are free to experiment and learn through failure.

The theoretical underpinning of engineering

The degree apprentices are full-time Dyson employees, but they also spend 40% of their time studying under the guidance of academic staff. This accounts for two days per week of study during term time. The academic team deliver lectures and support students' study through seminars and workshops. With small year groups of around 40, students get to know The Dyson Institute team well.

In the first two years of the programme, **students study a number of general engineering modules designed to give them a strong foundation in multiple engineering disciplines**. In years three and four, students are given the opportunity to personalise their education and pursue their preferred engineering specialism. This gives students **the opportunity to tailor their degree to their career aspirations**, which have helped to be realised through learning on-the-job.

Academic delivery takes place at The Dyson Institute, which is situated on the Dyson Technology Campus in Malmesbury – helping to ensure that that the undergraduates' academic and work experience feel complementary. The Dyson Institute has laboratory spaces, dedicated lecture rooms and breakout spaces for group work, as well as dedicated office space for Dyson Institute staff.

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Learning on-the-job

To complement their academic studies and to ensure students are work-ready upon graduation, **students rotate through four-month placements across Dyson's various engineering departments, applying engineering concepts in real-world contexts**. For example, an undergraduate engineer who was tasked with modelling the effect of air purifiers in a box of smoke, produced a simulation that was then used in the opening of Dyson's San Francisco store. As an undergraduate engineer explains:

> **The Dyson Institute degree definitely differs from a traditional degree course thanks to the wealth of practical experience obtained. This experience is not just from labs but mainly from time working on real problems the company is currently facing, alongside other engineers. Being able to put what we learn in lectures into practice towards active projects days after learning it is something no other degree can offer.**

The three-day-a-week rotation, balanced by two days of academia, both exposes students to a breadth of engineering challenges and helps them develop their work-based skills, such as perseverance and public speaking. The students begin as general engineers and their workplace rotations support this breadth, giving students insight into the multi-disciplinary field of engineering. For example, in their first year, students will do three workplace rotations across mechanical engineering, electrical and electronic engineering, and software engineering. In the second year, they gain further insight into the different areas of the business, completing rotations in New Product Innovation (NPI), research with a mechanical focus, and research with an electronics and software focus.

The three-day-a-week rotation, balanced by two days of academia, both exposes students to a breadth of engineering challenges and helps them develop their work-based skills.

Alongside the skills development offered by workplace learning, students are provided with a programme designed to develop professional development competencies across the four-year programme.

The workplace rotations also provide the students with real insight into the working environment that captures the ebb and flow of new and emerging ideas that they can be a part of and contribute to. As another undergraduate engineer explains '*being in an environment where ideas flow freely, where enthusiasm for engineering peaks and boundaries are pushed, is incomparable to anything any other university can offer.*'

The Director of Undergraduate Programmes at the Warwick Manufacturing Group, highlights the value of both theory and practice:

> **Work-based learning is a great tool for ensuring that students can apply what they learn in the workplace… However, in many subjects, including engineering and technology, there is a need to provide students with the underpinning concepts and these, and the more advanced skills, are still better introduced using more traditional pedagogical techniques.**

Alongside the skills development offered by workplace learning, students are provided with **a programme designed to develop professional development competencies** across the four-year programme.

The supportive Dyson community

Alongside the academic and professional core, The Dyson Institute ensures that it provides students with **a solid social and community wrap around to support students through their four-year journey**. On-site accommodation, particularly for first year students, ensures the community spirit is nurtured from the outset. The campus provides many facilities for both students and employees, including sports facilities, cafes, nature trails, laboratories, and office spaces, so students truly gain both the student and employee experiences.

The Dyson Institute ensures sufficient one-to-one support is realised through **dedicated student support advisors, line managers in the workplace, and a buddy system with students from the year above** who become 'Dyson parents' to new students. In line with its core values of student health and mental wellbeing, the Institute also offers offsite Wellbeing and Development Days four times a year.

The Dyson Institute regards its **students as partners in shaping and developing the student experience**. The aim is to ensure the student voice feeds into all aspects of the Dyson Institute, from operational matters, projects and developments, to strategic decision-making. One way this is achieved is through the Undergraduate Experience Committee (UEC). This formal student representative body forms part of the governance structure of the Institute. The UEC ensures that there is a student voice across the breadth of the student experience, with dedicated, elected student representatives for every key area of The Dyson Institute's provision – from academic and workplace to wellbeing, social and professional development.

Early successes of the Institute

While still in the early stages of implementation, The Dyson Institute has reported early successes, noting high student satisfaction and a strong support network among students and staff. Further, the **admissions process is designed to increase the proportion of females studying engineering**. The Institute already exceeds the national proportion of women studying engineering - 33% of its undergraduates are female, compared to the average 18% on UK engineering undergraduate courses. The offering of travel and start-up bursaries, lack of fees, and no physics requirement (replaced with a physics summer programme, if needed) have made the programme more accessible. It aims to further increase the proportion of females, as well as educationally- and economically-disadvantaged students, for future cohorts.

Under the regulatory framework brought about by the Higher Education and Research Act of 2017, The Dyson Institute has secured New Degree Awarding Powers which will come into force in 2021. This will make them a self-sufficient institution training around 200 undergraduate engineers at any given time. A small student population will enable it to maintain flexibility, high student-staff interaction, and high-quality experience in the work-rotation. Now recruiting its first Dyson Institute-registered undergraduate engineers, it continues to break new ground in the world of higher education.

> **After three years of successful partnership with Warwick Manufacturing Group, University of Warwick, I'm delighted that The Dyson Institute will now be delivering all aspects of its provision independently. This means that we'll be able to offer those joining us from 2021 a more integrated, supported experience than ever before – one that is underpinned by our total commitment to continuous improvement.**
> (**Matt Wilson**, Director, The Dyson Institute of Engineering and Technology)

KEY FEATURES

- **Work-based rotations for all students** – real world engineering challenges from a range of engineering disciplines and developing work-based skills to give experience of work approaches.
- **Valuing student health and well-being** – wellbeing and development days, ensuring breaks in the schedule, allocated 'peer parent' when joining.
- **Widening access and greater female inclusivity – no fees, a salary from year 1, no physics A level requirement.**

For more information on The Dyson Institute, see:
https://www.dysoninstitute.com/

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3

Minerva Schools at Keck Graduate Institute (KGI)

With its first graduating class of 104 undergraduates in 2019, Minerva Schools at Keck Graduate Institute (KGI) in the US, has reinvented higher education to meet the needs of twenty-first century students worldwide.

Its **unique liberal arts degree programme** replaces lectures with active learning seminars, classrooms with an online learning environment, and a campus with a global rotation scheme. During their four-year degree, **students develop their world views by becoming a short-term resident in seven global cities** - Berlin, Buenos Aires, Seoul, Hyderabad, London, Taipei, and San Francisco. Students move and live together into residential halls located within each of the cities, spending around six months in each place. Students' **academic study takes place through an online platform**.

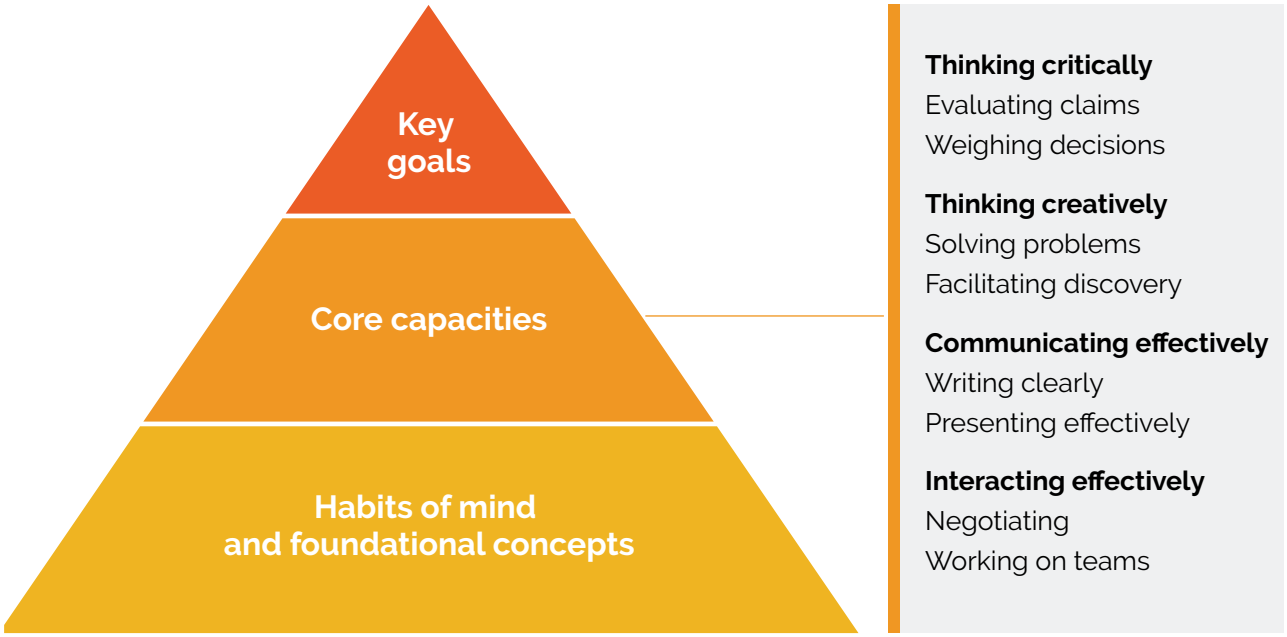
Students all begin their first year with a general education and development of key skills and competencies, before specialising in later years. Students then choose to major in one of five diverse fields, which also allow for mastery in a preferred area of specialisation. These majors are in line with Minerva's five accredited colleges– Computational Sciences, Natural Sciences, Arts and Humanities, Social Sciences, and Business. Alongside

academic staff from these colleges, Minerva has teams, such as the Professional Development Agency, to prepare students for the workforce post-graduation. '*We've had a very unique opportunity to think through what general education should and could look like,*' says the Associate Dean of Academic Programs, '*I really strongly believe in what we are doing*.'

Developing a common core of skills and competencies

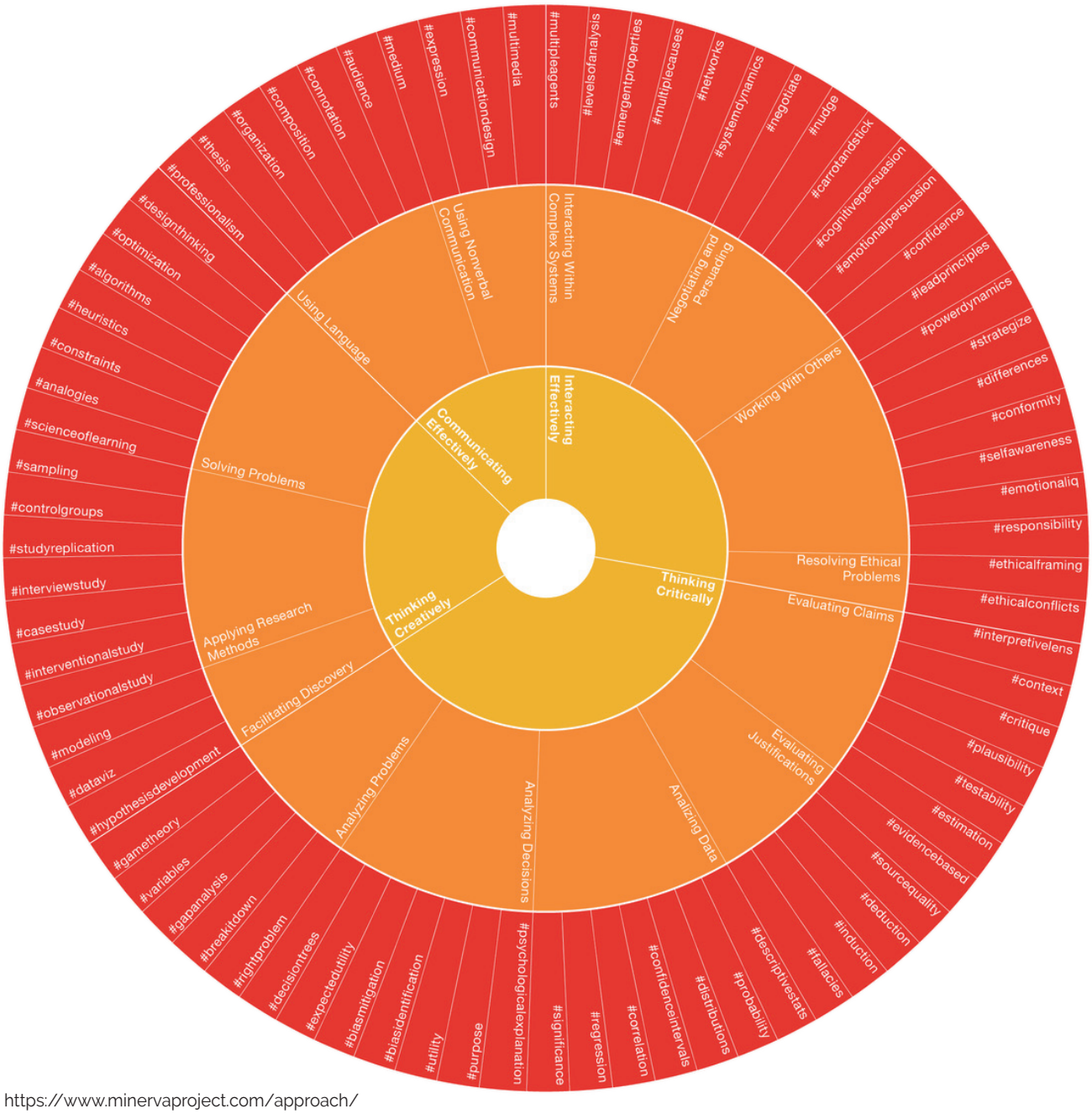
The Minerva curriculum is designed to help students become leaders, innovators, broad and adaptive thinkers, and global citizens. To do this, in their first year, students take **four cornerstone modules to develop core competencies in critical thinking, creative thinking, effective communication and effective interaction**. This provides a core foundation for all students before they start to specialise in a single or double major. To help students with this personal and professional growth, Minerva explicitly teaches students the **'Habits of Mind' (cognitive skills that come to be triggered automatically, with practice, for example understanding audience interests) and 'Foundational Concepts' (fundamental knowledge that is broadly applicable, e.g. alternative representations of problems)**. Each one of the Habits of Mind and Foundational Concepts (HCs) corresponds with one of the four cornerstone competencies and are intended to help students succeed in the fourth industrial revolution (see Figure 5). Figure 4 shows the structure of this teaching system, with the realisation of the key goals being supported by the development of the HCs and the core capacities. The four key goals are to help students become: leaders, innovators, broad thinkers, and global citizens.

Figure 4: Minerva's Structure of Learning



A student graduating in 2021, says that **the breadth of HCs taught in the first year and reinforced throughout his degree will '*help me to be more flexible with career-path changes*'**. Minerva continues to refine its toolkit of HCs in line with the changing environment.

Figure 5: Habits of Mind and Foundational Concepts



https://www.minervaproject.com/approach/

The early academic team substantiated its four cornerstone competencies into sub-groups, for example 'communicating effectively' constitutes two sub-groups, 'using language' and 'using nonverbal communication', which they then used to identify in-class learning outcomes. According to the Associate Dean of Academic of Programs, this step has set Minerva apart from other institutions because it allowed the curriculum to endure even though the individual HCs have been updated. As he reflects:

> **The future of work depends on people developing universal skills – communication and team-work ability and so on – and the ability to do high level, very creative problem solving, those are the two things that come up again and again and then also deal with complexity.**

Multidisciplinary knowledge, yet common learning outcomes

Unlike in the UK, where undergraduates traditionally focus on one or two subjects, every Minerva **student will graduate with proficiencies across multiple disciplines, including complex systems analysis, statistics, and scientific research methods**. Alongside subject-specific learning outcomes, Minerva has developed a set of 'Integrated Learning Outcomes' (ILOs) that serve as a common language across all specialisms. After years of each department working separately, a cross-departmental working group formed among Minerva staff and faculty to identify shared goals across the programmes' various facets. The five ILOs they developed are: self-management and wellness, interpersonal engagement, intercultural competency, professional development, and civic responsibility. These, they hope, will better support students to exploit the myriad academic and extracurricular opportunities available to them throughout the global rotation. Minerva asks students to assess themselves with regards to these five ILOs and use the results, along with other metrics, to evaluate the success of the programme as a whole.

An online, yet culturally immersed, course

Minerva has no campus base as such, instead each year group of students lives and learns together, rotating around seven world cities, integrating themselves into the local community wherever they are. There are **no lectures at Minerva**, teaching and learning take place principally through **active online seminars**, which are capped at 19 students. Professors can speak no longer than four minutes at a time, and for no more than 15% of the allotted class time. Each seminar comes with a reading list and a series of pre-work tasks which students are expected to complete before attending the seminar (described as **radically flipped learning**).

Every Minerva student will graduate with proficiencies across multiple disciplines, including complex systems analysis, statistics, and scientific research methods.

The seminars are underpinned by a **bespoke online videoconferencing system 'ForumTM'**. It is designed to promote **active learning** with the main area of the screen, known as the 'stage', changing as the seminar goes on to ensure interest is maintained. The sessions incorporate a variety of tools to ensure they remain truly participatory. These include **polling** – asking participants their views on a driving question; **breakout groups** – participants move into smaller groups to work collaboratively on a document, with the professor moving between and interacting with each group; **debates** either individually or in teams; and **intellectual relays** where students take it in turns to develop an argument. All seminars are recorded, and professors then go back to **flag and mark specific points** made by students against the core competencies. Through this fully virtual process, students are developing the digital skills, including the virtual communication skills, which have now accelerated their way into the world of work.

Personalised professional development

In addition to the Habits of Mind and Foundational Concepts (HCs) that are woven into the curriculum, **students benefit from career-building experiences and personalised coaching** from the Coaching and Talent Development team. Each professional development coach is responsible for one year group. During the semester, each coach organises information sessions and workshops, such as 'Cultural Intelligence in the Workplace', to help transition students into the world of work. Given the increasingly global nature of the workplace, a session such as this could include planning how to relate to people from a different culture prior to the initial meeting, or the agility to change how to act when a cross-cultural encounter seems to require it.

Professional development is tailored to student needs at every stage of the four-year journey. First year students are exposed to a variety of fields through a series of one-off experiences, from meetings with civic leaders to collaborations with impactful organisations, and, similarly to second- and third-year students, may partake in projects with 'civic partners', such as a Berlin-based charity or the Buenos Aires City Government.

During the semester, each coach organises information sessions and workshops, such as 'Cultural Intelligence in the Workplace', to help transition students into the world of work.

These civic projects help them gain work experience while applying their learning for real-world effect. Finally, professional development in the fourth year includes students grouping themselves with partners based on their interest in both the partner and the fields of interest.

Civic projects range in scope and can sometimes be meaningful for both Minerva students and the resident cities. In Hyderabad, India, several students co-organised an International Storytelling Festival (ISF) with the local Tale Tellers Troupe. The founder of the Troupe reflected on the students' role, noting their adaptability, rigour, creative thinking, and methodical goal-oriented approach:

> **The impact of this project is huge. Many of the younger audience members who attended the festival have now actively taken up storytelling... the government of Telangana will fund the next edition of ISF.**

In Seoul, South Korea, Minerva partnered with Hanyang University where a student, who graduated in 2019, worked in the immunology laboratory, pioneering a type of data analysis to help progress research on secondary lung cancer. She remembers:

> **I had the chance to further understand what it is like to work within a team of people coming from different backgrounds. It is helpful to see how various parties might have distinct interests, and to learn how to mitigate such subtleties was an important lesson for me.**

Throughout the degree, the **professional development coaches offer group and individual mentorship** and attend student community events, such as 'Elevation' – an orientation to each rotation city at the start of each semester, Friendsgiving, and community partner meetings. Undergraduates, therefore, **get to know their coach personally, which helps calibrate student interests with their professional development goals**. One of the Founding Class students reflects:

> **I've had dozens of one-on-one sessions with the Director of Global Coaching and Talent Development and, as such, he sometimes knows my strengths and capabilities better than I do myself.**

In addition to curated external professional development experiences, some students take up paid opportunities to work internally for Minerva, which can be particularly helpful for low-income students. Students benefit from Minerva's extensive network, and are also sometimes placed at prestigious companies, such as 500 Startups, and international software market leader SAP. In May 2019, the first cohort of students graduated with a striking portfolio of global work experiences, from global corporations, research institutions and NGOs, including Apple, Amnesty International and Fujitsu; setting graduates apart and setting them up for the future.

> **When students understand the opportunity that they have to find their own path through their academic studies and experiential learning in the cities, through civic partners, it's like a lightbulb goes off and suddenly all these opportunities open for them.** (Associate Dean of Academic Programs)

> **Most other universities have a career centre, not a professional development team – you can go in there and get advice on your resume, but you'll be one of hundreds and even thousands of students that a handful of staff deal with. Our approach in Minerva is much more personal.**
> (Director of Professional Development Partnerships)

Taking biases out of admissions

Minerva's approach to admission is **designed to empower applicants to demonstrate who they are, how they think, and what they have achieved - both academically and personally** - rather than relying on standardised test scores. Although the process is rigorous and to a high standard, it is not competitive; Minerva admits all applicants who meet their standards – anyone who demonstrates the curiosity, drive, and potential to excel, are guaranteed admission. They have a distinct advantage of unlimited enrolment since, as they are not limited by classroom or campus space, they can flexibly expand its global locations as needed to meet demand.

The blind application process has three distinct parts, beginning with a written application with an overview of academic history and examples of accomplishments. Secondly, applicants are invited to complete a unique series of thought-provoking challenges, which cannot be prepared for in advance. The timed, online-proctored format sets out engaging challenges designed to measure how applicants think. Finally, Minerva considers the academic and non-academic achievements of the applicants.

The holistic process is designed to allow deep insight into applicants' capabilities, passions, and interests, helping to determine whether an individual will thrive at Minerva. Also, Minerva's fees are significantly lower than standard US fees since they do not have a physical campus to maintain. They also offer need-based scholarships and opportunities for paid work at the university to support, in particular, students from lower socioeconomic backgrounds.

A 2019 graduate reflects on how her decision to apply changed her life:

> **Within an hour of receiving my acceptance letter from Minerva Schools at KGI, I enrolled to join its pilot cohort of students from 13 territories worldwide, all wanting to rethink higher education. For me, Minerva had it all: a curriculum that equipped students to think critically, a global travel rotation that introduced students to cultures different to their own, and a liberal arts degree structure that encouraged multidisciplinary learning. This blend made for a uniquely challenging experience that I feel enriched by and fortunate to have undergone. Because of Minerva, I approach problem-solving with analytic precision and daring creativity. Because of Minerva, I have lived in six countries, worked on meaningful projects in Argentina and India, and learned how to live with resilient independence. Because of Minerva, I double majored in Biogeochemistry and Creative Writing, even though I had dropped science after GCSEs and thought I would not return to it.**
>
> **Today, I work as a researcher and collaborator with Dr. Jo Handelsman, former science advisor to President Obama, on her upcoming book about global soil loss and the importance of conserving this precious resource. Minerva has prepared me to engage with international environmental issues with a sensitivity for how they affect people at the local level, disproportionately impacting indigenous communities, smallholder farmers, and rural women worldwide.**

Adapting in a post-Covid world

While universities across the world had to make swift changes to their delivery methods and grapple with online learning when the pandemic hit in early 2020, Minerva staff and students did not experience any interruption to their academic programme, it being intentionally virtual. Minerva did not shut down any of its residential

locations, and although encouraging its students to return to their homes because of Covid, some students did choose to stay in their global rotation cities. From autumn 2020, students were even able to study in San Francisco, Berlin, London or remotely.

Some of the students' community engagement projects were still able to be sustained, although some activities had to be adapted in cases where physically engaging was not possible. For example, in spring, final year students in Taiwan had written to the Taiwanese president, Tsai Ing-wen requesting a visit. As this could not take place physically, Tsai joined their class virtually via Forum. The students adjusted the event quickly and smoothly to an online modality, where they facilitated a discussion with the Taiwanese president on timely issues, such as her government's response to the pandemic, as well as openly discussing some shared challenges.

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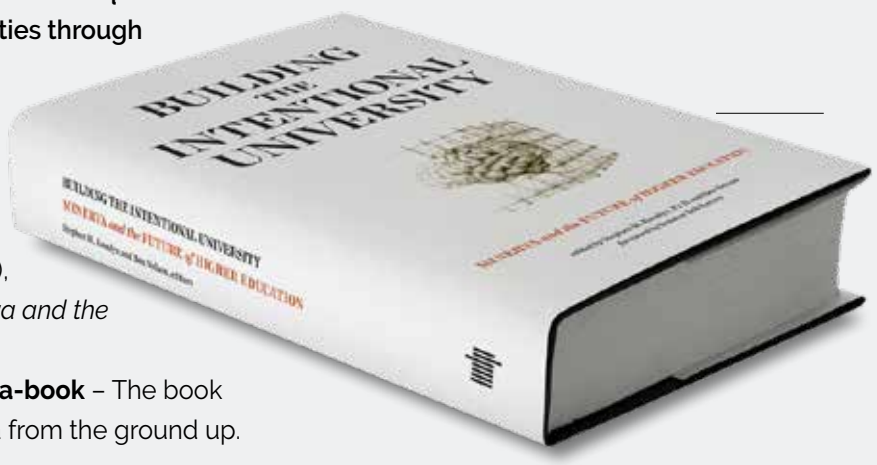
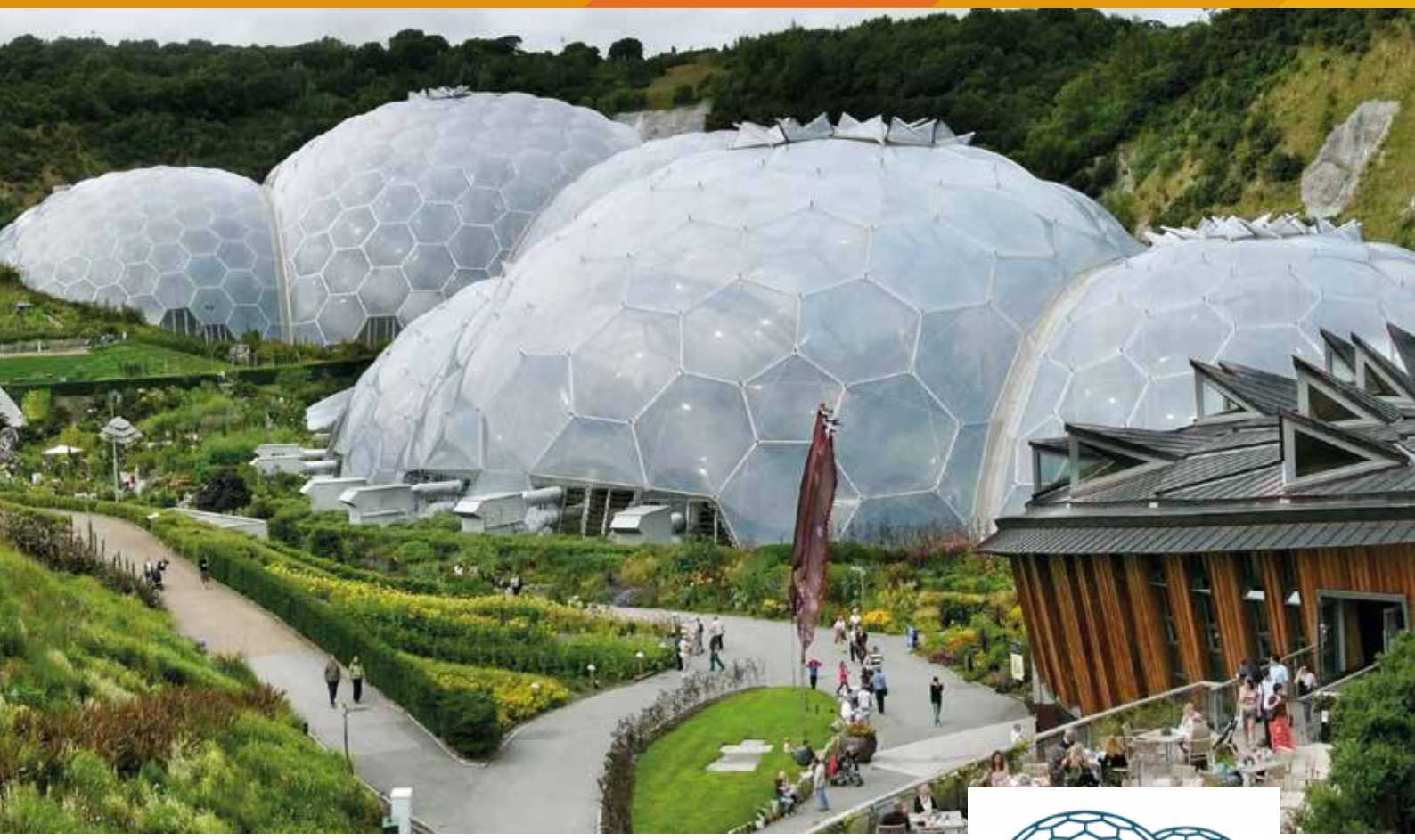
KEY FEATURES

- **Broad curriculum base** and taught core competencies before specialising after the first year.
- **No lectures** – online active seminars and unique community-collaboration opportunities through global rotations.
- Personal-professional development coaches and **professional development programme** of real-world experiences.



For more information about Minerva Schools at KGI see: **https://www.minerva.kgi.edu/** and Kosslyn, S.M. and Nelson, B. (Eds.) (2017), *Building the Intentional University: Minerva and the Future of Higher Education*, MIT Press – **https://www.minerva.kgi.edu/minerva-book** – The book examines what it took to create Minerva from the ground up.



4 Eden Project Learning

Eden Project Learning (EPL) is an inspirational educational branch of the acclaimed social enterprise and visitor attraction - Eden Project, based in Cornwall in England.

Since EPL's establishment of their first undergraduate degrees in 2015, the education branch has built a strong portfolio of courses, which are offered which are offered through partnerships with The Cornwall College Group (TCCG), the University of Plymouth and Falmouth University. Their undergraduate offering includes BSc horticultural degrees – both plant sciences and landscape design, BAs in sustainable tourism management and sustainable festival management, along with foundation degrees in these areas. EPL also runs master's degrees, level 4 and 5 higher nationals, a range of apprenticeship opportunities, and a wider education programme offering outreach and curriculum development for schools. Through their varied delivery EPL is supporting the next generations to build the skills and know-how needed to develop a sustainable future for us all. While EPL has a wide educational offer, this case study specifically explores the undergraduate degree offering.

Cultivating the physical and social environment

The degrees EPL offers are **based at the world-famous site of the Eden Project in Cornwall**. Here students have an opportunity to roam the outdoor gardens, relax to birdsong in the Mediterranean Biome, or explore the

tropical biome whenever they need some respite or inspiration throughout the day. Beyond this, studying at Eden offers unique learning encounters. For example, for horticulture students, it provides the opportunity to work with a unique range of plant collections and growing environments, as well as on-site support from experts working in the field, such as specialist horticulturists. For those studying sustainable tourism management, Eden provides the opportunity to take part in on-site event planning and develop a professional network to assess the impact of tourism in the major tourist region of Cornwall.

The **dedicated learning spaces at EPL include nurseries, laboratories, and design studios, which offer inspirational, multi-sensory areas for students to work comfortably and flexibly**. These learning spaces and experiences, alongside a real-world working environment, provide students with inspiration and passion for their future careers. For example, an HND Garden & Landscape Design 2017 graduate stated:

> **I set up my own company offering garden design and horticultural therapy services, we are currently working on community and private projects. Alongside this we are also establishing our own organic plant nursery which will supply our designs and host horticultural therapy sessions.**

The **environment cultivates a supportive community to live and study together**. EPL endeavours to develop high quality relationships from week 1 of the students' journey, following their ethos that *'happiness leads to better grades'*. This is established through a **strong and active online social networking community, participation in team projects, and focussing on mental health by providing 'Time to Talk' opportunities in the Learning Centre**. The online social networks have been particularly fervent during the Covid-19 lockdown and helped continue the supportive community amongst staff and students. Students are also able to take part in numerous social ventures, such as the horticulture students helping the gardening team at Eden to plant 500 ferns. Another team of students have developed nature-based outdoor facilities at a local school.

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The **emphasis to live and work as a community means that students interact with a dynamic and creative peer group who bring their experiences from a wide range of cultures and working backgrounds**. Likewise, the teachers bring their diverse experiences to the courses, coming from a range of academic, industrial and entrepreneurship backgrounds. As well as the 'Eden family', students are encouraged to foster their support networks by the offering of on-site accommodation where family and friends can visit whilst they are studying.

Live, real-world projects

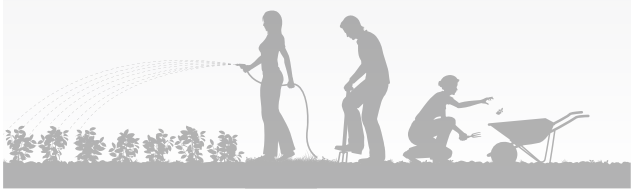
All the degrees at EPL are underpinned by 'live' real-world projects with clients including, not just the Eden Project itself, but the Lost Gardens of Heligan, the highly esteemed Kew Gardens, along with a range of national and international organisations. Beyond these, **students have multiple opportunities to interact with the working world. This includes inspirational talks from visiting professionals, destination visits and micro-placements, both locally and globally**. These opportunities increase learners' awareness of the realities of the workplace and industry and **supports the development of a strong network of contacts across the sector, where graduates will be ready to transition more quickly and seamlessly into their careers**. Working on these stimulating real-world projects also supports the development of skills students will apply in employment such as problem solving and communication skills. For example, students have worked collaboratively on a series of live projects at local schools, where they have created designs for the outdoor areas and supported the implementation of these agreed proposals, working alongside pupils and teachers. This **gives students the opportunity to test ideas with real places, real people with real design problems**.

Key student characteristics and experiences

EPL aims not only to provide students with expert knowledge through teaching and crucial employability skills, but also develops key characteristics of their students. These characteristics (see Figure 6), such as empathy and resilience, will support learners not only in their careers but in many aspects of their lives. In addition to the characteristics, EPL also defines key experiences that all students will partake in no matter what course they are following, for instance, taking part in a placement. These guarantees mean that all students will benefit from the full Eden experience, that should better prepare them for their future careers and lives after graduation.

Figure 6: Eden Project Learning's key characteristics and key experiences of a student

KEY CHARACTERISTICS	KEY EXPERIENCES
HAPPY	WORK IN THE EDEN GARDEN
RESILIENT	EXCITING WORK PLACEMENTS
CARING	AN INTERNATIONAL PLACEMENT OFFER
POSSESS EXPERT KNOWLEDGE	ALL COURSES ARE APPLIED;
EMBRACE CHANGE	REAL WORLD PROJECTS
EMPATHETIC	PLACE-BASED LEARNING/MEANING
MAKE A DIFFERENCE	



The holistic education received at Eden displays the ability to deliver research-informed degrees, which develop the whole person, and provides graduates with the skills, characteristics, and knowledge they will need to tackle the challenges of the 21st Century. At the same time students are provided with a happy and supportive community in which to learn and develop themselves in a rich physical and social environment, fulfilling EPL's mission '*to care about the people and planet*'.

As a 2018 graduate from the BSc Horticulture (Plant Science) course explains, the unique learning experience at Eden provided her with support needed to pursue her career in permaculture:

> The site at Eden is rich in plant species and experts too. It was a great place to learn with such a diverse setting. There were many contacts and experts linked to the course tutors and Eden, and their input really enhanced the learning experience.... I have now started working for a charity, The Elmhurst Foundation at Combe Grove, as the deputy manager of the estate team and Combe Grove permaculture. The project is still in its infancy and hopes to develop an organic market garden, wildlife and medicinal gardens, and agroforestry systems, whilst enhancing the biodiversity of the existing 30-acres of woodlands. The estate provides apprenticeships in horticulture, agriculture, and woodland conservation. Currently there are two horticulture apprentices which I have been working with and passing on some of my skills.

EPL provides the opportunity to work with a unique range of plant collections and growing environments, as well as on-site support from experts working in the field, such as specialist horticulturists.
Photo: ©Hufton+Crow

KEY FEATURES

- **Establishing a community** and strong relationships amongst and between staff and students.
- Providing **real-world experiences** through 'live' projects.
- **Inspirational learning environments.**

For more information about Eden Project Learning see: **https://www.edenproject.com/learn/degrees**

5

University of Salford

The University of Salford is a medium-sized university close to the centre of the city of Manchester. It offers a mix of undergraduate and postgraduate courses, with just over 20,000 students in 2018/19.

Although a well-established university, in 2017/18 Salford developed its new strategy, and has brought a fresh twenty-first century approach to the institution by reimagining its industrial heritage and building on its reputation as an industry-facing university. The new strategy has led to redesigning its collaboration with industry and course design and defining what it meant to be both a Salford graduate and a Salford academic.

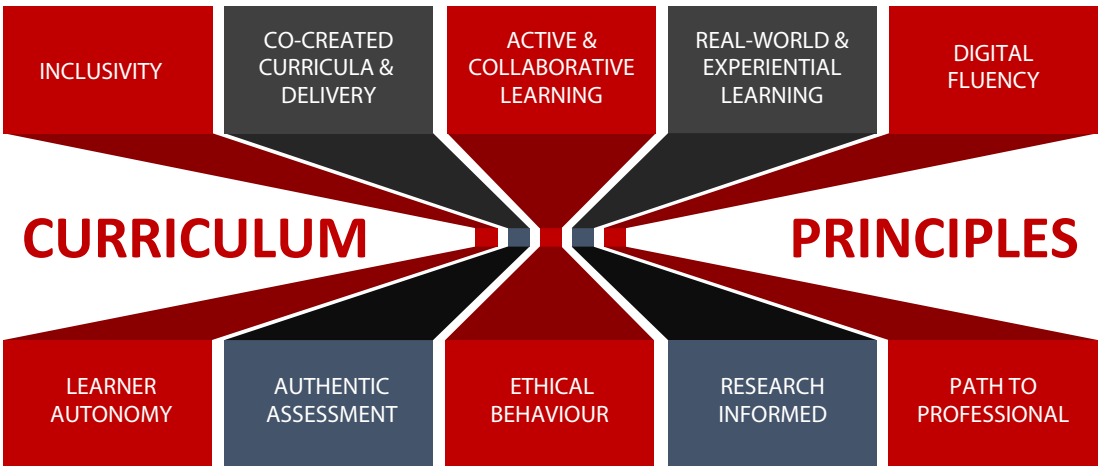
Industry Collaboration

Rather than traditional narrow subject-specific approaches to learning, **the university considered what the problems of the world are today and developed pan-disciplinary clusters** of industry collaboration. Through its Industry Collaboration strategy, the university ensures that teaching and learning, research and enterprise, and industry-engagement, are all **demand-led, problem-centric and outward-facing**. The development of Industry Collaboration is a fundamental reengineering of the university, requiring a holistic approach rather than becoming a 'bolt-on' to existing courses and processes. This is no easy feat and therefore continues to be a working process – part of a ten-year journey for the university.

Curriculum re-design

Having designed its Industry Collaboration strategy in line with sector priorities, the next challenge for Salford was to **re-orientate the provision of the different traditional disciplines to ensure they fit suitably with the cross-disciplinary nature of Industry Collaboration**. Within some traditionally quite theoretical courses, such as English Literature, ensuring students receive the necessary interdisciplinary and industry experience could have been assumed to be somewhat challenging. However, to support the re-orientation, the university designed what are known as the ten Curriculum Design Principles (CDPs), which are the hallmarks of a Salford programme (see Figure 7). All existing courses were benchmarked against the CDPs to examine what needed to change so that they met the necessary requirements. This was done by taking each taught programme through a number of workshops to ensure the CDPs are embedded into the practice. For instance, a workshop would articulate how the ten Industry Collaboration principles are embedded into a programme, and then agree actions across the team to enhance the Industry Collaboration-readiness of the programme.

Figure 7: Curriculum Design Principles



As well as this initial scanning process for all existing courses, the process is also embedded for any new course approval. **Any new and existing programme must demonstrate its Industry Collaboration-readiness to stay on the books, which ensures all student learning continually stays relevant.**

Crucially the course re-design is not a top-down procedure enacted by management, but a participatory staff development exercise. **The CDPs all have the student journey at their core**. For instance, one CDP is the 'explicit path to professional'; no matter what the student's course is - whether it be nursing, music, maths - this CDP questions *how do students position themselves as emerging professionals within the broader discipline area?* This will be different for each student, nevertheless the same principle stands for everyone, and the course must support all students to be mindful of their journey into a professional career.

Putting Industry Collaboration into practice

Through Industry Collaboration, **students are enabled to work closely with staff and industry partners on numerous work-based learning opportunities** throughout their course. These **facilitate experimentation of the learning**, and can be a place where knowledge and expertise can be nurtured, tested, and practiced. For instance, the University of Salford and Premiership Rugby Union Club, Sale Sharks, have a longstanding

and extensive relationship that now crosses academic schools and disciplines. Initially the relationship was developed with the School of Health & Society through internships, placements, and funded masters in sports performance. Each year, students on placements with the club have had the chance to be involved in the development and monitoring of the athletes. The Head of Performance at Sale Sharks believes:

> **The placements provide the students with an experience that they cannot gain from the classroom or academic books. They see what works in elite sport and how to conduct themselves. Our interns get involved in all aspects of the training programme including gym assistance, testing days, match day and less glamorous tasks such as urine testing!**

This industry relationship has now expanded, breaking down those traditional course silos; students from the School of Arts, Media & Creative Technology have been actively involved in broadcasting projects with the club, including the filming and broadcasting of the Rugby Union team's pre-season warm up matches. Students have also conducted player interviews and produced a series of graphics to accompany the broadcasts. Sale Sharks Media & Communications Manager Sam Diamond, highlighted the students' value to the club:

> **To be able to broadcast our pre-season games in such a professional and organised manner was fantastic…. this was our first real attempt at showcasing a live event on this scale and we are really pleased with the results. Our social media engagements have gone through the roof since the broadcast. This is due to the digital environment created by the guys from the University of Salford which allowed our fans to converse and comment on the action as they would at a live game.**

These **projects are based in real-world contexts and have real users**. This means that **students treat the projects similarly to a job and act with professionalism and integrity**. Additionally, students develop a whole host of valuable skills, both technical (for example media equipment techniques) as well as transferable skills that students will utilise in a range of careers, such as working as a team and being customer focused.

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Preparation for a portfolio career – The Salford Graduate

In the twenty-first century graduates are more likely to enter into a 'portfolio career' - that is one that incorporates many different jobs and sectors, often simultaneously, or sometimes back-to-back. It may involve many different roles and grouping of different skill sets. The changing nature of professional identities means that students are not necessarily sure what these professions will resemble throughout their long careers. Likewise, neither their lecturers, nor even the employers themselves, know exactly what future careers will look like. What Salford aims to do through their approach is to prepare students so they can apply themselves successfully in this new and unpredictable landscape, through a skills and interdisciplinary-knowledge angle. **University of Salford highlights that the graduate attributes that are most likely to thrive in this type of career are more skills, competency, and capability- based attributes**. The university has defined what it means to be a 'Salford Graduate' – this has moved a graduate away from having a heavily knowledge-based, narrow disciplinary way of thinking, to one where knowledge is the gateway to enacting a wide range of these 'core skills'.

The success of this approach can be seen from Salford's recent graduates who are able to utilise their experiences from their courses to showcase themselves to prospective employers. One recent example is a Salford graduate who studied a master's degree in Children's Digital Media Production, and who is now a Journalist and Assistant Producer on the CBBC children's show Newsround. She credits her experience at the university with landing her a job at the BBC:

> **The tutors were excellent and are really knowledgeable industry experts. I learnt a lot of practical skills on the course and it is where I first dipped my toes into the scary world of networking. Through that I was able to get contacts in the industry, set up work experience placements, and got a spot on The Network, an entry-level scheme held during the Edinburgh TV Festival. The Network is how I got my first runner job and I doubt I would have got a place on the scheme if it wasn't for the skills and experience I gained during my time at Salford.**

A Salford graduate is now a Journalist and Assistant Producer on the CBBC children's show Newsround. She credits her experience at the university with landing her a job at the BBC.

Staff development – The Salford Academic

Alongside the defining of a 'Salford Graduate', several indicators have been developed relating to staff development. The process of enacting the CPDs highlighted weaker areas of staff knowledge and skills, and as a result the university work across a number of areas in order to upskill their staff. This has led to identifying the 'Salford Academic', which is designed to **empower staff to be fit for the future in line with the university's overall strategy**. This is co-designed with colleagues and looks to change the way staff work in three key areas: **development, performance, and workload**.

Firstly, to encourage changes in staff behaviour and development, the reward, recognition, and promotions framework was overhauled. Now, an **outcomes-based academic career framework helps staff recognise and reflect on areas of weakness and where they can make individual improvements**. The framework has different progression strands in traditional research routes (e.g. from researcher to professor), but also strands in enterprise, industry-engagement, citizenry and leadership, and in teaching and learning. It empowers academics to choose the career path that is right for them by delivering parity of esteem across the various academic endeavours.

To complement this the university has moved away from the traditional performance review, which can become an annual tick-box exercise, to professional career conversations that take place throughout the year. This enables staff to seek the help they need and identify if in-year indicators are helping them stay on track. Importantly this also has **a strong team-based element to development which complements their interdisciplinary approach**, for instance, providing opportunities to share practice and fostering a team workshop format to encourage creativity and intrapreneurial disruption.

Finally, **workload allocation tools** are aligned to the goals and activities identified through the performance and career conversations, for example the allocation of a set minimum number of days for professional development activities.

An outcomes-based academic career framework helps staff recognise and reflect on areas of weakness and where they can make individual improvements.

Importantly, University of Salford ensure they develop their staff to enable them to deliver in an active and collaborative way with their industrial partners. The Creative Director at MediaCityUK Directorate at the University of Salford has seen the programme rolled out in her directorate:

> **Salford Academic has really empowered people and given them a sense of purpose. There is now a real strength in the focus of our team but also people are more aware of what the University as a whole is doing - its purpose, goals, ambitions as well as the challenges.**
>
> **There's been a real significant change about how people can see their careers progressing. The emphasis on teaching and learning has become much more emphatic, which is very empowering for a lot of staff. I really see people taking ownership of projects and issues and debates that they want to run with, so it's really unlocked doors for a lot of people.**

As with the development of Industry Collaboration and student journey we can see that staff development is again a holistic cultural change rather than an add-on exercise of traditional professional development courses. Salford's re-imagining of the university structure and purpose, through defining hallmarks of a twenty-first century course, graduate, and staff member, has supported their collaboration with industry and helped them prepare their graduates for their future careers.

KEY FEATURES

- **A holistic approach to redeveloping the university** – fundamental reengineering of courses, student journey and staff development.
- **Cross-disciplinary** approach reflecting the reality of **global issues**.
- **Continuous review of courses** to ensure they stay relevant, especially in line with industry needs, with input from employers.
- Defining the **Salford Graduate** and **Salford Academic** to give prestige to these roles.

For further information see the University of Salford: **https://www.salford.ac.uk/**

Conclusion

Participation in higher education (HE) has been significantly growing over time and now we talk about mass HE (Trow, 1973) since over 50% of young people go to university. HE provision is diverse, with some reflecting the demands of the economy as well as the broadening areas of knowledge and developments of the modern world, and the heterogeneous student population.

The HE sector is under considerable pressure to respond to these demands. Consequently, the HE landscape is becoming increasingly complex. New universities are being established, new institutes within existing universities are being set up and new provision developed to meet the needs of employers in a changing labour market.

Universities are significant drivers of economic and societal change, and now there is a growing emphasis on universities to contribute to the labour market success of graduates. Beyond this, the diversity of HE provision is prevalent in, for example, the curriculum development and delivery, flexible modes and places of learning, and external stakeholders' engagement with the HE institution. This diversity reflects the aspirations, demands and interests of the student body.

The selected case studies represent, in our view, exciting examples of non-traditional HE provision. Some of the key characteristics include a clear link between theory and practice, external stakeholders meaningfully engaging with teaching staff and students at various levels, emphasis on the development of student employability and where the 'university campus' is understood in the broadest sense. All these offer varied student experiences.

The **varied nature of HE providers** is well demonstrated by the case studies - the NSA being part of a Russel Group university, the Dyson Institute of Engineering and Technology offering degree apprenticeships with awarding power from 2021 and Eden Project Learning offering courses through partnerships with The Cornwall College Group and the University of Plymouth. While in most cases in this report there is a physical **campus** or place where students study, Minerva represents a unique example where a physical campus does not exist. Course delivery happens online and as part of the course students integrate themselves into local communities, gain experiences and become short-term residents in seven global cities during their studies. Indeed, in 2020 all universities have had to re-imagine their campus to enable them to adapt to digital delivery.

Each of the case studies approach **curriculum** development differently but all emphasise the importance of input by **industry and external experts**. NSA developed its curriculum while engaging with employers from the outset. Dyson Institute has developed the academic curriculum in-house drawing from the expertise of Dyson Ltd. Salford redesigned its curriculum reflecting the cross-disciplinary nature of industry collaboration and focused staff development programmes to guarantee the successful implementation and delivery.

Work-based learning and **client-facing projects** are often integral to the curriculum. Both practices support, for example, the link between theory and practice, offer insights into industry, highlight the importance of the real-life relevance of studying, and through these activities, student attributes are developed that are necessary for employment. The development of **transferable skills** has been considered as vital for both securing employment after graduation and successfully moving between jobs later in life. NSA specifically offers skills development to its students and Salford prepares its students for a twenty-first century portfolio career.

In summary, each case study example points to HE provision that considers the future success of their graduates in their careers and in their lives more broadly. However, they all approach this differently. They work innovatively to develop graduates whose experiences fit with twenty-first century work-place requirements. Our examples demonstrate creativity and diversity in fulfilling these requirements. We have identified common elements but different approaches which may be considered by other HE providers while reflecting on their own contexts.

Summary


KEY FEATURES
ENVIRONMENT
Active online learning
Inspirational learning environment
Emulating to work environments
TRANSFERABLE SKILLS
Client-facing projects
Defining and continuous referencing of skills within the learning
Opportunities to practice
CURRICULUM
Broad, cross-disciplinary, and real-world issues
Continuous review to keep relevant
Input from employers
RELATIONSHIPS
Staff/student community
Value student health & wellbeing
Personal professional development coaches

CARDIFF UNIVERSITY NATIONAL SOFTWARE ACADEMY

- **Client-facing projects designed by employers** – based on real client issues, students work in a team and develop their communication skills and how to manage relationships with clients
- **Curriculum content is authentic to the sector** – content is developed and up-dated with employers to reflect industry needs
- **Delivery cycles between theory and practice** - students are exposed to theoretical learning of both technical knowledge and skills and then given ample opportunity to practice in order to develop the skills and knowledge sufficiently.

THE DYSON INSTITUTE

- **Work-based rotations** for all students – real world engineering challenges from a range of engineering disciplines, and developing work-based skills to give experience of work approaches.
- **Valuing student health and well-being** – wellbeing and development days, ensuring breaks in the schedule, allocated 'peer parent' when joining.
- **Widening access** and greater female inclusivity – no fees, a salary from year 1, no physics A level requirement.

MINERVA SCHOOL AT KGI

- **Broad curriculum** base and taught core competencies before specialising after the first year
- **No lectures** – online active seminars and unique community-collaboration opportunities through global rotations
- Personal-professional development coaches and **professional development programme** of real-world experiences

EDEN PROJECT LEARNING

- **Establishing a community** and strong relationships amongst and between staff and students
- Providing **real-world experiences** through 'live' projects
- **Inspirational learning environments**

UNIVERSITY OF SALFORD

- **A holistic approach to redeveloping the university** – fundamental reengineering of courses, student journey and staff development
- **Cross-disciplinary** approach reflecting the reality of **global issues**
- Continuous review of courses to ensure they stay relevant, especially in line with industry needs, with input from employers
- Defining the **Salford Graduate** and **Salford Academic** to give prestige to these roles.

References

AAT (2019) *School leavers feel 'pushed' down university route.* https://www.aat.org.uk/aat-news/school-leavers-feel-pushed-down-university-route

Bennett, R. (2002). 'Employers' Demands for Personal Transferable Skills in Graduates: A Content Analysis of 1000 Job Advertisements and an Associated Empirical Study', *Journal of Vocational Education & Training,* 54(4), 457–476.

Cardiff University (2019). National Software Academy: Study [online]. Cardiff University. https://www.cardiff.ac.uk/software-academy/study

CBI/Pearson (2017). *Education and Skills Survey 2017: Helping the UK Thrive*. CBI. https://www.cbi.org.uk/media/1341/helping-the-uk-to-thrive-tess-2017.pdf

Centre for Social Justice (2020) The third degree: Re-examining fair access to higher education. https://www.centreforsocialjustice.org.uk/core/wp-content/uploads/2020/02/CSJJ7688-Access-to-University-WEB-3.pdf

Clarke, M. (2008). 'Understanding and Managing Employability in Changing Career Contexts', *Journal of European Industrial Training,* 32(4), 258–284

Department for Education, UK (2019). *Participation rates in higher education 2006 to 2018*. https://www.gov.uk/government/statistics/participation-rates-in-higher-education-2006-to-2018

Department for Education, UK (2020a). Higher Education Initial Participation (HEIP) measure. https://explore-education-statistics.service.gov.uk/find-statistics/participation-measures-in-higher-education/2018-19#releaseHeadlines-summary

Department for Education, UK (2020b). Government plans for post-qualification university admissions *(press release)*. Published 13 November 2020.

Education Policy Institute (EPI) (2018) *Prevalence of mental health issues within the student-aged population*. https://epi.org.uk/publications-and-research/prevalence-of-mental-health-issues-within-the-student-aged-population/

Emms, K. & Laczik, A. (2020). *A contemporary approach to employable graduates: Cardiff National Software Academy*. October 2020. London: The Edge Foundation

Goodley, S. & Ambrose, J. (2020). The companies still hiring in the UK during coronavirus crisis. *The Guardian* [31 July 2020]. https://www.theguardian.com/world/2020/jul/31/how-covid-19-has-reshaped-the-jobs-landscape-in-the-uk

Hallett, R. & Hutt, R. (2016) *10 Jobs that Didn't Exist 10 Years Ago.* https://www.weforum.org/agenda/2016/06/10-jobs-that-didn-t-exist-10-years-ago/

Harris-Huemmert, S. (2020). Higher Education systems: A few comparative international thoughts. Die Ganze Hochschule Soll Es Sein. Wolff-Dietrich Webler Zum 80. Geburtstag. Festschrift.

Henseke, G., Felstead, A., Gallie, D. and Green, F. (2018) *Skills Trends at Work in Britain – First Findings from the Skills and Employment Survey 2017*, London: Centre for Learning and Life Chances in Knowledge Economies and Societies, UCL Institute of Education

HEPI (2020). Student Academic Experience Survey 2020. HEPI/Advance HE. https://www.hepi.ac.uk/wp-content/uploads/2020/06/The-Student-Academic-Experience-Survey-2020.pdf

Higher Education Statistics Agency (HESA) (2020) *Higher Education Student Statistics: UK, 2018/19.* https://www.hesa.ac.uk/news/16-01-2020/sb255-higher-education-student-statistics

Husbands, C. (2020). University changed my family's life. So why do ministers want fewer people to go? [2 July 2020]. https://www.theguardian.com/education/2020/jul/02/university-changed-my-familys-life-so-why-do-ministers-want-fewer-people-to-go

Institute of Student Employers & Hype Collective (2018) The work issue: What students want in a graduate job. https://hypecollective.co.uk/files/HypeCollective_TheWorkIssue.pdf

Kosslyn, S.M. and Nelson, B. (Eds.) (2017). *Building the Intentional University: Minerva and the Future of Higher Education*, MIT Press

LinkedIn (2019) *2019 Global Talent Trends Report*. https://business.linkedin.com/talent-solutions/blog/trends-and-research/2019/global-recruiting-trends-2019

Office for Students (2018) *Insight 1: Unconditional offers – Serving the interests of students?* https://www.officeforstudents.org.uk/media/7aa7b69b-f340-4e72-ac0f-a3486d4dc09a/insight-1-unconditionaloffers.pdf

Office for Students (2019). English higher education 2019: The Office for Students annual review. https://www.officeforstudents.org.uk/annual-review-2019/a-new-approach-to-fair-access-participation-and-success/

Office for National Statistics (ONS) (2019) *Which occupations are at highest risk of automation?* https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/whichoccupationsareathighestriskofbeingautomated/2019-03-25

Open University (2019). The Open University Business Barometer. http://www.open.ac.uk/business/Business-Barometer-2019

Prospects (2020). UK graduate labour market update: 30 September. https://luminate.prospects.ac.uk/uk-graduate-labour-market-update-30-september

QS (2017). International Student Survey 2017. https://www.internationalstudentsurvey.com/international-student-survey-2017/

Swain, H. (2019). 'Universities stamp out creativity': are graduates ready for work?' https://www.theguardian.com/education/2019/feb/14/universities-stamp-out-creativity-are-graduates-ready-for-work

Thorley, C. (2017). Not by degrees: Improving student mental health in the UK's Universities, IPPR. http://www.ippr.org/research/publications/not-by-degrees

Trow, M. (1973). *Problems in the Transition from Elite to Mass Higher Education*, Carnegie Commission on Higher Education, Berkeley, 1973, pp. 40-41.

UCL (2020). Predicted grades: accuracy and impact. A report for University and College Union. https://www.ucu.org.uk/media/8409/Predicted-grades-accuracy-and-impact-Dec-16/pdf/Predicted_grades_report_Dec2016.pdf

Unite Students (2016). *Unite Students Insight Report 2016*. https://www.unitestudents.com/about-us/insightreport/2016-full-report

Winchester University (2020). The Value of a Degree: What do Gen Z expect from their university? https://www.winchester.ac.uk/media/content-assets/documents/The-value-of-a-degree-report-2020.pdf

World Economic Forum (2018). *The Future of Jobs Report*. http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf

YoungMinds (2020). Coronavirus: impact of young people with mental health needs (March 2020). https://youngminds.org.uk/media/3708/coronavirusreport_march2020.pdf

About Edge

The world is changing fast and education needs to keep up. Edge is an independent, politically impartial education foundation. We want education to be relevant to the twenty-first century. We gather evidence through research and real world projects and partnerships and use this to lead the debate and influence policy and practice.

Edge believes all young people need to be equipped with the skills that today's global, digital economy demands, through a broad and balanced curriculum, high quality training, engaging real world learning and rich relationships between education and employers.

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