Education for Sustainable Development (ESD) at King's 2022

Good practice, gaps, and opportunities

Executive summary

In line with King's Vision to make the world a better place, it is the university's responsibility to equip students with the skills and knowledge needed to build a sustainable future and become the changemakers of today and tomorrow. The framework of Education for Sustainable Development (ESD) provides a unique opportunity to deliver on this by empowering learners with the knowledge, skills, values and attitudes to transform society (UNESCO).

Since the last comprehensive ESD review in 2014, the university has made significant process through sustainability initiatives, service-led learning, and civic engagement projects. This progress can be celebrated, but the continuing student demand shows that we must raise our ambition further. 90% of students believe it is important for education on climate change and sustainability to be embedded into the curriculum, 72% said they have not been taught about it either in the formal or informal curriculum (King's 100, 2021).

The review was conducted based on a student-led curriculum mapping exercise and has identified many great examples of ESD learning and a broad array of SDGs being taught in every single faculty and across the informal curriculum. However, this review has also exposed some opportunities including embedding ESD

teaching within core curriculums across all faculties, developing compulsory modules embracing ESD, embedding ESD throughout all years and modules of courses, and reviewing staff resource to deliver on the many opportunities in the informal curriculum.

The identified opportunities show the need for a systematic approach to ESD and for an overarching strategy which implements ESD across the university within faculties and departments. Such an approach would include all stakeholders from senior management and professional services staff to educators and students to jointly develop a vision for ESD which spans all elements of the university (UNESCO). Due to its interdisciplinary nature, sustainability can be fed into any discipline and incorporated into existing structures and teaching relatively easily and without too much additional work for educators.

This will ensure all students get the opportunity to learn about sustainability as part of their formal education, and that they have plenty of well-developed opportunities to engage further as extracurricular activities as seen in the wider sector.

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1. Introduction

Challenges including climate change, biodiversity loss, air pollution, and inequality are having wide-ranging impacts on communities worldwide. There is a need for change, and education plays a critical role in driving this change. Education holds the power to develop and support the next generation of societies' leaders, problem solvers, and activists. This is being recognised by governments and organisations across the world including the UK through the Department for Education's Sustainability and Climate Change Strategy and QAA and Advance HE's Education for Sustainable Development Guidance.

Education for Sustainable Development (ESD) aims to bring about the necessary personal and societal transformation by "empowering learners of all ages with the knowledge, skills, values and attitudes to address the interconnected global challenges we are facing, including climate change, environmental degradation, loss of biodiversity, poverty and inequality" (UNESCO). Universities are key players in driving ESD due to our core work in education and our ability to bring people from different disciplines together to develop solutions to today's most complex global challenges.

For King's, this represents an opportunity to be a part of the solution rather than the problem while answering our students' demands. Although 95% of King's students are concerned about climate change and 90% believe sustainability should be embedded into the curriculum, 72% said they have not been taught about it (King's 100 and consultation, 2021).

Since the last 2014 ESD review, the university has made significant process through curriculum initiatives such as the interdisciplinary Sustainability in Practice module based on a problem-solving and living lab approach; a mandatory Business Ethics & Sustainability module in the King's Business School and Sustainability in Quality Improvement Education for the healthcare faculties as well as informal curriculum opportunities like the co-created, open-access KEATS sustainability module. The university's efforts to make a positive environmental and social impact through our education, research and other initiatives has been recognised by the 2022 Times Higher Impact (THE) ranking which positioned us 5th in the UK, 5th in Europe and 24th in the world. Although this progress can and should be celebrated, the continuing student demand shows that we must raise our ambition further. In line with King's Vision to make the world a better place, it is the university's responsibility to equip students with the skills and knowledge

needed to build a sustainable future and become the changemakers of today and tomorrow.

This report summarises where King's currently sits on the ESD journey by highlighting areas of SDG and ESD teaching that currently happen in both the formal and informal curriculum. It highlights the demand for ESD, discusses the findings from the SDG curriculum mapping, includes case studies of best practice ESD across the university and in the wider HE sector, and concludes with an overview of the identified opportunities and recommendations.

2. What is Education for Sustainable Development (ESD)[1]?

"ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning and is an integral part of quality education. ESD is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society." - UNESCO, 2019

ESD looks at sustainable development through its interconnected economic, social and environmental pillars from both a local and global perspective. ESD is shaped by and aims to contribute to achieving the Sustainable Development Goals (SDGs), recognising their interdisciplinarity. These 17 goals were set by the United Nations for holistic and sustainable global development by 2030.

Going beyond learning content, ESD aims to shift the pedagogy to learner-centred, action-oriented and transformative approaches (UNESCO). It helps develop competencies which are key to advancing sustainable development, such as systems

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[1] Some organisations refer to ESD as sustainable education or use alternative terms such as Education for Sustainability. Sustainable education is different from ESD as it provides no clear framework and can therefore refer to simply learning about sustainability without close attention to pedagogy. Education for Sustainability (EfS) is a response to the development/degrowth critique, but EfS and ESD have similar definitions and aims. In this report, we will be using ESD due to its wide adoption and existing guidance.

thinking, anticipatory, normative, strategic, collaboration, critical thinking, self-awareness, and integrated problem-solving competencies. ESD demonstrates how these skills, attributes and values link to subject knowledge as well as knowledge of sustainability.

Although some connections are more obvious than others, all disciplines are linked to sustainability, whether it is Engineering looking at energy solutions, English looking at eco-linguistics, or Business looking at Corporate Social Responsibility. Due to the large variety in disciplines, there is no one-size-fits-all approach to embedding ESD. Therefore, ESD constitutes a tailored approach to finding the relevant connections in the learning content and attributes of each discipline that link to different aspects of sustainability.

Ultimately, *"ESD supports learners across all academic disciplines and subject areas to create and pursue visions of a better world. A world that recognises the interdependence of environmental integrity, social justice and economic prosperity, while acknowledging that environmental resources are finite and provide the foundation for our society and economy."* (QAA guidance)

3. Methodology

The ESD review was conducted based on a student-led curriculum mapping exercise carried out with Students Organising for Sustainability (SOS-UK). Over 60 students were trained on what SDGs and ESD are and mapped ~1,000 modules across all faculties using a framework developed by UNESCO and SOS-UK. This approach provides an example of students actively contributing to the embedding of ESD at King's by allowing them to identify what they thought ESD was. The audit covered the extent to which modules addressed the SDGs, wider aspects of sustainable learning, and ESD learning methodologies (Appendix 7.2). Although this audit by no means provides the full picture, it helps to shed light on the current state of integration of ESD across King's[2].

As part of the mapping process, the Sustainability Team also had various conversations with academics from departments across King's to better understand their work and discuss good practice examples.

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[2] This is a baseline which has covered a sample of modules, and should not be taken to be fully representative of the university as a whole as some faculties are likely to be over-represented.

This work builds on past consultations with the King's community including King's 100 in 2020 and 2021, and a survey conducted in 2021. The review also considered the audit conducted by the London Team about King's projects which involve external partners. Besides, it encompasses a basic horizon scanning and benchmarking exercise of the wider HE sector.

A similar ESD review conducted in 2014 found various initiatives in the formal and informal curriculum which touch upon ESD themes, but it identified a lack of a whole-institution approach to ESD. An institutional approach would enable all stakeholders (senior management, educators, learners and administration) to jointly ensure ESD is embedded in the core curriculum across disciplines, while empowering students as co-creators and increasing capacity-building for educators.

4. Findings

4.1 The demand

According to the 2020-21 Sustainability Skills Survey which was completed by over 8,000 UK students, "there is overwhelming agreement that sustainable development is something that UK universities and colleges should actively incorporate and promote". 84% agree that sustainability is something all courses should actively embed, 81% agree that universities and colleges should be obliged to develop students' social and environmental skills as part of the courses they offer, and 62% agree that course tutors should be required to incorporate sustainable development within their teaching. The most popular methods are learning through placements or work experience (85%), building material into existing course content (77%), and linking it to coursework and dissertations (74%).

When asked about careers, 75% said the chance to work in business or organisation that makes a difference to social and environmental issues would be an important factor to consider when applying for jobs, and 80% said they would accept a salary £1000 lower than average to work in a company with a good social and environmental record. This demonstrates the importance our students attach to sustainability. In turn, these companies will expect the graduates to have an understanding and skills in sustainability, which their education should prepare them for.

This demand is no different at King's. 95% of King's students are concerned about climate change (King's 100, 2021). Although 90% of them believe it is important for education on climate change and sustainability to be embedded into the curriculum (survey, 2021), 72% said they have not been taught about it either in the formal or informal curriculum (King's 100, 2021). Only 13% said they learned most about climate change and sustainability while at King's: of these, 8% learned about the topics as part of their degree, and 5% as part of extracurricular activities (King's 100, 2021).

In terms of how they would like to see sustainability embedded into education, the most supported method is building it into the existing content of degree programmes (88% in the survey 2021 and the highest ranking in King's 100 2021). However, the popularity of the range of methods shows the opportunity and need for a holistic approach to ESD – just delivering one of them will not suffice.
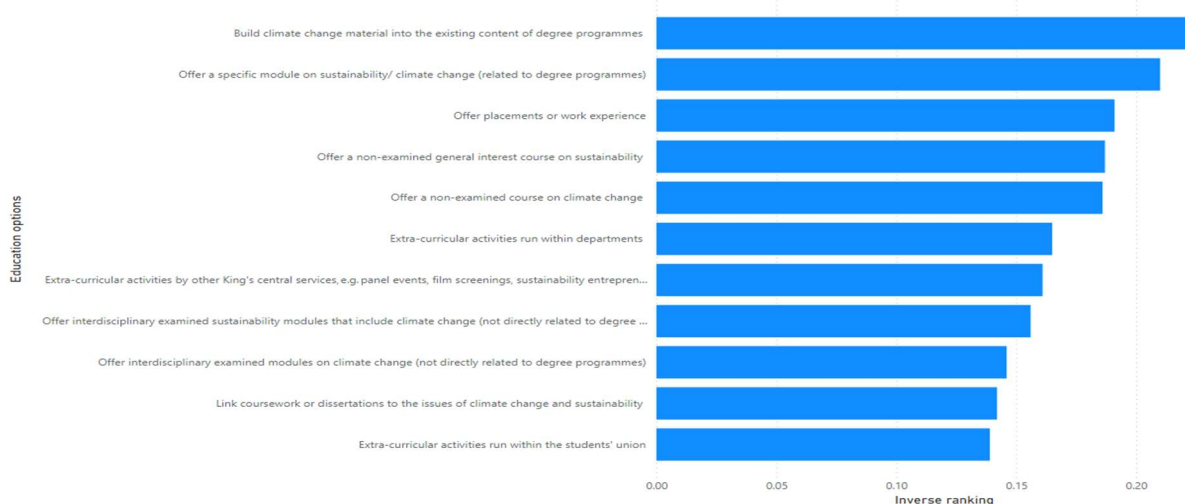

Figure 1: Popularity of the suggested sustainable education initiatives (King's 100, 2021)

4.2 Current ESD offering at King's

4.2.1   SDG teaching

King's offers degrees focused on the SDGs such as the Sustainable Cities MSc and the Environment, Politics, and Development MSc. In addition to that, King's has a range of SDG-related modules that students can pick from such as Literature & Ecology (English), Environmental Ethics (Philosophy), Corporate Social Responsibility (Business), International Development & Health (FoLSM), Environmental Law (Law), and Energy and Sustainability (Engineering). Throughout the formal and informal curriculum, King's offers a range of projects

that focus on solutions to real-world challenges through close collaboration with London's businesses, policymakers, education institutions, and local communities (as identified in an audit conducted by the London Team).

Despite these and many other great individual examples (some of which will be discussed below), ESD is not embedded consistently throughout the curriculum at King's and, therefore, many students may currently graduate from King's without any ESD teaching.
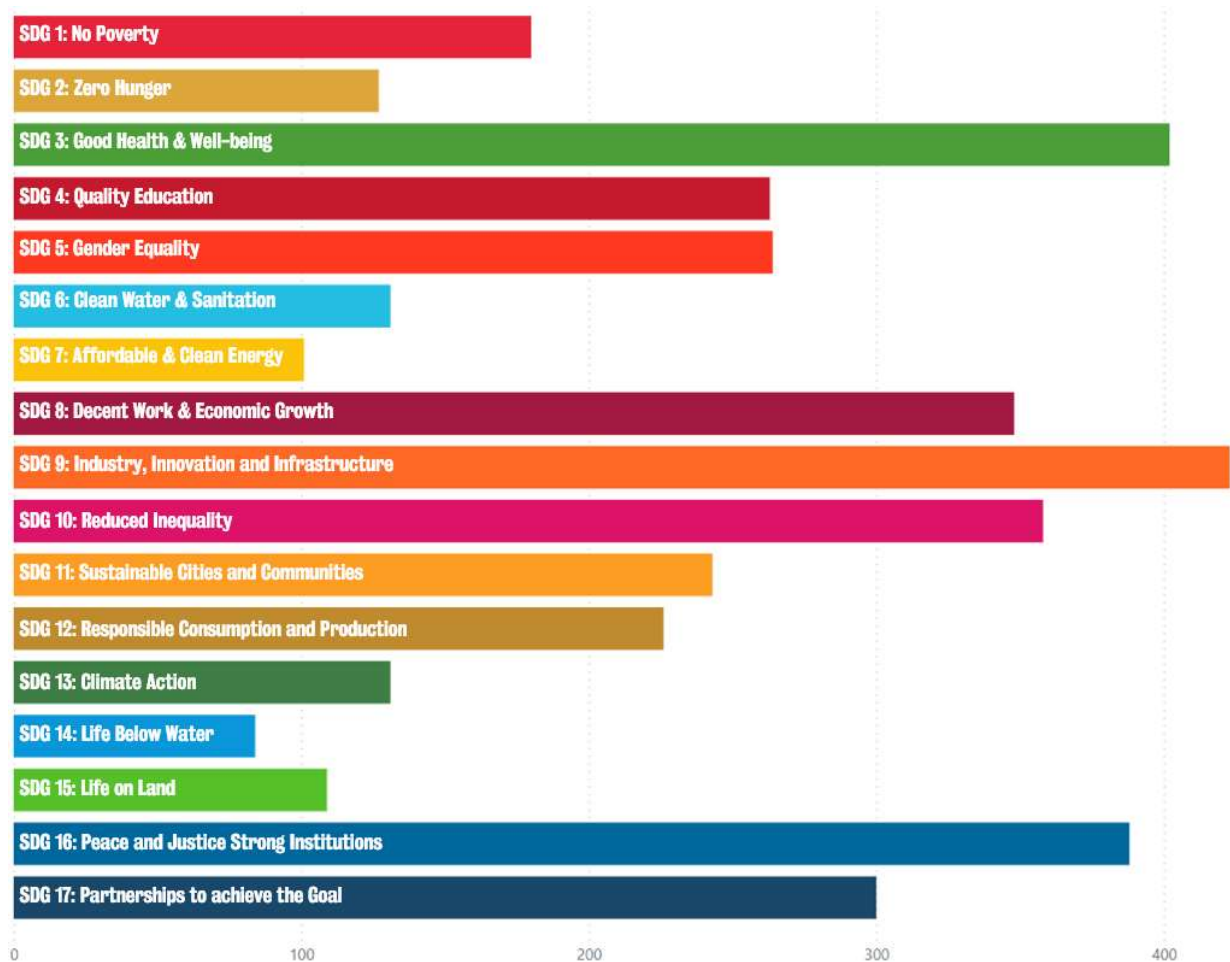

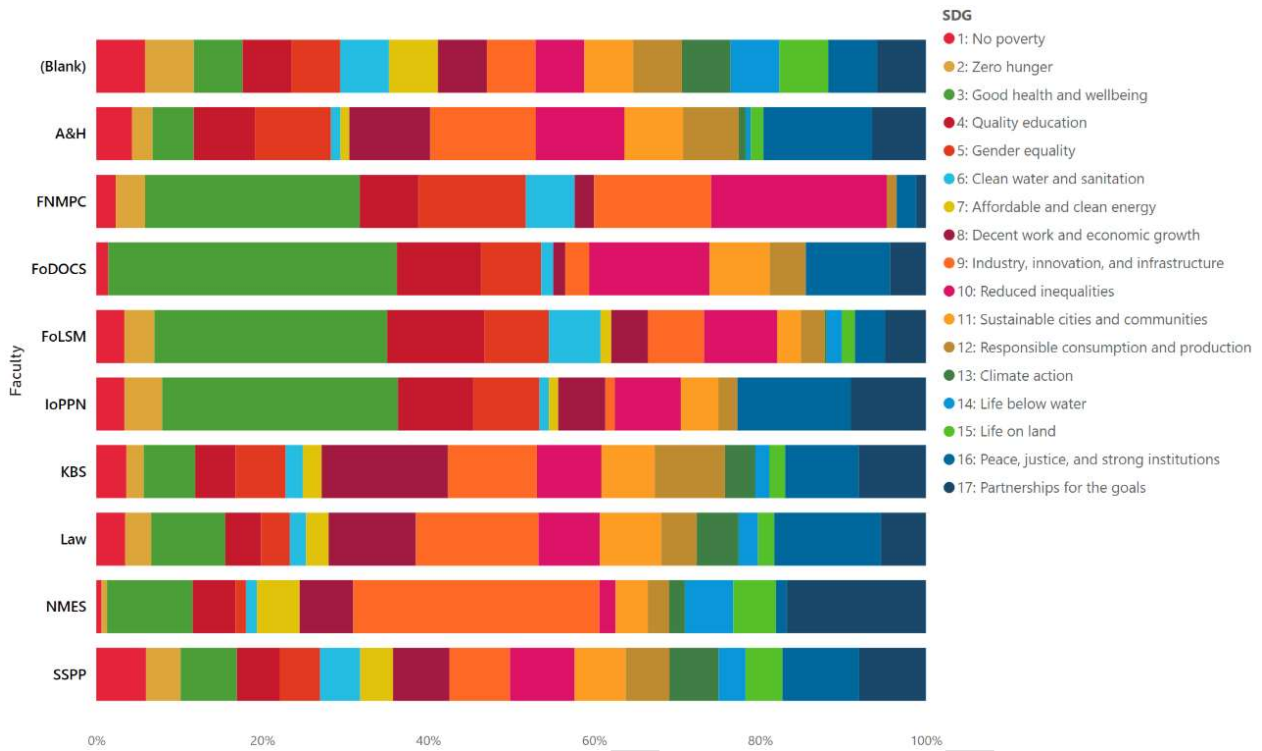Figure 2: SDG teaching across the university

Figure 3: SDG teaching across the faculties

Although the SDGs affect all disciplines, *only 40% of core and 60% of optional modules have a slight connection to the SDGs and 43% of core and 57% of optional modules have a strong connection to the SDGs* (Appendix 7.1). As modules descriptors rarely make explicit reference to the SDGs, links are hard to identify and up to the auditors' interpretations. These numbers also show how *the majority of modules that address SDGs are optional* (60% vs 40%), meaning that not all students will graduate from King's with the understanding needed to contribute to sustainable development.

Moreover, the different *SDGs are not consistently weaved throughout the curriculum*. For example, although climate change is affecting all sectors and our students have expressed their concern about it, SDG13 on Climate Action is one of the less dominant SDGs in the curriculum. Besides, *the extent to which SDGs are addressed differs starkly from one faculty to another*. For example, the Faculty of Social Science and Public Policy has a relatively equal connection to most SDGs, whereas the Faculty of Natural, Mathematical & Engineering Sciences has a strong connection to SDG9 on industry, innovation, and infrastructure but few others, and the Institute of Psychiatry, Psychology & Neuroscience, Faculty of Dentistry, Oral & Craniofacial Sciences, Florence Nightingale Faculty of Nursing & Midwifery, and

Faculty of Life Sciences and Medicine do not address many SDGs apart from SDG3 on Good Health and Wellbeing (Appendix 7.1).

Finally, despite the interdisciplinary nature of the SDGs and the impossibility of understanding them sufficiently in isolation, *only very few modules are open to students from other faculties*.

Despite these gaps, there are already many examples of ESD and SDG learning present in many faculties and departments. Here are some that students identified during the mapping exercise.

4QQMN130 Business Ethics & Sustainability (King's Business School): embedding SDG learning in the core curriculum

All first-year undergraduate students in KBS are required to take the Business Ethics & Sustainability module (4QQMN130). Looking at the social and environmental responsibilities of businesses in regard to the ever-changing world, this module prepares students to respond to these challenges using real-world case studies to explore challenges that students may face when going into the business sector and explicitly cover the SDGs. To follow on from this, Business Ethics & Sustainability II (4QQMN140) is taken by Business Management BSc UGs which goes into more detail on SDGs, which are explicitly included in the assessment. This is a great example as it equips students from the start with a sustainability perspective which they can apply throughout their degree.

6AAEC124 Industry, Climate, Futurity (Department of English, A&H): how sustainability is relevant to different disciplines

This new module (6AAEC124) explores the relevance of climate in the English discipline. There is an explicit mention and clear connection between the environment and how this relates to students' learning within their programme. This module looks at social justice (colonialism) and environmental sustainability (climate change specifically), as well as the inter-connection between the two. Students can use skilled developed from their programmes to explore how their field is relevant to environmental sustainability. It is a good example of how sustainability can be integrated within existing structures through a standalone module, and to show how climate is relevant to disciplines beyond the ones it is usually associated with such as Geography.

4YYD0001 Introduction to Development Studies (Department of International Development, SSPP): critically engaging with the SDGs

In this module (4YYD0001), students do not only learn about the SDGs themselves, but they also learn to critically reflect on them by including criticism from, for example, the degrowth and post-developmentalism movements. One student explained how they completed an assignment which discusses to what extent the various regions have stuck to their commitments to the SDGs. The module also covers structural theories of development which also tie into the SDGs.

4NNYBD03 Clinical Humanities & Wellbeing I (FoDOCS): ESD & SDG teaching embedded throughout the student lifecycle

Sustainability in health practices is something which is growing rapidly both within institutions and wider bodies such as the NHS. The Clinical Humanities & Wellbeing module (5NNYBD04) acts as a good practise model for sustainable oral healthcare as well as interdisciplinarity. Students consider oral health in a wider context alongside developing skills such as leadership and cultural competency using the SDGs as a framework. This cross-disciplinary approach allows for the development of skills that students are not usually exposed to integrating creative and critical thinking from Arts and Humanities into the clinical curriculum.

4CCE1SUS Energy & Sustainability (Department of Engineering, NMES): using the SDGs in assessment and teaching

Teaching and design curriculum within Engineering takes into consideration staff research which address the SDGs. Design thinking of teaching and research covers SDGs implicitly and optional modules use SDGs as a framework to solve global problems. The department itself has 2 UG and 4 PG programmes, with the Engineering and Management programme specifically focusing on sustainability. The assessment is a specific sustainable energy solution where students work in teams to determine the most sustainable solution. This includes justifying and understanding sustainability within the context of the subject/what they are doing. This shows that there is lots of ESD and SDG incorporated into learning throughout the years (still need to figure out if these are compulsory or not). In 4th year, many students look at case studies and look specifically at goals with lots of peer teaching. There are also specific environmental engineering models as well as global engineering models.

4.2.2   Wider aspects of sustainable learning

Regarding wider aspects of sustainable learning, challenging business as usual (*71%*), considering consequences of actions (*67%*), and problem solving (*67%*) are featured most dominantly across modules. The weakest elements are environmental stewardship (*23%*) and taking action and creating change (*44%*), followed by social justice (*50%*), global citizens (*51%*), and understanding sustainable development (*57%*). For impactful education in line with King's vision to make the world a better place, all modules should encompass all of these aspects. Below we discuss a few interesting examples of some of these elements.
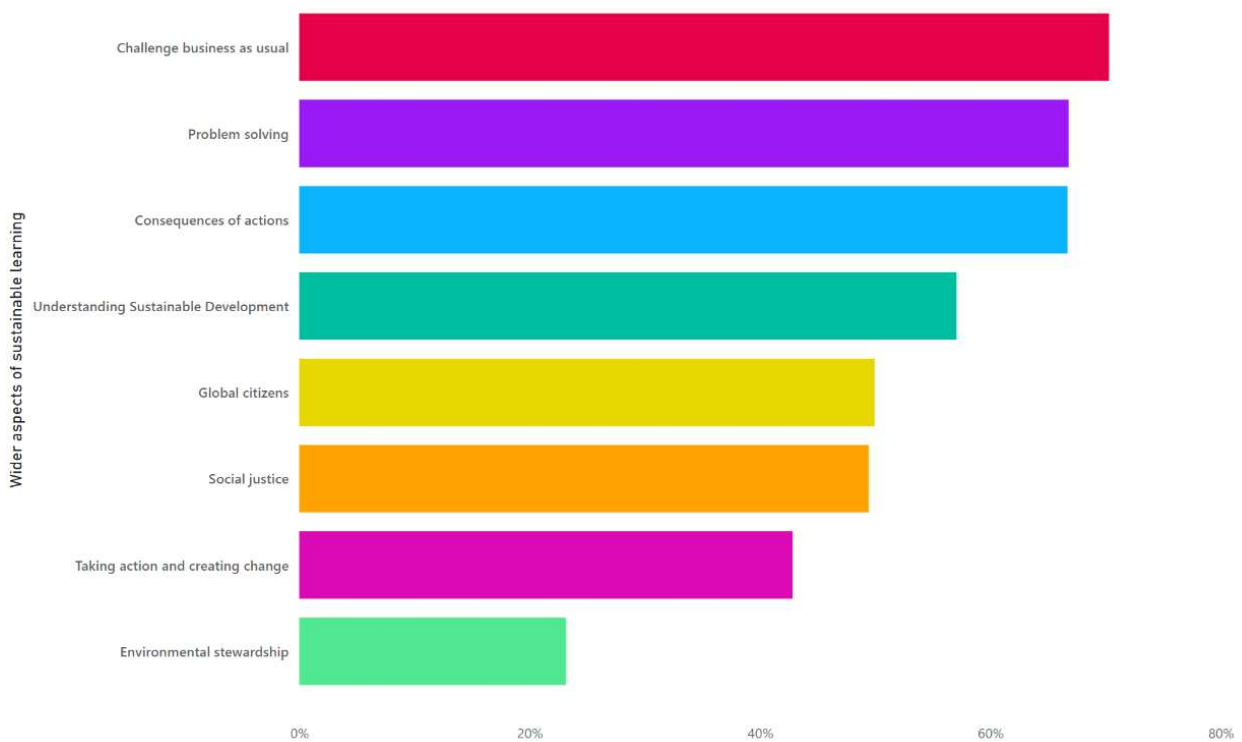

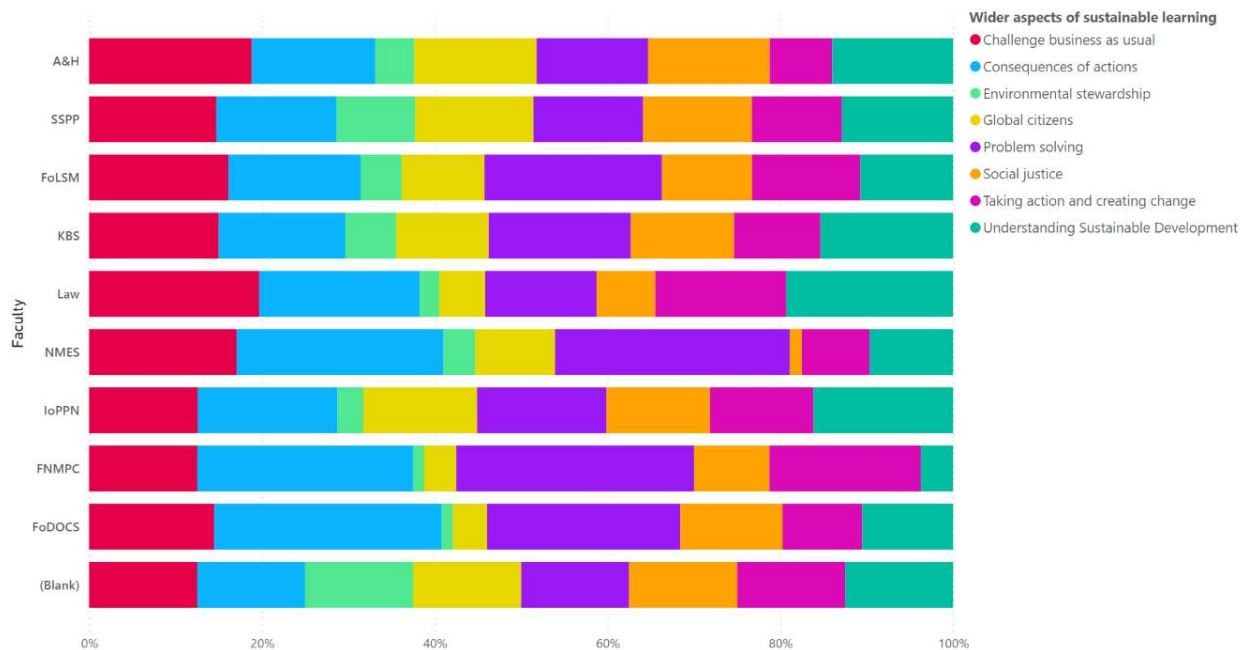Figure 4: wider aspects of sustainable learning across the university

Figure 5: wider aspects of sustainable learning across the faculties

Social justice in teaching: decolonising the curriculum and assessment

Arts & Humanities were one of the first faculties to look at long-term social sustainable impact post-George Floyd. This included developing a fund which looked at engaging anti-racism research throughout the faculty. The work on decolonising the faculty has been commendable with several resources available including a "decolonising our collections" guide.

4.2.3 ESD pedagogy

Through King's service-led learning goals and civic engagement, the university has integrated many elements of ESD-type learning into the curriculum. This review confirms the existence of all types of ESD pedagogy across the curriculum, but it has also exposed some gaps.

To enable King's ambition to be "a world-leading community of learners in which students and staff across disciplines collaborate and connect to change the world", the current elements of collaborative (*61%*), participatory (*66%*), and problem-based learning (*71%*) seem insufficient.

Despite the relevance of case studies to all topics and their potential to bring the content to life, only *58%* of modules appear to actively embed them, and simulations (*50%*) and stimulus activities (*56%*) are even less deployed.

Nevertheless, there are countless of good practice examples that are worth highlighting and are sources of inspiration. A few of these are discussed below.
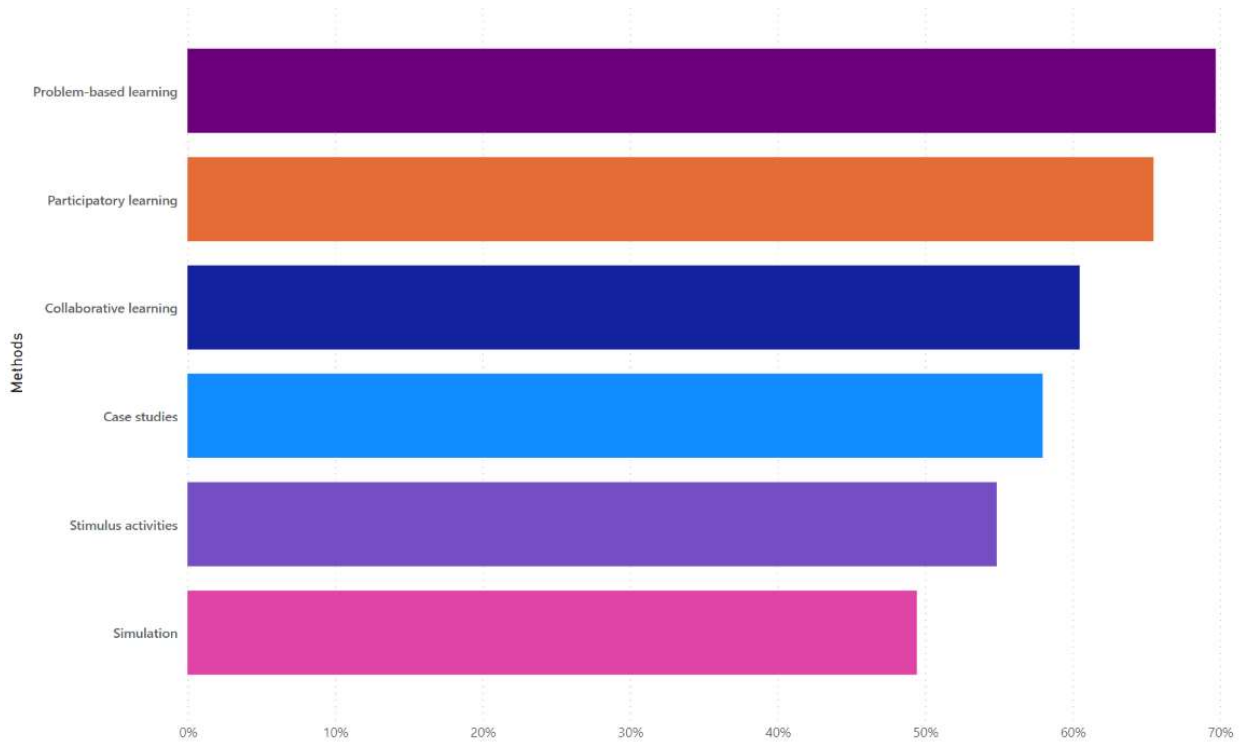

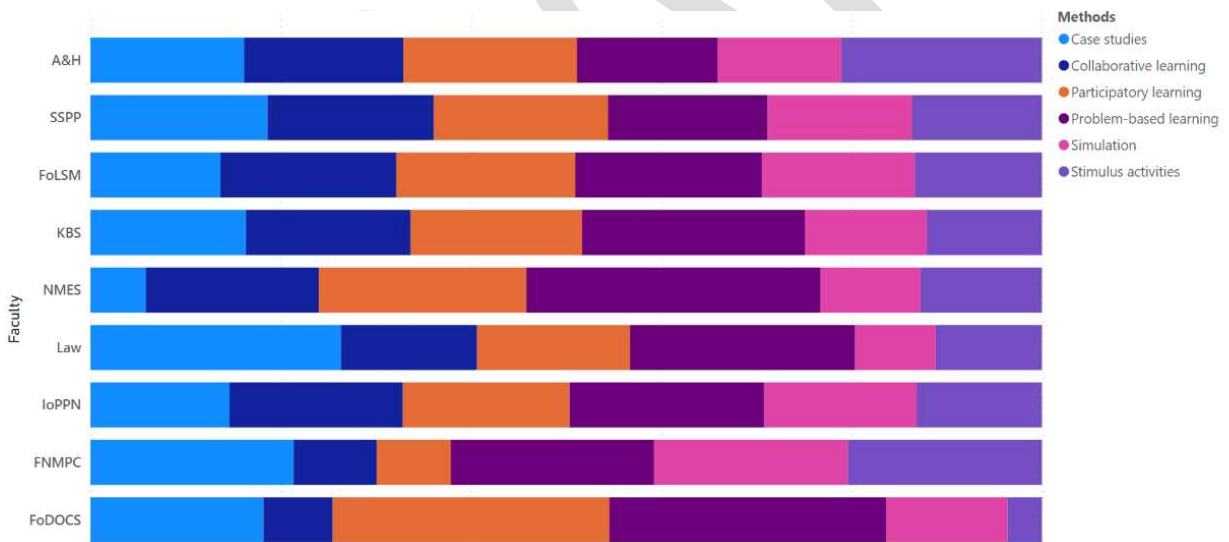Figure 6: ESD pedagogy across the university

Figure 7: ESD pedagogy across faculties

Sustainability in Practice: interdisciplinary problem-based living lab projects

The Sustainability in Practice module was co-created by the Sustainability team and the Geography department looking at real world issues and solutions at King's using the ESD framework. The module is open to both undergraduate and master students from various faculties including Social Science and Public Policy and Business. The module used the campus as a living lab by identifying real-world

sustainability challenges for students to develop projects around, and connecting them with the relevant teams to work on these. Student projects included exploring opportunities for microgeneration of renewable energy, identifying what mental health opportunities exist. At the end of the term, the projects are presented to the relevant stakeholders, and they can be built upon by new students in the next year – or taken forward by the staff or students beyond the module. It is the epitome of interdisciplinarity and highlights how students are actively seeking for ways in which they can put teaching into practice while learning from each other. Just in its first year, the module was oversubscribed which demonstrates student interest in this type of learning.

International Marketing MSc: living lab projects in Lambeth

KBS started a new project for MSc students in collaboration with Lambeth Council. Together with Lambeth's Air Quality Team and Business Improvement Districts (BIDs), they set up 9 green impact initiatives including air quality, collective procurement, sustainability services, waste & recycling, e-cargo bikes, and sustainability branding projects. Through this living lab approach, 37 students interviewed over 50 business owners over a two-week period and produced engagement ideas ranging from window stickers to engagement videos for social media. The projects made a real impact as the Council gained a better understanding of the business owners' level of awareness of the Council's green initiatives. This had benefits for all parties – students for their own development into changemakers, Lambeth Council and BIDs for input into tangible projects they could implement, local communities for the positive green impact these projects can have in the borough, and King's for strengthening ties with local communities. This is a beautiful example of collaboration between KBS students and policymakers to propel the urgent behavioural change required across society by equipping students with the skills to make a difference.

4.3 The extra-curricular offering

At King's, sustainability-related extra-curricular opportunities are manifold. Many of these demonstrate innovative approaches to teaching and embrace ESD principles. Below we discuss a few of these.

Despite these inspiring examples, these are extra-curricular, and not all students have the privilege to set aside time to engage with them. In addition, challenges

remain around making sure that these projects have enough resource to live up to their potential.

KEATS sustainability module: good practice for co-creation in learning

Following on from a Hackathon in February '21, a Listening Campaign in Summer '21, and work done by the Students and Education group of the Climate Action Network, King's Sustainability developed an online pilot module on Sustainability & Climate. This module is a fully co-created, open-access and interdisciplinary module covering the biggest topics in sustainability from climate change and food to sustainable finance and social justice. 16 students, alumni, academics, and professional services staff have developed the module across the year – it is a module which has been designed by them, for them. Participation includes students and alumni with backgrounds from law to health, and staff members from King's Academy, Careers & Employability, Centre for Technology Enhanced Learning, Entrepreneurship Institute, Culture team, King's Online, and student societies.

The key aim of the module is not just to equip participants with sustainability knowledge, but for them to develop the agency to take action on the issues which most concern them. It has been complemented by a Sustainability Seminar Series and other events to build a sense of community and support participants in developing transferable skills.

Just in its pilot year, almost 700 enrolled on the module and 122 of them completed the module and gained either a King's Experience or Sustainability Award. This demonstrates the demand for this kind of learning. For the 2022/23 academic year, almost 50 new students, staff, and alumni have signed up to join the Take Action team to continue co-creating the module.

London Student Sustainability Conference: a platform for interdisciplinary, inter-university learning

This student-led conference provides a platform to present student research and projects focused on a more sustainable future. In 2022, it gave a platform to 32 student presenters, 27 student poster exhibitions and workshops held by several London universities. Each of the sessions were mapped against the SDGs focusing

A diverse range of complex challenges – all mapped against the SDGs – were discussed at the conference, covering topics from sustainable construction to eco-feminist approaches to climate change, with innovative solutions proposed by students. Talks by King's students included the extraction of lithium for electric

vehicles from the 'lithium triangle' and the issues this brings up, Challenge of Realigning UK Domestic Policy with the Goals of the Paris Agreement, Combatting modern slavery and human trafficking, to exploring the differing use of language on Netflix in South Korea compared to the UK when marketing the hit Netflix show 'Sex Education'.

Students were the protagonists not only during the conference itself, but also in the lead up to it through the Student Delivery Group that helped co-ordinate the conference. This is a great example of engaging students throughout the entire process, organising initiatives which are *for* them, *with* them.

LSSC was founded by City, University of London in 2019. In 2021, King's became a co-host of the conference, and in 2022, additional four London universities took part in the conference: Imperial College London, London School of Economics, University College London, and University of Westminster.

The conference provides an opportunity to demonstrate the universities' shared commitment to embedding sustainability into education, research, leadership, operations, engagement activities, while spotlight the students who are part of this sustainability progress and all those who maintain this momentum.

Student societies

Different student societies have focused on sustainability and climate in different aspects; including course societies tying in climate to their discipline or culture societies holding events about how climate change impacts their community. Many students have taken it upon themselves to address these issues and it has gathered a keen interest amongst the student body. From our Climate Action Society who bring awareness on climate issues and create a multi-disciplinary approach to climate change by providing a platform and hold King's accountable.

The King's Innovative and Sustainable Dentistry Society is a recent example of students who have started their own informal learning groups regarding sustainability within their fields. This society in particular focuses on technological innovations as well as sustainability. There are many societies who have sustainability focused lenses, try to incorporate sustainability within their society core or delve deeper into it as many feel a personal responsibility. To further this, student and staff led co-cocreation is a step up and allows for the implantation of what students are interested in within the topic/subject.

King's Civic Leadership Academy helps students develop their leadership skills and create change in their communities. Over the summer, the Civic Scholars intern full time with one of King's charity partners in London that are tackling some of London's most complex challenges from poverty and homelessness to education and mental health. Charities in the past have included IntoUniversity, the Samaritans, Writerz&Scribez and the Living Wage Foundation. During the term time, the scholars continue to work for their charity part-time while participating in a structured leadership programme.

Participants are usually second-year undergraduate students or 'Civic Scholars', many of whom are from under-represented backgrounds. They are supported to develop their confidence and leadership skills through a programme of charity work experience, training and mentoring. Their mentor will help them develop their reflectiveness and goal-setting, providing a safe sounding board as they develop their skills and experience.

This is a great example of how students can be supported on their changemaker journeys.

4.4 The wider sector

The Higher Education sector has largely recognised the potential for ESD and has made various commitments to it. A clear sign of its potential and the demand for it is the ESD guidance developed by QAA and Advance HE, first published in 2014 and revised in 2021.

Many UK universities have followed this guidance and committed to ESD. UCL, for example, have made a commitment that all students will have the opportunity to be involved in and study sustainability by 2024. The ESD curriculum is a key feature in UCL's 2022 – 2027 Strategic Plan consultation on Evolving the UCL Grand Challenges, which identifies the opportunity to embed ESD through thematic challenges across the curriculum. The University of Surrey also aims to roll out ESD across all existing and new programmes by 2024.

The University of Sheffield has committed to embedding ESD into all taught courses by 2025, which has been included as a core component of the University vision/strategic plan. To achieve this, they are using the 'Five-Step Framework for

ESD' change management model developed by the university itself. They collaborate with academics and departments as part of their Programme Level Approach rather than enforcing ESD top down. Changes they are making include rewriting their 'Sheffield Graduate Attributes' and writing a commitment to ESD into departmental plans.

Keele University is another example of a university making significant progress on ESD. They have had an ESD strategy since 2014 and according to their latest curriculum review, 96% of their programmes now embed ESD. They continue to work closely with academic staff and programme directors across all Faculties to embed more innovative ESD approaches into degree programmes and formal learning through the core curriculum, ensuring that it does not merely become a 'tick box' exercise.

The University of Exeter's priorities for their 2019 Education Strategy are defined in the context of the SDGs and they have had a dedicated Education for Sustainability Strategy since 2010. Similarly, MMU has a Learning for a Sustainable Future Action Plan to deliver on this. This trend is taking place on an international level as well with, for example, Radboud University and the University of Oslo announcing that sustainability will be made part of every student's curriculum. As an element of ESD, several universities have dedicated Living Lab Programmes, including UCL, MMU, Edinburgh, Greenwich, and Surrey.

Many of these universities have dedicated Education for Sustainable Development/Sustainability Coordinator roles to deliver on these commitments, including MMU, Nottingham Trent University, UWE, the University of Winchester, University of Southampton, Keele University, Lund University, and Leiden University. Other universities also have, for example, Living Lab Coordinators, such as Cambridge University, Utrecht University, and the University of Surrey. The University of Sheffield has several interns working on ESD within the university.

King's has many great examples of ESD teaching, but we are behind on the sector in terms of an institutional approach and commitment to ESD.

5. Conclusion

There are many great examples of ESD learning and a broad array of SDGs being taught in every single faculty. In the informal curriculum, the number of ESD-related opportunities with a large impact on both the students' development and wider society is ever growing. Therefore, the university is by no means starting from scratch on ESD.

However, despite these examples, this review has also showed that there are many potential opportunities for further improvement. First, ESD teaching is not included within all core curriculums and, therefore, students may leave King's without the necessary knowledge, skills, and values to drive the required transformation. Second, key ESD modules are optional. Although this has the benefit of providing students with choice, it does mean that not all students are exposed to ESD teaching. Third, many best practice examples are only available in a single module or year of the course instead of embedded throughout all years and modules. Fourth, optional opportunities in the informal curriculum may be impactful, but pose a challenge for students' limited amount of available time.

The identified gaps show the need for a systematic approach to ESD and for an overarching strategy which implements ESD across the university within faculties and departments. As a world-class university, King's is in a unique position to contribute to today's most complex challenges by ensuring all students receive ESD learning and embedding ESD into mainstream education.

6. Recommendations

The main recommendation shows the importance of a whole-institution approach to ESD, including all stakeholders from senior management and professional services staff to educators and students to jointly develop a vision for ESD which spans all elements of the university (UNESCO). Due to its interdisciplinary nature, sustainability can be fed into any discipline and incorporated into existing structures and teaching relatively easily and without too much additional work for educators. However, adequate support is needed to enable them.

Overall recommendation	Where we are at	Recommended actions
Formalise commitment to ESD both in the formal and informal curriculum to ensure ESD objectives, targets and KPIs are a clear part of the university's strategic priorities. This will allow all King's students to graduate with an understanding of what sustainability is and with the skills to address global sustainability challenges.	The 2017-22 Education Strategy and the 2018-23 Service Strategy (e.g. active, interdisciplinary, flexible learning, and service-led learning) have many core elements of ESD, but links can be made more explicit. This means that currently, many ESD initiatives are compartmentalised and left to the interest and energy of individual staff members. There is a risk that this only reaches pockets of students and not the entire King's community. The ESD framework provides an opportunity to bring King's strategic goals for education together in a structured way, helping the university deliver on them.	1. Further integrate ESD in the Education Strategy and Service Strategy as an overarching framework. 2. Include ESD into the validation of new and ongoing review of existing programmes and modules (in Academic Board and CEC) and articulate it within quality assurance and enhancement processes. 3. Include ESD as a regular agenda item on Academic Board. 4. Make sustainability one of King's core graduate attributes by embedding ESD into King's Employability Plan.
Empower students as co-creators of the ESD curriculum	Student co-creators are core to what King's does as a university - as included in the Education Strategy as well as Vision 2029 - but we have to make sure we are delivering on this vision.	1. Include students in establishing our commitment to ESD and in all ESD-related discussions and initiatives. 2. Enable student-focused aims, targets and learnings which put them at the heart of education. 3. Equip students with the skills to contribute to ESD, for example by including ESD workshops in their inductions and within the Students' Union.

		4. Create paid opportunities for students to get involved in the roll-out of ESD.
Set up a dedicated ESD Delivery Team for coordination and oversight of this agenda. Members could include the VP Education, King's Academy, Faculty Executive Deans, Programme Leaders, academics focused on education, Service, the KCLSU VP Education, and other student representatives.	There is currently no dedicated senior working group looking after sustainable education. Meaningfully embedding ESD requires coordination and oversight and a dedication to commit time and resource.	1. Hire an ESD Coordinator that works with educators and students to set ESD objectives, targets and KPIs. 2. Conduct yearly ESD reviews to identify best practice examples and gaps.
Support staff in embedding ESD into existing teaching.	Using the wealth and breadth of existing knowledge, staff often implicitly teach sustainability. Whilst different elements of ESD are used, this depends on what students chose to learn and therefore does not address the entire student body. To support academics in enhancing sustainable teaching and learning, King's Academy Learning Festival includes Sustainable Education as a key theme, but there is an opportunity for an established forum to share knowledge and information on ESD throughout the year.	1. Include ESD as one of King's Academy's strategic aims. 2. Provide appropriate ESD guidance to educators (e.g. guidelines and toolkits for the creation and evaluation of ESD materials). 3. Develop capacity-building exercises for educators including ESD workshops and training through King's Academy (with ESD facilitators and in-service trainers). 4. Embed ESD into staff inductions and staff appraisal and promotion criteria (e.g. PDR reviews). 5. Develop an ESD Community of Practice for educators to share learnings and inspire each other throughout the year.
Mainstream Living Lab for Sustainability projects throughout the formal curriculum where students tackle local challenges by using the university campus and local communities as testbeds to deliver real solutions.	Through our civic engagement and service-led learning goals, King's offers multiple living lab opportunities (such as the Sustainability in Practice module). However, these are compartmentalised and can be hard to track for students, staff, and community partners. They are not the default in formal curriculum activities and assessments.	1. Hire a Living Lab Coordinator to oversee living lab projects, including identifying new opportunities across King's campuses and with local communities. 2. Mainstream living labs across module assessments by embedding it into departmental plans. 3. Make living labs a core component of the London Team's work with community partners.

		4. Work with Estates & Facilities to develop a specific campus living lab programme.
Ensure all students receive interdisciplinary education.	One of the strategic goals of the 2017-22 Education Strategy is flexing the curriculum. However, much of teaching is restricted to students in specific faculties or departments.	1. Allow more flexibility in students' curriculum, for example through flexible honours or modularity schemes. 2. Open up modules to students across faculties. 3. Develop dedicated interdisciplinary modules.
Clearly link the curriculum to the SDGs it addresses.	Currently, most ESD learning is implicit and reference to the SDGs across modules and projects is limited. However, linking this more clearly would help students see the links, as well as help in monitoring ESD progress.	1. Include SDGs/ESD in the learning outcomes of all modules. 2. Create a webpage that showcases current ESD learning including case studies of teaching and research. 3. Create a toolkit showing how each discipline relates to the SDGs. 4. Make sure King's extracurricular activities cover the breadth of the SDGs, including King's Civic Challenge and the Civic Leadership Academy.
Roll out carbon literacy across the university.	Currently not available at King's.	1. Establish a commitment to make King's staff and students carbon literate. 2. Explore adopting a cascade model starting with King's senior team, rolling it out to subsequent staff teams and students. 3. Extend carbon literacy to King's suppliers, partners and local communities.
Make the KEATS Sustainability & Climate module credit-bearing and externally available.	The module is live, but currently not credited and only available to an internal King's audience. Making it credit-bearing would ensure it is accessible to a wider range of students. With King's expertise, this is also an opportunity to educate wider communities on sustainability.	1. Recognise the students, staff, and alumni who contributed to the co-co-creation by paying resource for their time. 2. Set aside funding for an academic sponsor. 3. Work with King's Online to adapt the module for external audiences.

6.1 Monitoring progress

To measure success and make sure King's is making progress on ESD, relevant KPIs include:

- Yearly increase of the number of modules/programmes/projects that address elements of ESD in the formal and informal curriculum
- The number of students taking up extracurricular ESD opportunities
- Improved accessibility to interdisciplinary and living lab ESD learning
- Student feedback (include in annual enrolment survey for all students):
  - Report an increase in skills and knowledge for ESD
  - Satisfaction with ESD
- Staff feedback
  - Professional development opportunities on ESD
 - Perceived support on ESD

7. Appendix

7.1 Results

7.1.1 Summary overview

| SDGs				
	Core	*Optional*	*Not stated*	
Strong connection to SDGs	43%	57%	23%	
Slight connection to SDGs	40%	60%	35%	
Wider aspects of sustainable learning				
	Core	*Optional*	*Not stated*	*Total*
Challenge business as usual	71%	74%	68%	**71%**
Consequences of actions	68%	74%	59%	**67%**
Environmental stewardship	25%	28%	18%	**23%**
Global citizens	51%	53%	49%	**51%**
Problem solving	67%	66%	68%	**67%**
Social justice	58%	56%	41%	**50%**
Taking action and creating change	47%	53%	34%	**44%**
Understanding Sustainable Development	59%	69%	48%	**57%**
Methods of teaching				
	Core	*Optional*	*Not stated*	*Total*
Case studies	62%	70%	47%	**58%**
Collaborative learning	61%	56%	65%	**61%**
Participatory learning	68%	64%	67%	**66%**
Problem-based learning	73%	74%	67%	**71%**
Simulation	54%	53%	46%	**50%**
Stimulus activities	53%	62%	53%	**56%**

7.1.2 SDG teaching per faculty
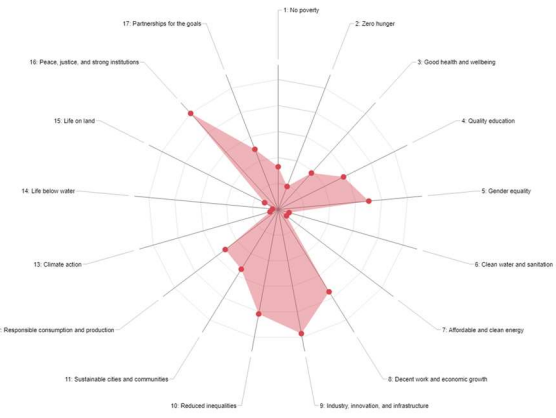
Overall:

SDG Teaching
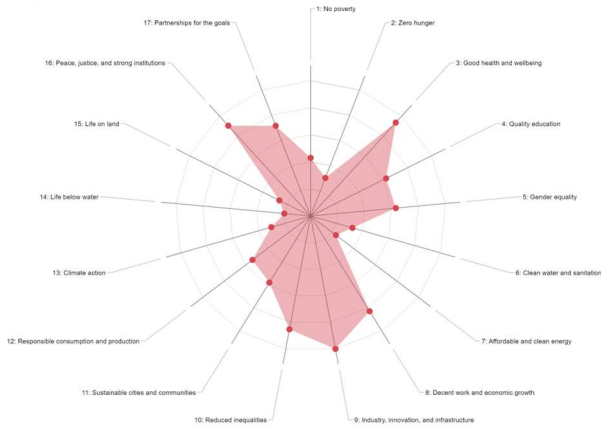
SSPP:

SDG Teaching
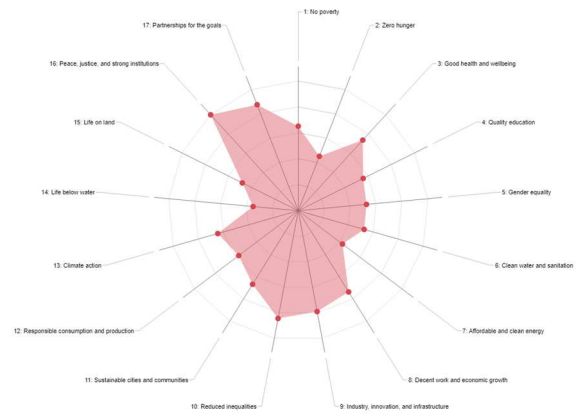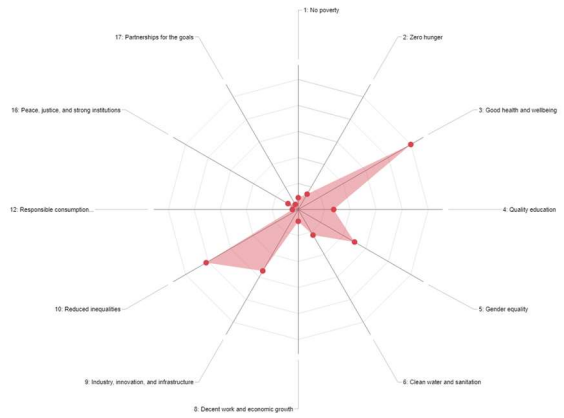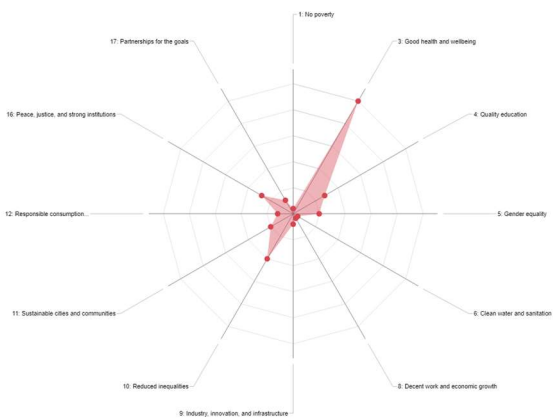

A&H

SDG Teaching

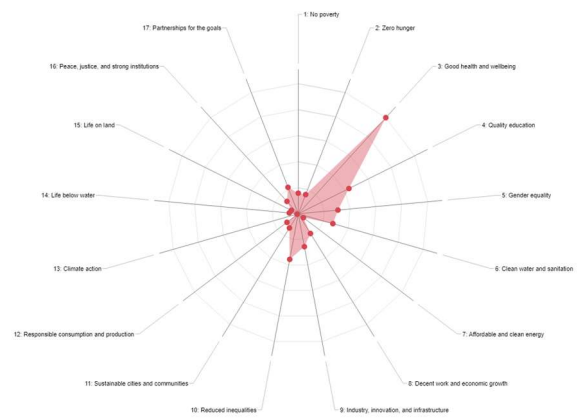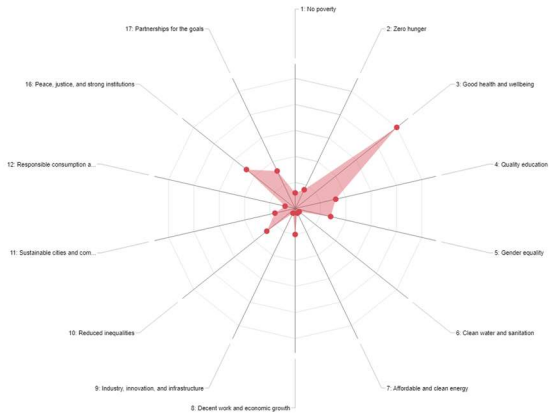FNMPC:

SDG Teaching
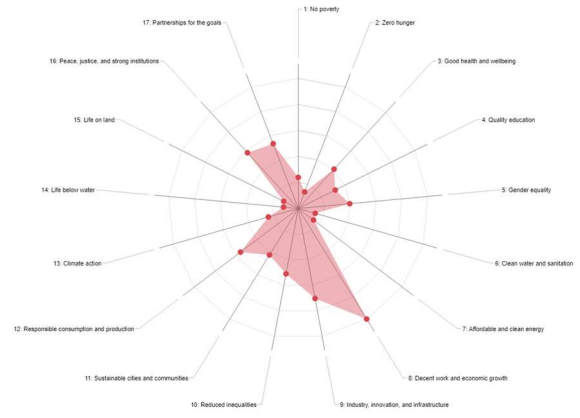

FoDOCS:

SDG Teaching

FoLSM

SDG Teaching

IoPPN:

KBS:

SDG Teaching

SDG Teaching

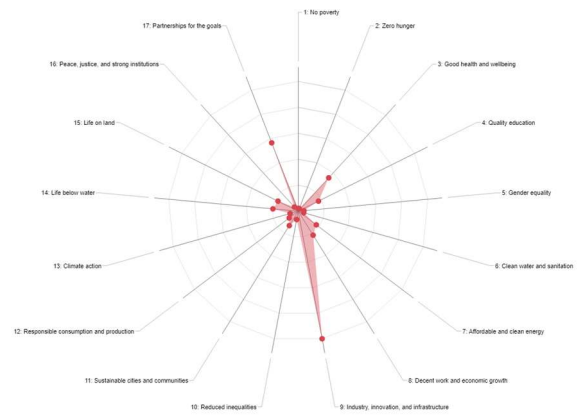| Law:	NMES:

SDG Teaching

SDG Teaching

7.2 Audit form

<u>General</u>

1. Name
2. Module code
3. Module name
4. Faculty
   a. Arts & Humanities
   b. Business
   c. Dentistry, Oral & Craniofacial Sciences (FoDOCS)
   d. Law
   e. Life Sciences & Medicine (FoLSM)
   f. Natural, Mathematical & Engineering Sciences (NMES)
   g. Nursing, Midwifery & Palliative Care (FNMPC)
   h. Psychiatry, Psychology & Neuroscience (IoPPN)
   i. Social Science & Public Policy (SSPP)
   j. Other
5. Credits
   a. 5
   b. 10
   c. 15

d. 20
　　　e. 30
　　　f. 40
　　　g. 60
　　　h. Not stated
　　　i. Other
6. Term taught in
　　　a. 1
　　　b. 1 & 2
　　　c. 3
　　　d. Not stated
　　　e. Other
7. Type of module
　　　a. Core
　　　b. Elective/optional
　　　c. Not stated
　　　d. Other
8. Level of study
　　　a. Undergraduate (BA/BSc or level 4/5/6)
　　　b. Postgraduate taught [PGT] (MSc/MA or level 7)
　　　c. MBBS
　　　d. BDS
　　　e. LLB
　　　f. LLM
　　　g. Other

SDG learning

9. Does this module cover the SDGs? (0 – not covered, 1 – a little mention of the themes of the Goal, but not necessarily working towards the Goal (implicit mention of the theme), 2 – clear mention of the Goal, focusing on progress towards the Goal (explicit mention of the goal))

1. **SDG 1: No Poverty** - end poverty in all its forms everywhere
2. **SDG 2: Zero Hunger** - end hunger, achieve food security & improved nutrition & promote sustainable agriculture
3. **SDG 3: Good Health & Well-being** - ensure healthy lives and promote well-being for all at all ages
4. **SDG 4: Quality Education** - ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. **SDG 5: Gender Equality** - achieve gender equality and empower all women and girls
6. **SDG 6: Clean Water & Sanitation** - ensure availability and sustainable management of water and sanitation for all
7. **SDG 7: Affordable & Clean Energy** - ensure access to affordable, reliable, sustainable and modern energy for all
8. **SDG 8: Decent Work & Economic Growth** - promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. **SDG 9: Industry, Innovation and Infrastructure** - build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10. **SDG 10: Reduced Inequality** - reduce inequality within and among countries
11. **SDG 11: Sustainable Cities and Communities** - make cities and human settlements inclusive, safe, resilient and sustainable
12. **SDG 12: Responsible Consumption and Production** - ensure sustainable consumption and production patterns
13. **SDG 13: Climate Action** - take urgent action to combat climate change and its impacts

14. **SDG 14: Life Below Water** - conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. **SDG 15: Life on Land** - protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. **SDG 16: Peace and Justice Strong Institutions** - promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. **SDG 17: Partnerships to achieve the Goal** - strengthen the means of implementation and revitalize the global partnership for sustainable development

<u>Wider aspects of sustainable learning</u>

10. What further type of skills and knowledge are developed in the module? (wider aspects of sustainable learning) (0 - does not include, 1 - includes a little, 2 - includes a lot, 3 - included in the assessment)

   a. **Understanding sustainable development (systems thinking competency):** the module covers sustainable development within the context of the subject in a holistic way. Students are able to analyse complex systems and how they are embedded within different scales and influence each other to progress or hinder sustainable development. This could include understanding power dynamics and influence in sustainable development at a personal, local and global level to bring about change.

   b. **Consequences of actions (future thinking competency):** this module covers how systems and societies can be adapted to ensure sustainable futures with a future-facing outlook. Students are able to understand and evaluate multiple outcomes, deal with risks and changes and assess the consequences of actions of future scenarios.

   c. **Challenge business as usual (critical thinking competency):** the module provides skills to help students analyse and critique information in a critical way. Students encounter different paradigm ways of thinking and are able to question and challenge norms, practices, and opinions as well as reflect on one's own values, perceptions, and action within sustainable development. (examples of different paradigms circular economy in design, doughnut economics)

   d. **Taking action and creating change (strategic competency):** the module includes or facilitates learning of sustainable development in a real-world context. *This could include* a field trip, placement, volunteering through their module while bringing social and/or environmental benefits to the university or wider community.

   e. **Problem-solving (Integrated and collaborative problem-solving competency):** the module facilitates collaborative group work for problem-solving. Students are able to work with, understand and respect the needs of others. The project/group work includes multidisciplinary and interdisciplinary knowledge and research methods and addresses different value systems and conflicting priorities.

   f. **Global citizens (self awareness competency):** the module considers what the concept of global citizenship means in the context of their own discipline and in their future professional and personal lives. Students can develop a sense of agency and responsibility to drive sustainable actions within their community.

   g. **Environmental stewardship:** the module covers what the concept of environmental stewardship means in the context of their own discipline and in their future professional and personal lives. Students are able to understand and reflect on the norms and values that underpin their own actions and those of other stakeholders. Students are equipped to identify biases and barriers to sustainable action.

   h. **Social justice:** the module covers issues of social justice, ethics, and wellbeing, and how these relate to ecological and economic factors. Students are able to understand and reflect on the norms and values that underpin their own actions and those of other stakeholders. Students are equipped to identify biases and barriers to sustainable action.

11. Is there a named community partner/organisation/external facilitator which the module works with and what sector are they in? (if this is not mentioned or there is none please put N/A

<u>ESD pedagogy</u>
12. What ways of teaching does this module include? (0 - does not include, 1 - includes a little, 2 - includes a lot , 3 - included in the assessment)
    a. **Case studies:** the module provides examples of sustainable development issues, globally and locally, which introduces students to the concept of sustainability in practice. They may be particularly useful in disciplines where the links with sustainable development are not immediately obvious.
    b. **Stimulus activities:** a prompt is provided (such as a poem, dance, artwork, quotation, piece of music, or newspaper article) which can stimulate discussion or reflection on a sustainability topic. They are well suited to group work and can be open ended, encouraging students to extend their thinking beyond the confines of their own discipline.
    c. **Collaborative learning:** students are given an option to work in an interdisciplinary manner i.e., work outside their field of study (this might include the module being available to students outside of the programme). Other examples include the module having guest speakers or working in small discussion groups.
    d. **Simulation:** the module includes activities and projects that simulate real life situations (such as role-plays, debating or mock trials). This can help develop focused thinking around sustainable development issues, and can contribute to the formation of students' own attitudes and the social norms that they find acceptable. They can be used across a range of disciplinary and interdisciplinary contexts to help students develop appropriate professional behaviors.
    e. **Participatory learning:** the module includes hands on, interactive and experiential activities. This enable students to engage with sustainability issues at a number of levels, not only in relation to their discipline, but also in terms of reflecting on their own values, attitudes and accepted social norms. Working through issues in an authentic setting is also valuable for identifying potential interdisciplinary or transdisciplinary links. This can also include field trip, placement, volunteering through their module.
    f. **Problem based learning:** problem based learning approaches can be used to good effect in teaching and learning about sustainability, since they provide opportunities for student led, collaborative work which can be focused on a real world problem or issue.

13. Is there anything about this module you would like to flag (i.e. examples of best practice). Please type 'no' if there isn't.
14. Is there anything about this module you would like to flag (i.e. insufficient information/not enough information given). Please type 'no' if there isn't.
15. Any additional comments about the module?

7.3 Additional resources

7.3.1 King's policies, plans and reports

King's 2014 ESD review

2021 sustainability survey report TBC

2021 King's 100 report TBC

King's sustainability policies

King's annual sustainability reports

Audit form

7.3.2   External resources

Advance HE and QAA's Education for Sustainable Development Guidance (2021)

UNESCO's Education for Sustainable Development Goals - Learning Objectives (2017)

The Sheffield five-step framework for education for sustainable development

The University Campus as a Living Lab for Sustainability A Practitioner's Guide and Handbook (2019)

UNESCO's CoDesignS ESD Toolkit

7.4 Glossary

King's 100: King's 100 provides a paid opportunity for a diverse group of 100 students reflective of the King's community, to co-create student experience projects and initiatives.

Sustainable Development Goals (SDGs): The 17 global goals for development for all countries established by the United Nations through a participatory process and detailed in the 2030 Agenda for Sustainable Development.

Times Higher Education Impact Rankings (THE): A ranking developed to measure universities' contribution to the 17 UN Sustainable Development Goals, first published in 2019.

Education for Sustainable Development (ESD): there are many definitions used in different contexts and from different organisations but the one which is chosen is the UNESCO 2019 definition: *"ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning and is an integral part of quality education. ESD is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society."* - UNESCO, 2019

Students Organising for Sustainability (SOS-UK): student led education charity focusing on sustainability; off-shoot of the National Union of Students who look at

Faculty acronyms:

- **A&H:** Arts and Humanities
- **FNMPC:** Florence Nightingale Faculty of Nursing & Midwifery
- **FoDOCS:** Faculty of Dentistry, Oral & Craniofacial Sciences
- **FoLSM:** Faculty of Life Sciences and Medicine
- **IoPPN:** Institute of Psychiatry, Psychology & Neuroscience
- **KBS:** King's Business School
- **NMES:** Natural, Mathematical & Engineering Sciences
- **SSPP:** Social Science & Public Policy