RIBA Skills Mapping Survey - Phase 1

Final Report

Contents

Executive Summary

The new RIBA Climate Literacy Knowledge Schedule provides a firm structure for enabling students and practitioners to have a relevant degree of awareness, knowledge and expertise in relation to the headings, without prescribing the levels expected within Schools of Architecture and leaving it to individual Schools to establish their curricula.

This report provides a national overview of staff climate literacy skills for architecture and is the first step in a two-phase process. It shows what levels of awareness, understanding and expertise currently exist in schools in relation to validation requirements.

The report builds on initiatives from the Royal Institute of British Architects (RIBA), The Cross-Industry Action Group (for Climate Framework), Architects Climate Action Network (ACAN) and the formation of the Standing Conference of Schools of Architecture (SCOSA) Climate Literacy working group. It provides an outline commentary on a survey completed in 2021 by schools of architecture across the UK, collaboratively instigated by SCOSA, Climate Framework, ACAN and the RIBA, and hosted by the RIBA. The intent of this work is to help in mainstreaming climate literacy in all architecture schools using the RIBA Climate Literacy Knowledge schedule as a basis. This voluntary survey was open to all UK Schools of Architecture, whether validated by the RIBA or prescribed by the ARB. The findings are based on 58 responses out of a possible 64 schools of architecture; and covers both Part 1 and Part 2 courses. Part 3 is not addressed in this report due to the limited number of responses received.

There is an opportunity in Phase 2 of this initiative to find out from Schools what type of further support they would like in order to develop various curricula areas related to the RIBA's Climate Literacy Schedule. This might take the form of a supported dialogue within each School to identify requirements based on a common set of questions related to the Schedule. A particular challenge lies in understanding the difference between student perceptions of staff skills and resources available and how staff perceive this.

Introduction

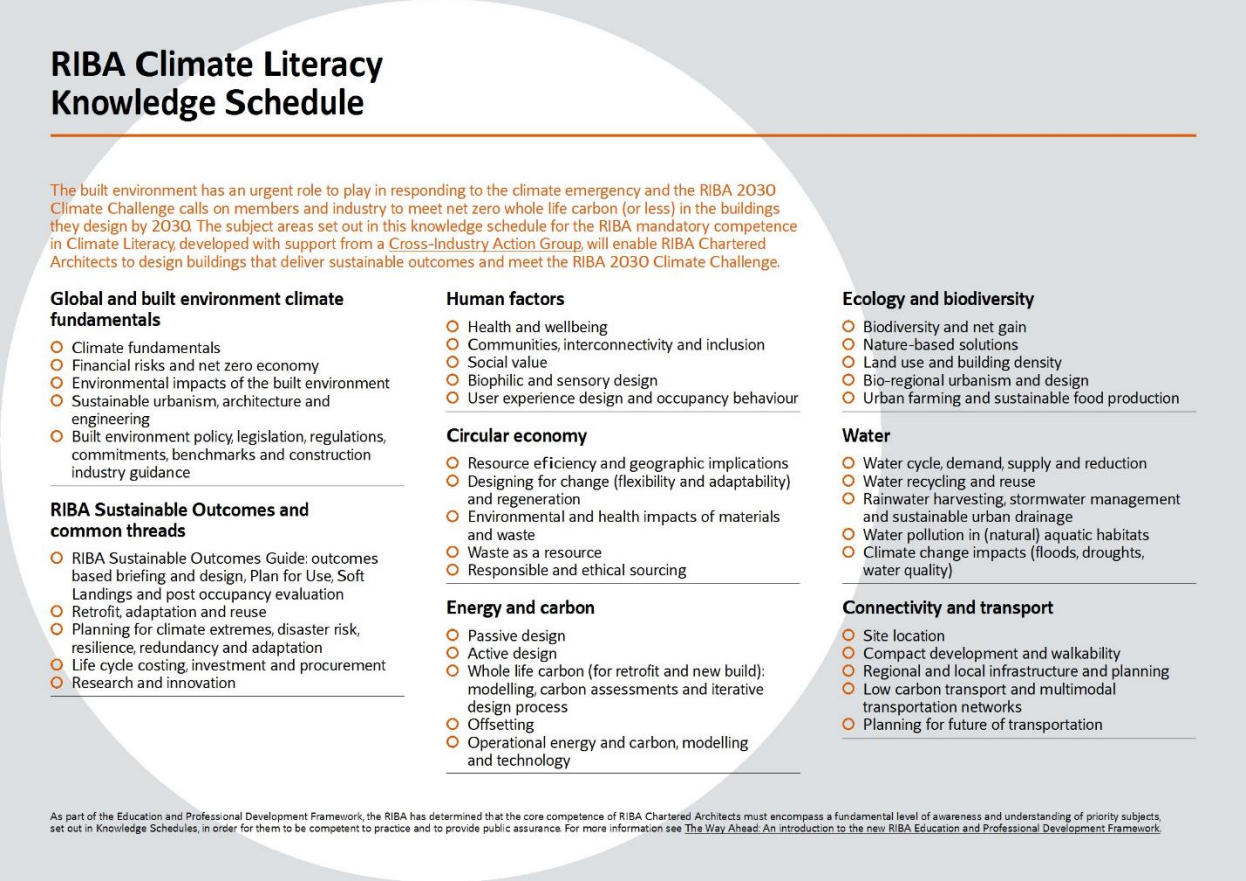
The challenge to deliver built environment education in the UK which addresses the climate emergency has never been greater.

In response to this, the Cross-Industry Action Group has developed an interdisciplinary Climate Framework and the RIBA have based their new Climate Literacy Knowledge Schedule on this, as part of their Way Ahead education framework. The ARB has also carried out a competency review related to sustainability, and fire and life safety. Meanwhile the national Architects Climate Action Network (ACAN) Education Group has been delivering a programme of workshops to help upskill staff and students in climate literacy. More recently the ARB has undertaken consultation on root and branch revision of architectural education.

This report builds on these initiatives and is based on quantitative research carried out to understand the expertise of UK Schools of Architecture in the topics covered by the Climate

Literacy Mandatory Competences. This voluntary survey was open from March to April 2021. All UK Schools were asked to complete the survey, which received 58 responses from colleagues teaching on both Part 1 and Part 2 courses. There are currently 58 Part 1, 51 Part 2 and 27 Part 3 ARB prescribed courses offered across 64 institutions in the UK; at the time the survey was conducted this number stood at 63. For the purposes of analysis, responses that were not related to Part 1 or 2, or which were insufficiently complete were excluded. The survey also invited qualitative free text comments, and these have been analysed alongside the quantitative responses.

The conclusions and recommendations from this interim report, covering outputs from Phase 1, have been used to inform the second phase of this review, which aims to explore the potential of sharing teaching resources and specialist skills to enhance the knowledge and abilities of students and graduates across all schools.



The following sections consider each of the eight RIBA Climate Literacy Competences (CLCs) in turn, reporting on the outcomes of the survey. Each section starts with a quote from the free text and is followed by the analysis.

1. Global and Built Environment Climate Fundamentals

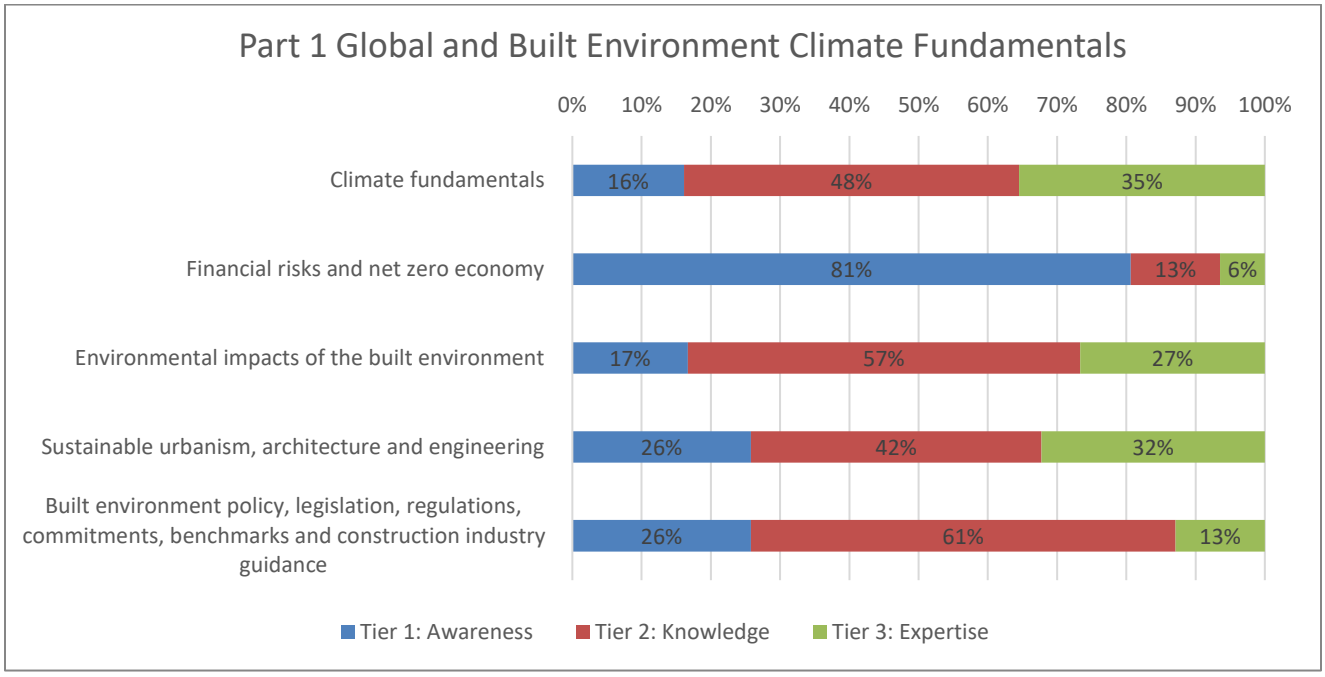
> ***"I know a lot about climate impacts in some areas (e.g. floods) but not all (i.e. some categories grouped a lot of things together) … we also have a lot of fractional staff who may be experts in relation to a topic but are often deployed in very particular parts of the programme … I think it is important to note that this expertise is not equally distributed."***

Why this is important:

With increasing awareness of the impacts of climate change, addressing the impacts of ecological collapse is an existential crisis faced by all of humanity. This section covers a range of areas/issues that are impacted and is not restricted to environmental/ecological impacts but stretches to include critical areas of financial risks, policy and legislation.

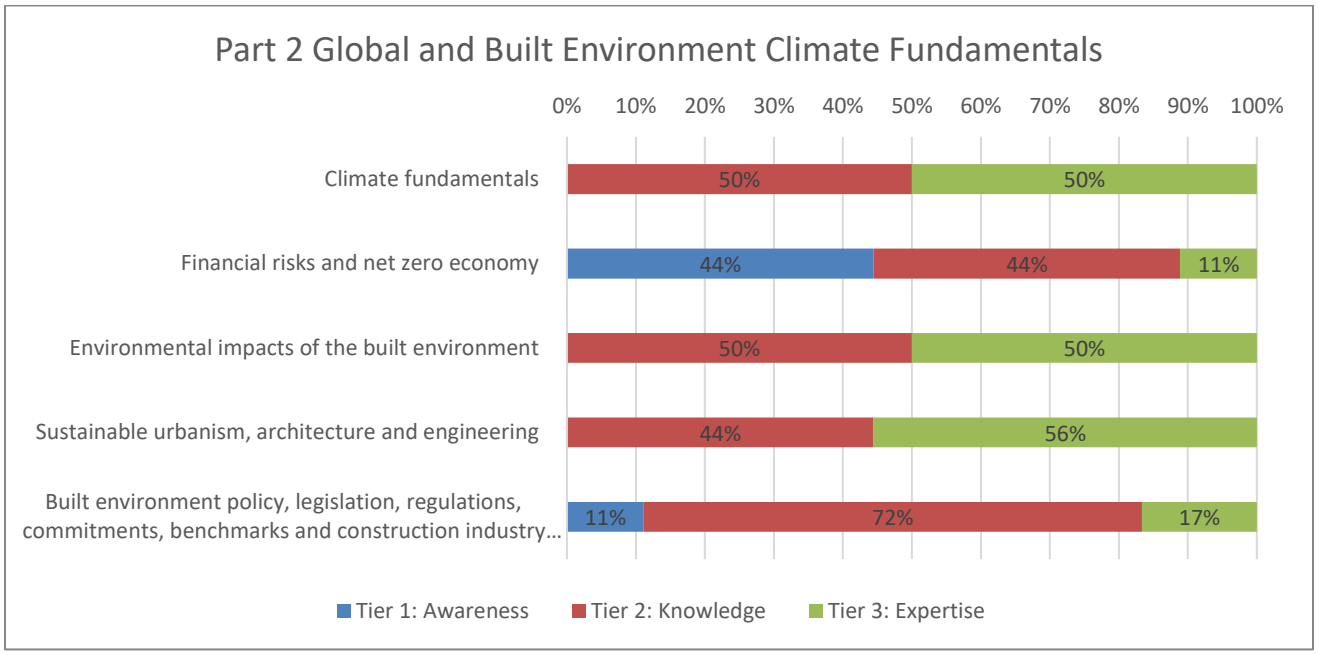
Analysis of survey responses at Part 1:

The results here evidenced a wide range of knowledge and expertise across the different areas of the curriculum, and whilst 74% recorded knowledge and expertise in built environment policy, legislation and regulation, only 19% recorded a similar of knowledge or expertise in financial risks and the net zero economy. Over 80% of schools at Part 1 reported knowledge or expertise in core subject areas of climate fundamentals and environmental impacts of the built environment.



Analysis of survey responses at Part 2:

There were far fewer responses recorded at Part 2 (8no), and they varied in detail and scope but of those that did make a submittal, most noted connectivity with internal specialists in environmental science, renewable energy and sustainable development.
The patterns of knowledge and expertise follows similar patterns to Part 1, with 100% of schools recording knowledge and expertise in climate fundamentals, and 89% recording knowledge and expertise in built environment policy and regulation. Expertise in financial risks and net zero economy remains an outlier, with only 11% recording expertise in this area, and 44% remaining at the more basic level of awareness (Tier 1).



Further Support:

In terms of accessing expertise within the schools, there was a broad range of responses. The list below sets these out in ranking order, starting with those most regularly cited:

- Environmental Design / Environmental Science
- Renewable Energy and Sustainable Development
- Sustainable Cities
- Urban Planning
- Landscaping
- Real Estate and Planning
- High Performance Buildings

Beyond the schools themselves, connections with other departments or faculties within the host University can be categorised as follows:

- Geography (including physical geography, meteorology, soil science, flood management)
- Engineering (including civils, environmental)
- Human Geography (including smart cities)
- Mathematics and Computing

Beyond the University network, most schools that responded noted connections with external organisations with expertise in the field. Many cited research institutes and honorary professors from practice, but these constituted less than 20% of the responses overall. A small number of responses noted their use of expertise from practice and wider consultant teams, including environmental and engineering firms, and honorary professors from practice, but these constituted less than 10% of the responses overall. Given the range of knowledge and expertise noted in 'Climate Fundamentals' it could be concluded that there is established support for most topic areas apart from financial risks and net zero economy. However, it is not clear from this survey, how much this support is being drawn on to deliver the missing expertise in programmes, given that only 40% registered such expertise within their programmes.

Areas to focus on:

Overall, given the range of knowledge and expertise noted in 'Climate Fundamentals' it could be concluded that there is established support for most topic areas apart from financial risks and net zero economy. It appears that all topic areas of the Global and Built Environment Climate Fundamentals would benefit from input of expertise in Part 1, beyond the programme staff, while at the same time offering an opportunity for staff capacity building where this is feasible. Whilst there is generally greater expertise available at Part 2, financial and regulatory literacy remain areas where greater expertise is required than present at this level.

2. RIBA Sustainable Outcomes and Common Threads

> ***"Principles of retrofit and reuse are embedded … POE Adaptation and reuse is linked to technical applications such as IR imaging … Life Cycle costing would require specialist input."***

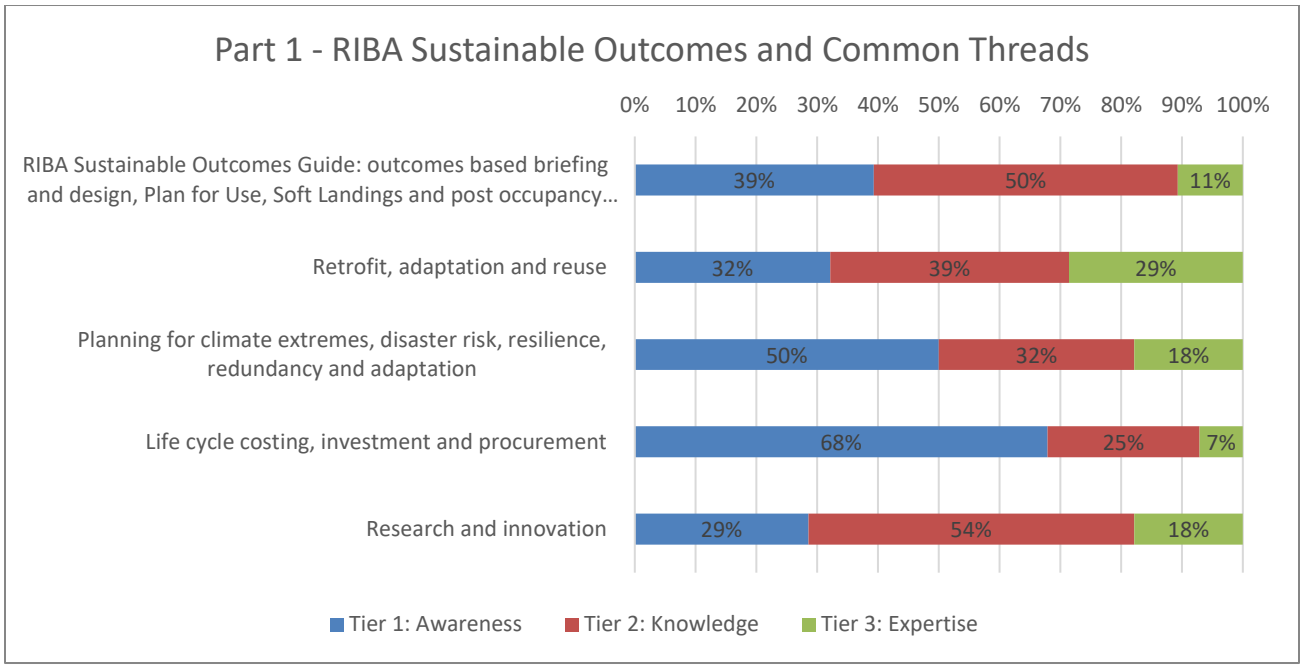
Why this is important:

This Mandatory Competence contains the broad issues of retrofit, post occupancy evaluation, life cycle costing and the research and innovation required to pull these common threads through practice. These common threads represent critical application of the climate fundaments within practice.

Analysis of survey responses at Part 1:

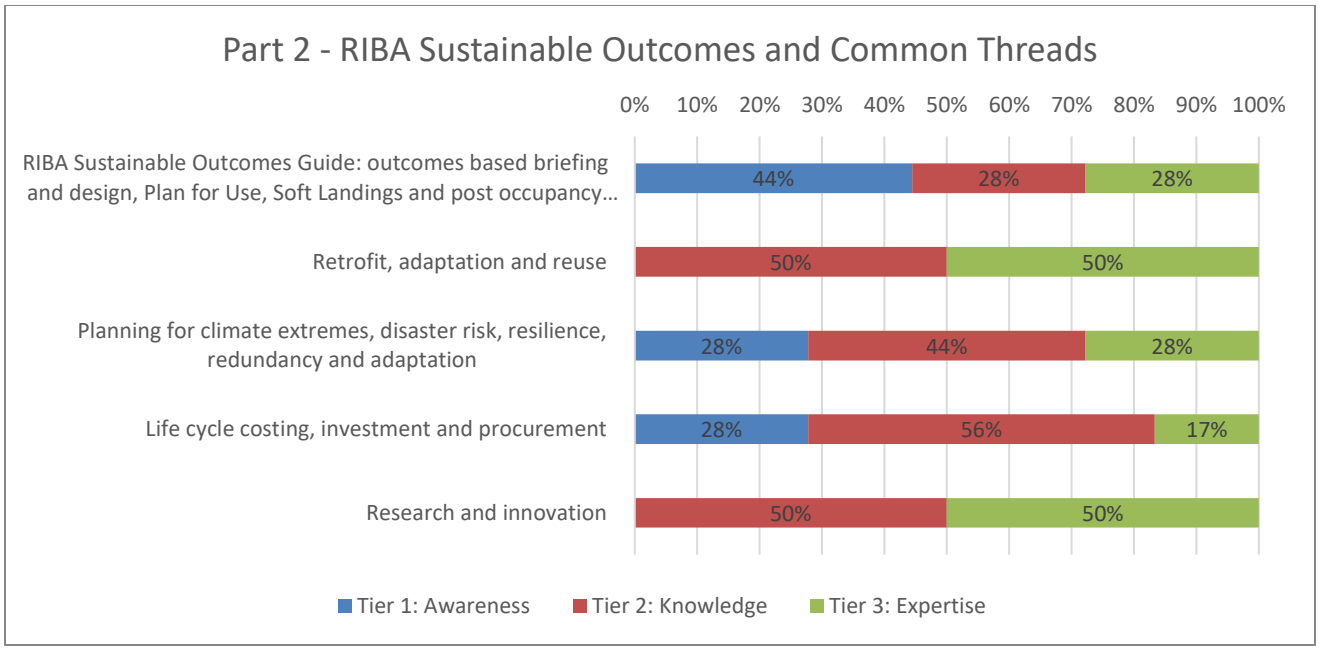
The free text comments submitted as part of the survey are somewhat disparate in nature with certain caveats such as the degree to which the benchmarks for awareness, knowledge and expertise may be variously applied across all responding Schools and Departments, as well as the degree of objectivity with which this has been done.

The majority of responses relate specifically to Part 1 (59%), with 28% specific to Part 2. The remaining 13% representing a combination of Part 1, Part 2 and Part 3 combined responses which could not be disaggregated. The responses at Part 1 and Part 2 demonstrated the ability of most Schools to access additional expertise through School or Faculty structures or through networks that include external organisations and agencies. Responses varied depending on context, with the nature of the host institution with the disciplinary breadth of the School or Department being of influence.



Analysis of survey responses at Part 2:

The results here show that Schools considered themselves to have a limited level of knowledge related to RIBA Sustainable Outcomes (50% Part 1 and 28% Part 2). The remaining responses for the other four areas in this category reflected increased expertise at Part 2 (compared to Part 1) across those four areas. There was broad confidence specifically in two categories: 1. retrofit, adaptation and reuse, and 2. research and innovation, where responses reflected an even distribution of expertise (50%) and knowledge (50%).



Further support:

Virtually none of the additional information provided through free text comments relates to levels of expertise, although it might be reasonable to assume that external input would tend towards the level of expertise.

Sources of additional expertise identified included:

- Specific institutional or regionally based centres
- Other Schools or Departments within respective institutions
- Other expertise within other subject areas with respective Schools / Departments
- Industry organisations such as TRADA
- Industry Partners
- Practice contributions / Visiting Professors

Particular mention is made of the opportunity for students to visit national events such as FutureBuild, and participation in initiatives such as UK Construction Week, where expertise can be accessed. The prospect of materials being produced that may be shared amongst Schools was raised in this specific area but arises and a key theme across the survey. Sharing of materials across school is revisited in conclusions and recommendations and informs the development of the second stage of this initiative. In addition, this outcome informed the development of 'Building Block' teaching resources initiated by SCOSA, which currently focus on Fire and Life Safety.

Areas to focus on:

Programmes would benefit from increasing expertise and knowledge related to outcomes-based briefing and design, including the delivery of learning and teaching related to post-occupancy evaluation studies at both Part 1 and Part 2. Lifecycle costing is traditionally bought in via external

expertise (e.g. quantity surveyors) but arguably architecture students need some staff expertise within their programmes in order to be able to relate their studio work to life cycle costing.

Whilst annual events (such as FutureBuild) provide an opportunity to access industry expertise this is a 'one-off' experience during the academic year, often presenting a specific view on a subject. It is, therefore, important to note that there needs to be continual access to expertise.

3. Human Factors

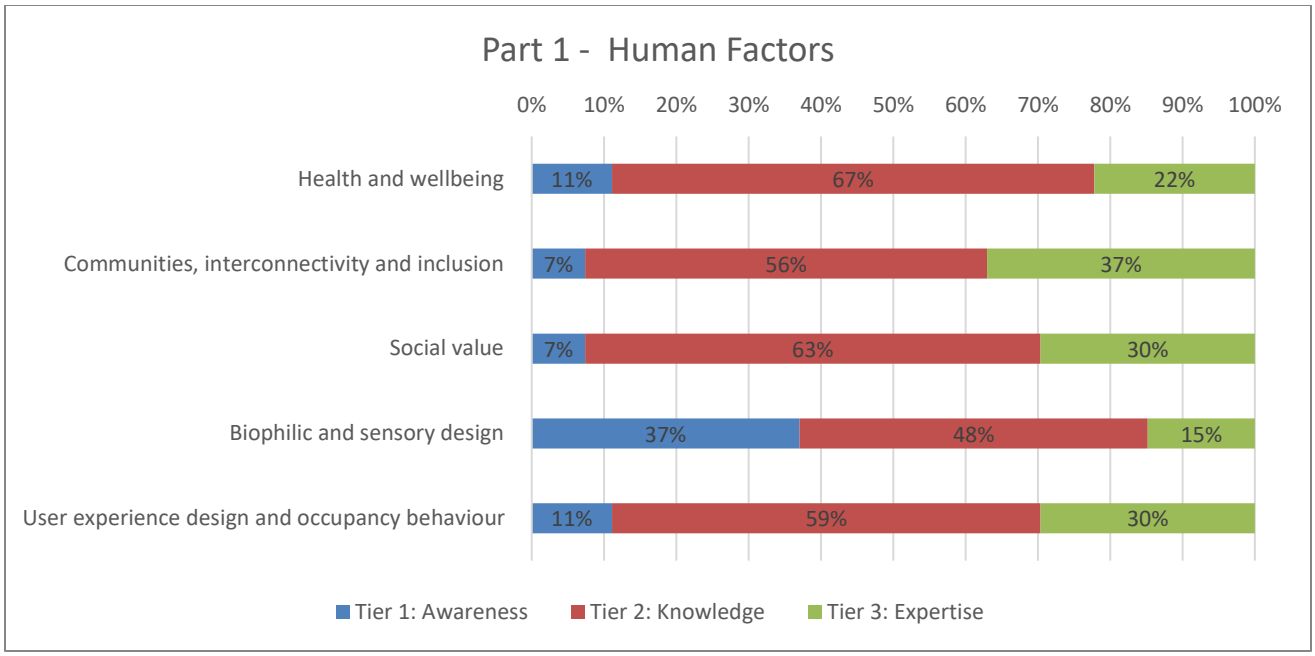
> ***"The School is a leading authority on indoor air quality and health. Works in collaboration with the School of Medicine & School of Earth & Environment. Also, Business School Socio-technic Centre for User experience design and occupancy behaviour."***

Why this is important:

There is a long tradition of teaching 'Human Factors' in general architecture which is related to perception and the inhabitation of space, and how the built environment impacts people and communities' health and wellbeing. However, the teaching of ergonomics has been eroded over the years as the curriculum has been squeezed, and this has also affected the specific teaching of inclusive design as a consequence. Despite this, the wider 'Social Value' of architecture, including other aspects, has always been tacitly recognised in teaching, and this is reflected in the relatively high level of expertise cited by Schools for this area. It is also clear that some of the headings under 'Human Factors' overlap with other headings in the RIBA CLCs. The consideration of Biophilia is more recent in architecture and is closely related to the need to consider biodiversity, ecology and people's innate connection with nature in design

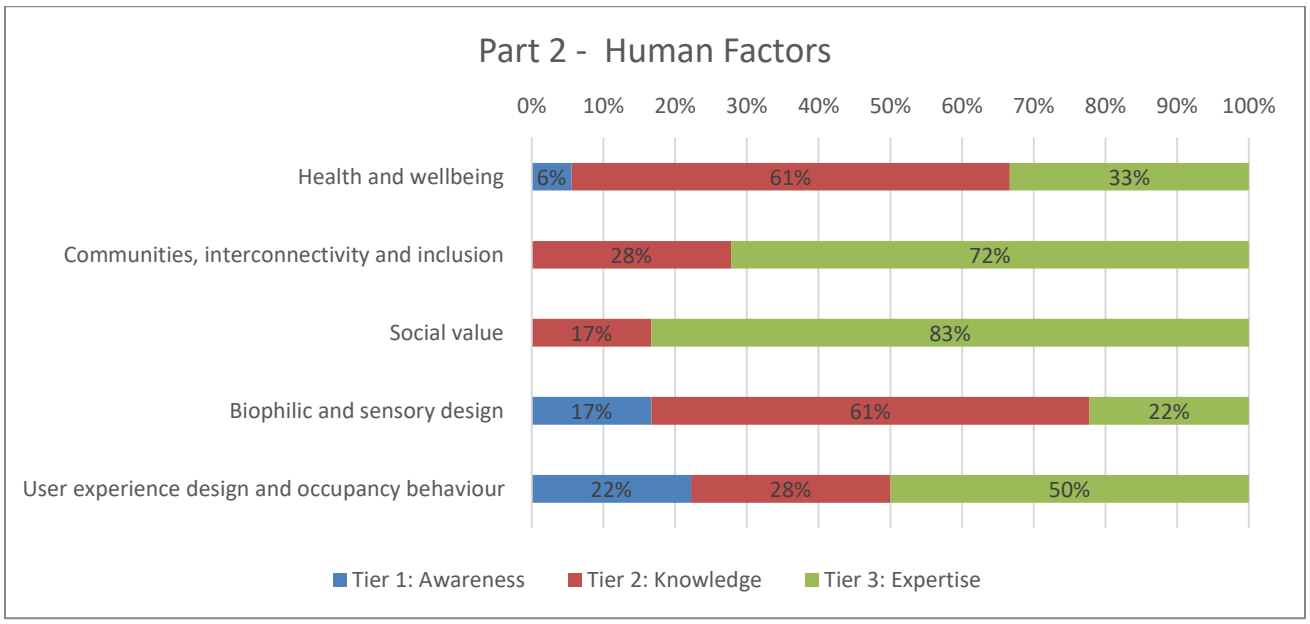
Analysis of survey responses at Part 1:

Expertise at Part 1 was noticeably less for all areas; with the majority of responses sitting within knowledge. The results here show that while Schools considered themselves to have high levels of knowledge and expertise at Part 1 related to designing for 'Social Value' (93%) and 'Health and Wellbeing' (89%), within 'Biophilic and Sensory Design' there appears to be less confidence with a higher percentage reporting awareness (37%).



Analysis of survey responses at Part 2:

The results here show that while Schools considered themselves to have a very high level of expertise at Part 2 related to designing for 'Social Value' (83%) and 'Communities, Interconnectivity and Inclusion' (72%), less than a quarter stated they had expertise for 'Biophilic and Sensory Design' and on average, only just over a quarter stated expertise was available within their School to teach 'Health and Wellbeing'. A relatively high number of Schools stated that they had expertise in 'User Experience Design and Occupancy Behaviour' at Part 2 (50%).



Further support:

Around half of all Schools stated they had ‘knowledge’ in all five of these areas overall with many citing their ability to draw on expertise from other departments related to:

- Health
- Medicine
- Engineering
- Landscape architecture
- Interior architecture
- Externally from industry

The use of the RIBA ‘Social Value’ toolkit is recommended as well as design standards and guidance such as ‘WELL Building Standard’ and ‘Living Building Challenge’.

Areas to focus on:

Overall, the findings suggests that, despite the availability of external expertise, support is needed for teaching across all the topics at Part 1, and specifically on health and wellbeing and biophilic/sensory design at Part 2 in particular in the area of ‘Human Factors’ in order to relate these areas to studio design directly.

4. Circular Economy

> ***“We often visit industry, manufacturers, quarries, building sites and others to gain external expertise”.***

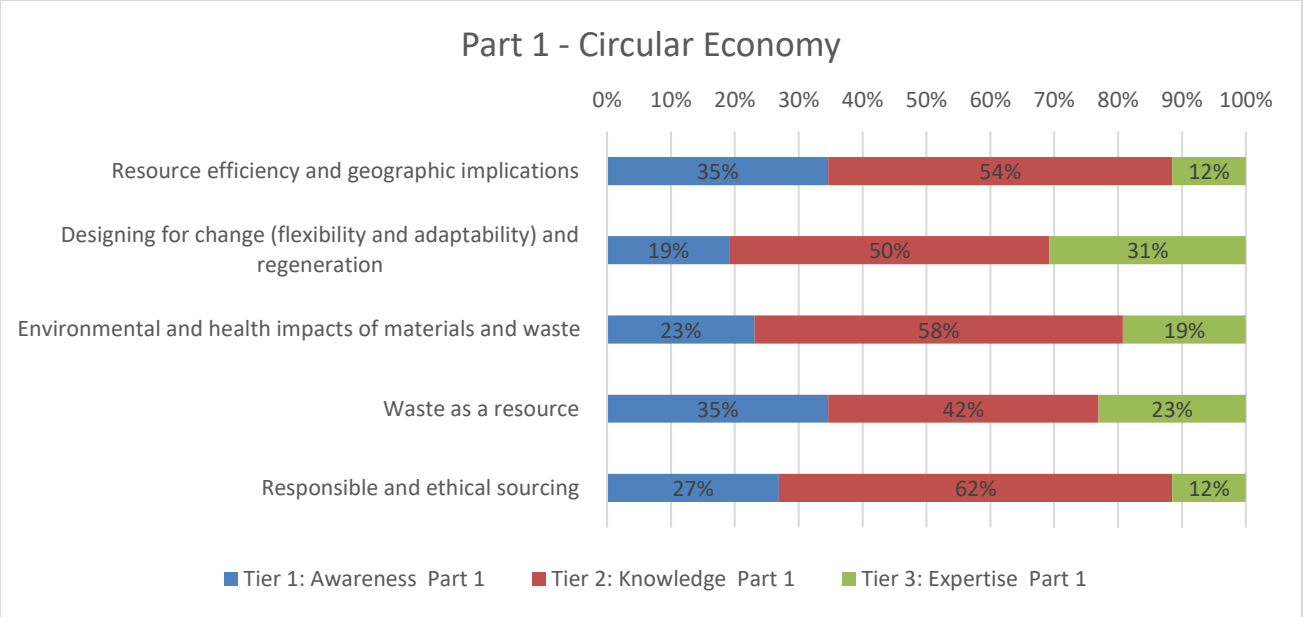
Why this is important:

Traditionally architecture schools have not concerned themselves with where construction materials are sourced from or where they eventually ended up, despite an evident interest in historical vernacular architecture. However, there is an increasing demand for society to take responsibility for how it uses natural resources, and this particularly applies to architecture given that the built environment globally is responsible for about 40% of all carbon emissions today, which includes a significant amount of embodied carbon in the manufacturing and construction processes.

Analysis of survey responses at Part 1:

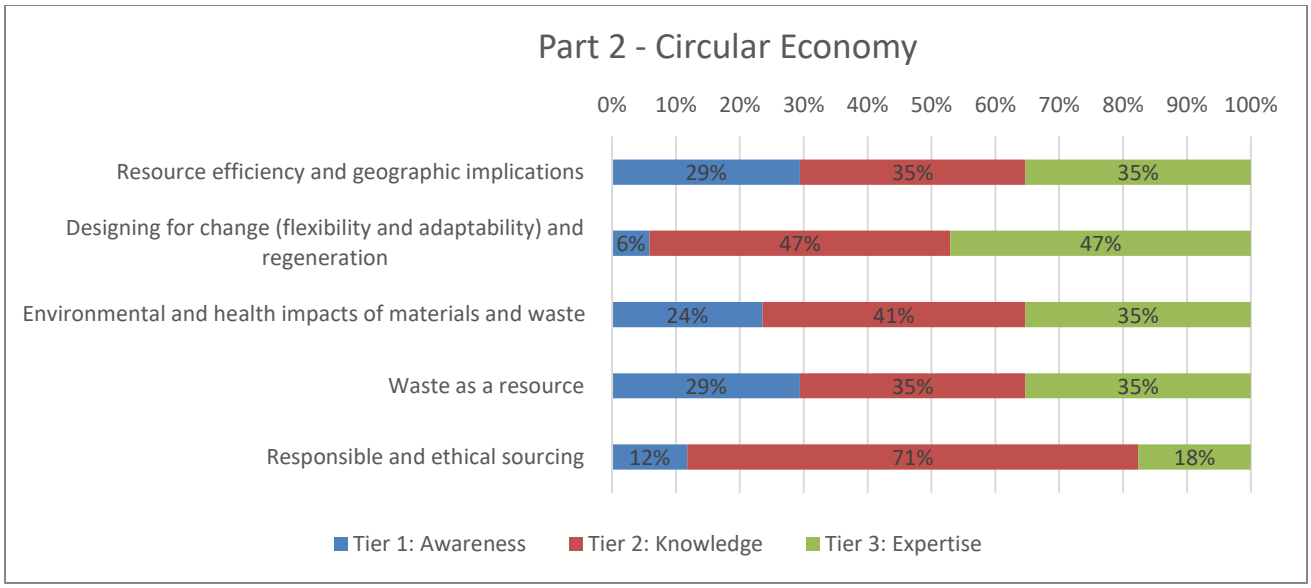
The results of the survey indicate that just over half of Schools have knowledge at Part 1 in relation to resource efficiency and geographic implications; with half of Schools having knowledge related to designing for change and regeneration, although with more expertise evident in this category (31%) than in the other sections forming the overarching Circular Economy theme. A similar

pattern was recorded for environmental and health impacts of materials and waste in terms of relative expertise and knowledge. Interestingly, despite the lack of expertise (in responsible and ethical sourcing generally at Part 1 (12%), there was still a relatively high level of knowledge related to this area (62% Part 1).



Analysis of survey responses at Part 2:

There is more expertise at Part 2 under the first four categories; resource efficiency, environmental and health impacts, and waste as a resource (35%). As with Part 1 around half of Schools (47%) had knowledge related to designing for change and regeneration, with more expertise evident here (47%) at Part 2. Interestingly, despite the lack of expertise (in responsible and ethical sourcing at Part 2 (18%), there was still a relatively high level of knowledge related to this area (71%).



Further support:

Although 76% of Part 1 and 82% of Part 2 respondents confirm Circular Economy expertise exists within the wider institution (or from wider industry and business) that they can draw upon to address gaps in programme expertise, a significant majority of Schools rely on expertise in the wider constituency of their university or industry to help them deliver their curricula in the general area of Circular Economy (76% Part 1, 82% Part 2). There are now a number of open-source tools available to staff and students which can be used to understand the basic upfront and embodied carbon related to initial design decisions.

Areas to focus on:

Overall, the findings indicates that support at Part 1 is needed particularly for addressing resource efficiency and geographic implications, designing for change and regeneration, and environmental and health impacts of materials and waste, compared to Part 2. In both cases, there is relatively little expertise available with the programme in relation to responsible and ethical sourcing, which would benefit from more staff capacity building.

5. Energy and Carbon

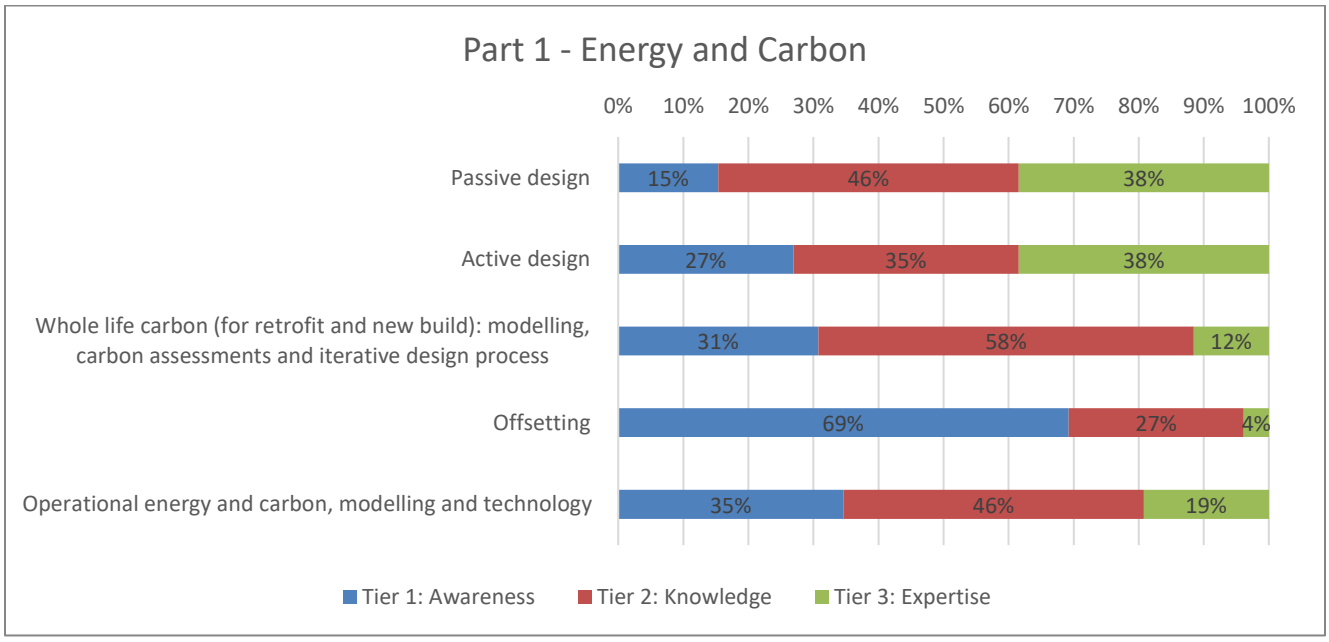
"Whole life carbon assessment is a large and wide-reaching topic, not covered beyond general awareness."

Why this is important:

Understanding the upfront and embodied carbon emissions that we build into our design proposals, and subsequently built form, is vital, given that such emissions, as reported by Arup, can now easily amount to 50% of the overall emissions over the lifecycle of a building. The UK government is also actively considering regulating for such emissions, which necessitates our students having the capacity to carry out basic analysis and make informed choices of form, products and materials related to carbon emissions over a building's lifecycle. At the same time, buildings are globally responsible for around 40% of all carbon emissions, and therefore a sound understanding of the predicted operational energy use and associated carbon emissions is also critical for good design proposals. An understanding of active and passive solutions, and the difference between them, is necessary in order to make effective design decisions.

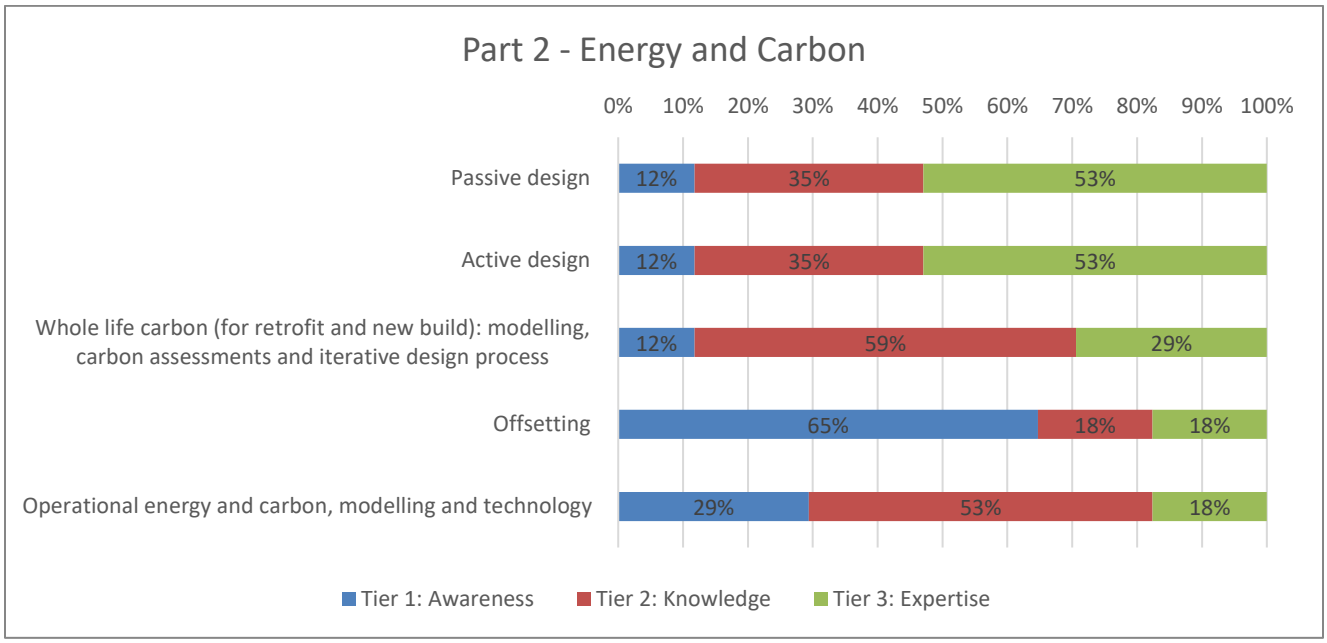
Analysis of survey responses at Part 1:

Expertise varies across themes in the field of Energy and Carbon, with most (over 80%) citing knowledge or expertise in the fields of passive and active design measures. In contrast 63% recorded only awareness of carbon offsetting, with just 14% recording expertise in this area. Experience of whole life carbon was far more mixed, with most (47.4%) stating knowledge, with the rest equally split between awareness and expertise (28.1% and 24.6% respectively). Operational energy and carbon, modelling and technology was another area where investment is suggested by the data, with less than a quarter citing expertise in this field, with 36.8% having 'awareness'.



Analysis of survey responses at Part 2:

The results show that passive and active design measures and whole life carbon are widely embedded in current teaching with knowledge and expertise shown by over 80% in each category. By contrast only 36% of schools record a similar level of expertise in carbon offsetting. In terms of free text comments, one notable entry here at Part 2 that could raise awareness of offsetting is for schools to seek to offset activities, including fieldtrips and materials as part of their operation.



Further support:

When taken in conjunction with the qualitative data, it is clear that many Schools benefit from in-house or faculty expertise in areas of active and passive design, though this can benefit if increased, but there are few offering expertise in offsetting, and it can be concluded that this is an area where greater knowledge and expertise is required.

Likewise teaching of whole life carbon and operational carbon varies widely between institutions and is an area where further expertise would be needed, working either with industry experts or other departments specialising in embodied carbon analysis (e.g. civil engineering). Only a small number (less than 10%) note the use of external consultants and guest speakers, and this resource could offer a solution to close some of the gaps in expertise noted above. Finally, a small number note lower awareness of energy and carbon in connection with design studio teaching, and this again may be an area where connectivity with the wider industry would be of benefit.

Areas to focus on:

Overall, both Part 1 and Part 2 would benefit from greater focus on capacity building related to understanding whole life and operational energy and carbon use as modelled within the design studio. This includes understanding how to balance zero carbon ambitions with appropriate offsetting where needed.

6. Ecology and Biodiversity

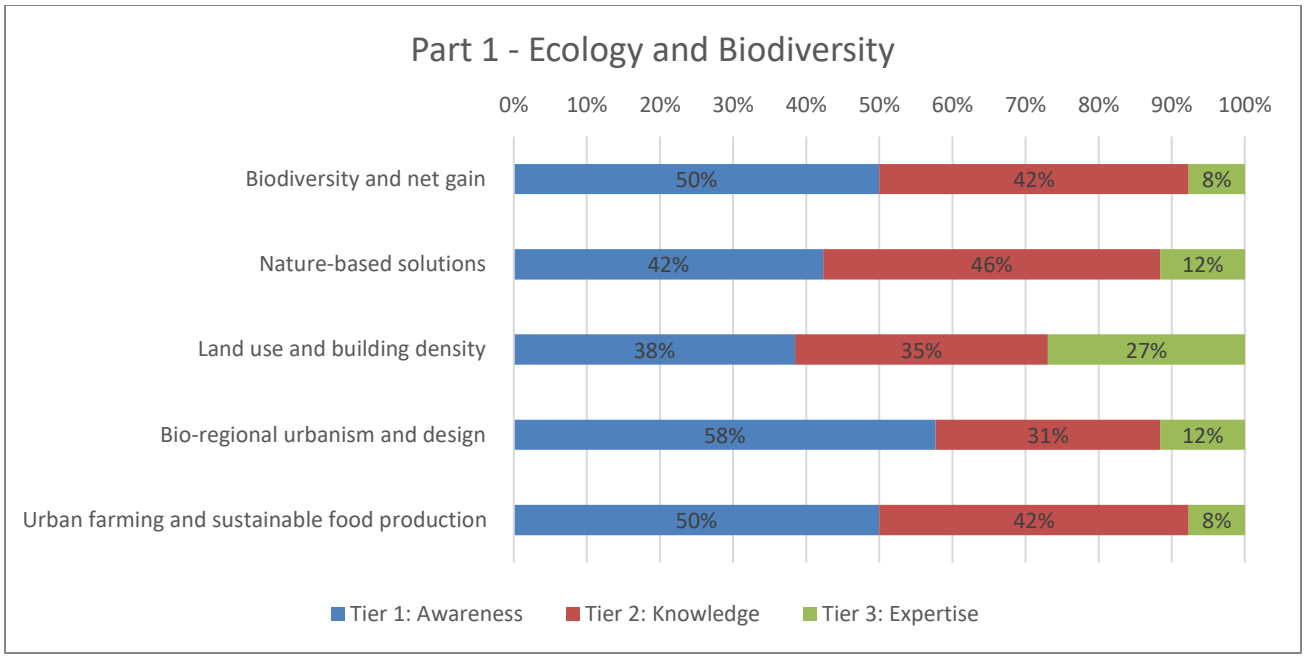
> ***"Some of this is quite specialised for architecture education, such as 'water pollution in (natural) aquatic habitats'. Architects should be aware of it and the architectural causes, but not experts in it (as it sits outside of the discipline)."***

Why this is important:

Recent scientific reports indicate a drastic loss of biodiversity, with the UK having one of the lowest rankings, due to its high density and overdevelopment. Architecture contributes to this loss but can also help regenerate biodiversity. Understanding 'Ecology and Biodiversity' as a fundamental aspect of architecture and the built environment is essential and complex. Many of the competencies in this theme overlap with others, given the ecosystem interdependencies involved. Responding to climate change impacts will necessarily involve nature-based solutions, to ensure ecosystems are not threatened, and are restored where possible. Traditionally, architecture has been building focussed. It is perhaps therefore not surprising that compared to other themes, the overall responses for this theme show much lower levels of expertise across responding Schools of Architecture, which should give cause for concern.

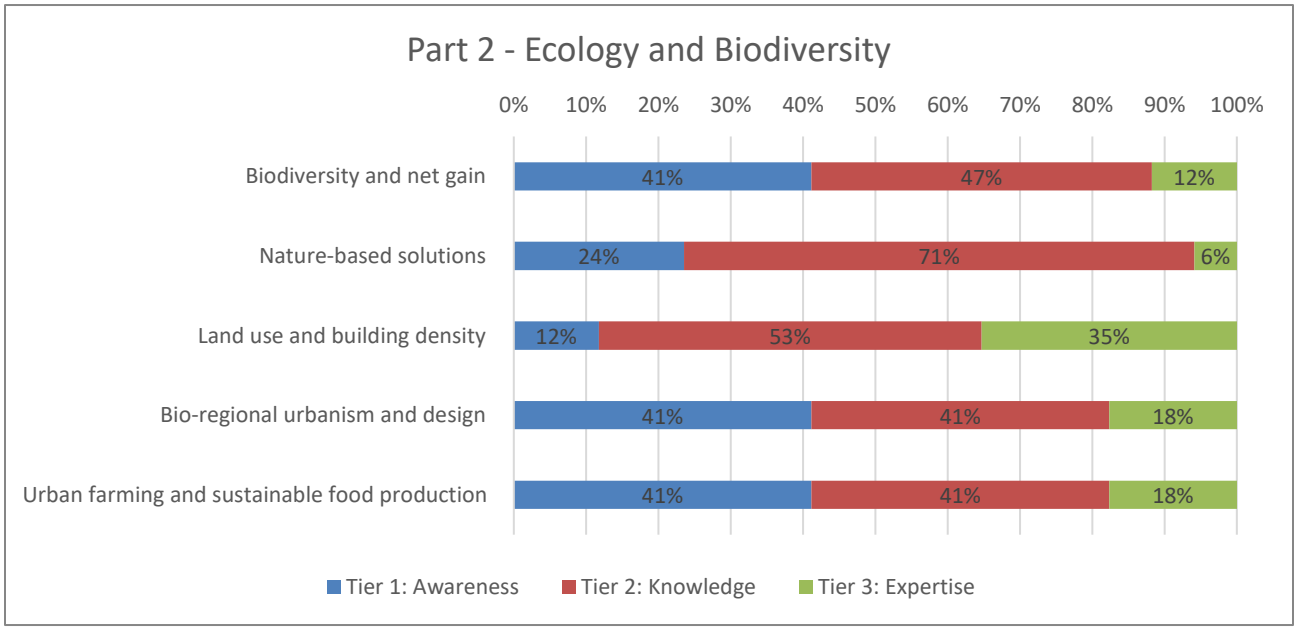
Analysis of survey responses at Part 1:

In terms of results, half of Schools say they are aware of 'Biodiversity and Net Gain', while 42% claim knowledge in this area with limited expertise (8%). Few Schools have expertise in the area of 'Nature-based Solutions' (12%) but more claim to have knowledge (46% Part 1). Awareness of 'Bioregional Urbanism and Design' is quite high at 58%, but with relatively little knowledge or expertise demonstrated. Food production drew another low response for expertise (8%) with similar levels of knowledge and awareness compared to the other categories in this area. There is greater expertise (27%) in relation to 'Land Use and Building Density', as might be expected given that these are traditional concerns of architecture.



Analysis of survey responses at Part 2:

Close to half of Schools (47%) claim some knowledge in this area, and only 12% have expertise. Fewer Schools claim expertise in the area of 'Nature-based Solutions' at Part 2 (6%) than at Part 1 but there is an increased percentage sitting within knowledge (71%). Knowledge/expertise of 'Bioregional Urbanism and Design' is again quite high at 59% combined, but with relatively little expertise (18%). Urban farming and food production shows a higher response at Part 2 for expertise (18%) than at Part 1 and equal levels of knowledge and awareness reflecting exactly the outcomes in Bioregional Design. There is a greater level of expertise in relation to 'Land Use and Building Density', which is intensified at Part 2 compared to Part 1 above.



Further support:

Many of the areas under ecology and biodiversity are traditional seen as lying beyond architecture and are typically attributed to landscape architects and environmental scientists.
Around two-thirds of Schools cited that they had access to expertise in 'Ecology and Biodiversity' outside of their School. This still leaves a third who do not, signalling that more support is needed in this area. Most respondents stated that they drew on the Faculty that they were placed in, this included:

- Landscape Architecture,
- Planning
- Engineering
- Geography
- Ecology

Importantly, some respondents said that whilst the expertise may reside there, time and resources may prevent their ability to access that expertise.

Where expertise is not available within educational institutions, there are now numerous industrial consultancies such as Bioregional.com who specialise in this work.

Areas to focus on:

Compared to all the other main headings, except water, and connectivity and transport, ecology and biodiversity need more capacity building according to the findings at both Part 1 and 2, particularly in relation to nature-based solutions achieved through architecture. This should be seen as an educational re-framing of architecture within ecosystems rather than ecosystems as an add-on to building design.

7. Water

> ***"Water is a very important aspect of sustainability, but it is rarely addressed in curriculums in most schools of architecture. Flooding is also an important issue, especially when students do design work in coastal regions or in low lying areas."***

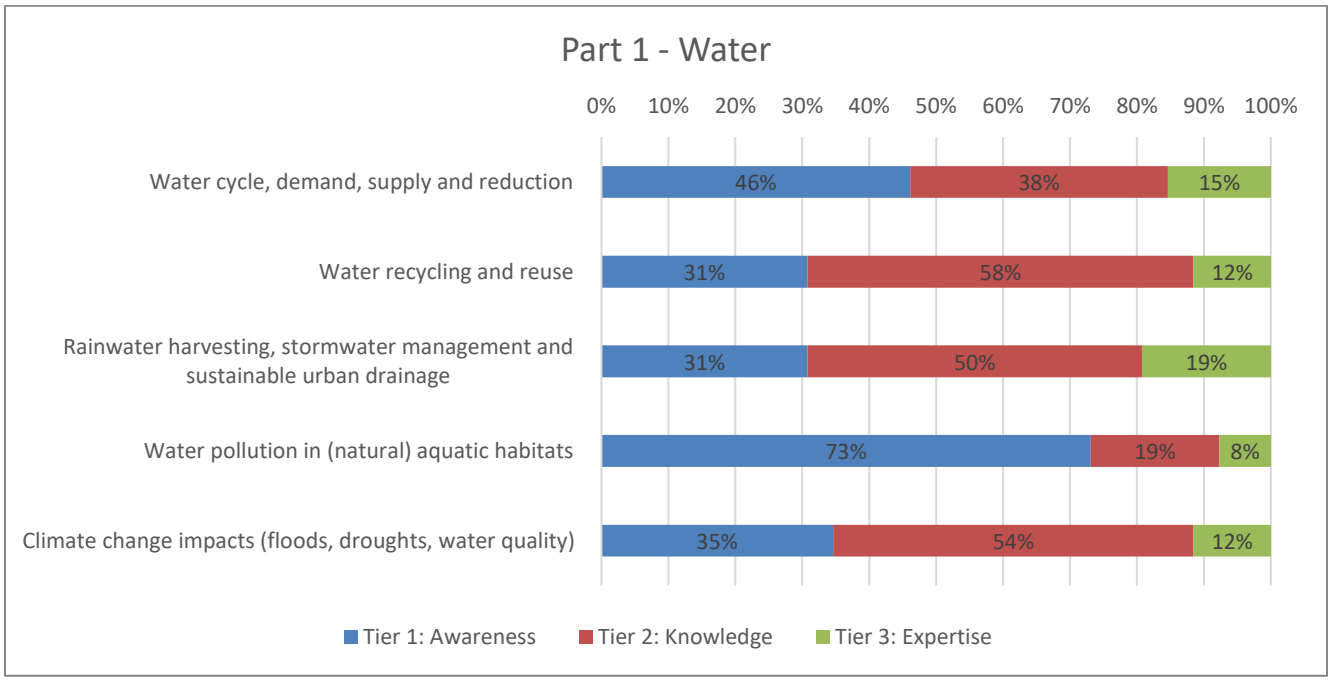
Why this is important:

Flooding is caused by architecture when it seals land without offering adequate drainage and at the same time destroys architecture which is not resilient. The use of water in design has in the past been relegated to plumbing issues and landscape features, but increasingly Schools are

incorporating sustainable water cycles into their design briefs with the recognition that water has to be saved and that climate change impacts on buildings, which need to be designed to be more resilient to drought, floods and exceptional rainfall.

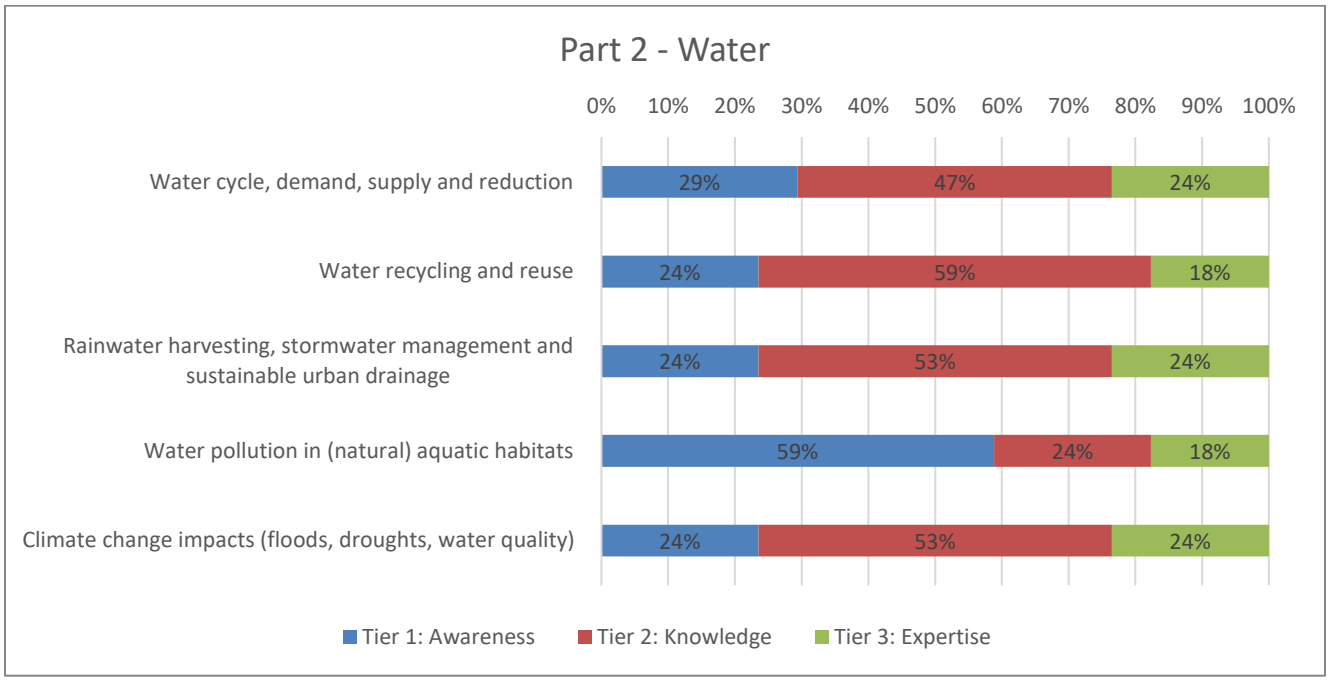
Analysis of survey responses at Part 1:

In terms of results, a similar pattern emerges in relation to the 'Water' themes as for 'Ecology and Biodiversity', with very few programmes having expertise across all headings and around half having knowledge in water recycling and water reuse (58%) and rainwater harvesting and Sustainable Urban Drainage Systems (50%). Whilst there is high awareness of issues focused on water pollution (73%), very little knowledge or expertise sits in this category.



Analysis of survey responses at Part 2:

Overall a very similar pattern to Part 1 is reflected in the outcomes at Part 2. With increased knowledge and awareness for water pollution (42%).



Further support:

Around two-thirds of Schools also cited that they had access to expertise in the theme of 'Water' outside of their School. This again signals that more support is needed in this area. Most respondents, again drew on the Faculty that they were placed in, which included:

- Landscape Architecture
- Planning
- Engineering
- Geography
- Ecology

As with the previous theme, some respondents here again said that whilst the expertise may reside in the Faculty, time and resources may prevent their ability to access that expertise.

8. Connectivity and Transport

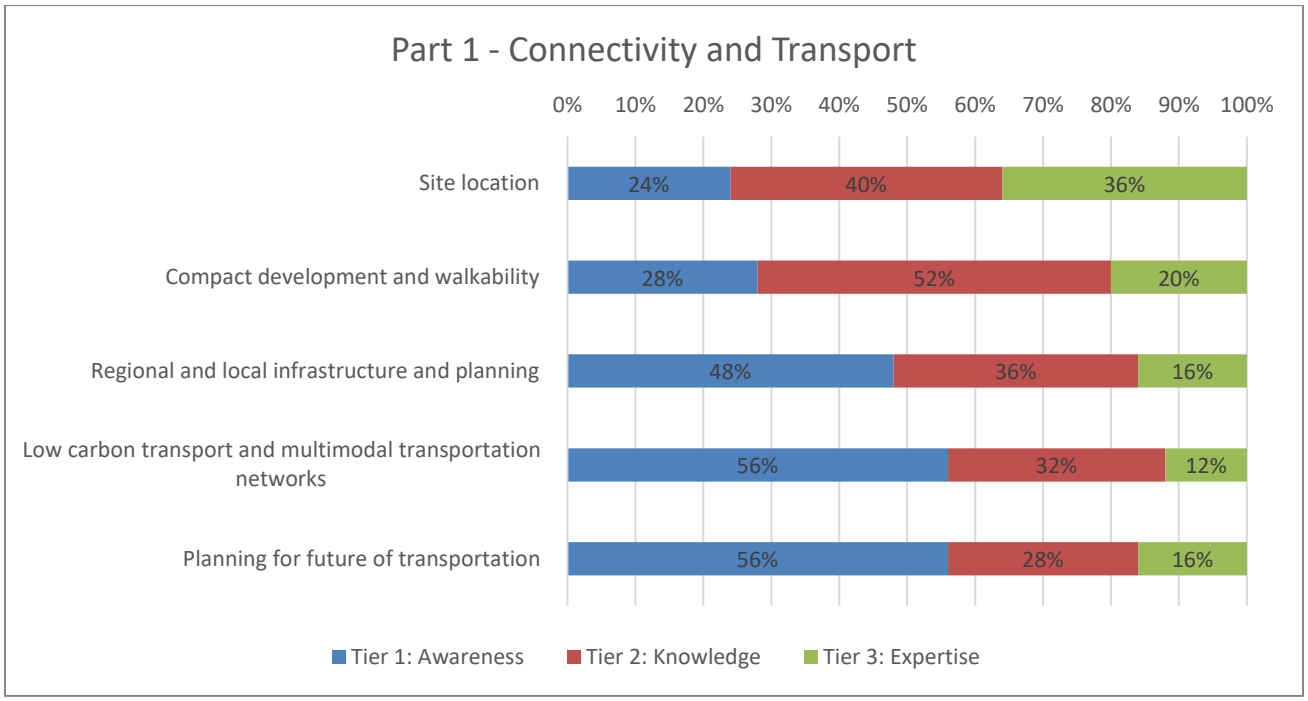
"For an architecture course, it is more important to understand how to fit into a transportation context than to actually do the urban planning. We do discuss electrical vehicles and charging stations as part of an architectural design agenda."

Why this is important:

It is the placement of settlements and buildings that determines transportation, and it is often not so much architecture 'fitting into a transportation context' as actually driving it. If an architect agrees to a client brief which sets up a building or settlement with poor connectivity, then it is the architecture placement itself which impacts on what mode of transportation the residents have to use. One way to address this is the example Curitiba in Brazil provides, where the Mayor (architect Jaime Lerner) insisted on putting in appropriate public transport infrastructure ahead of any planning of settlements.

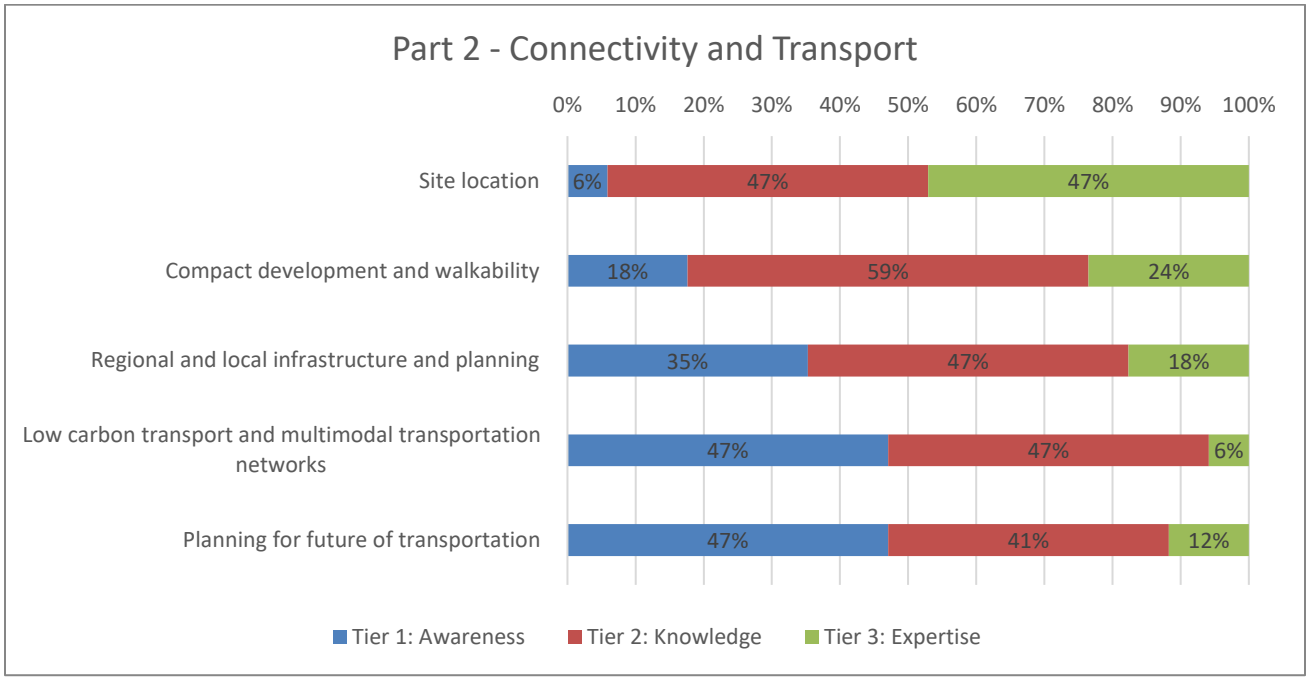
Analysis of survey responses at Part 1:

Understandably 'site location' and 'compact development and walkability' show much higher rates of knowledge at Part 1 (40% and 52% respectively) than the remaining three categories under this theme. Site location has a higher level of expertise (36%), as could be expected; both 'compact development' and 'site location' are closely aligned with design studio explorations, often featuring in exploratory briefs at the early stages of Part 1. Around half of schools claim awareness in the last three categories, with limited expertise.



Analysis of survey responses at Part 2:

As with Part 1, knowledge and expertise in 'site location' and 'compact development and walkability' are clearly identified at Part 2. There is increased knowledge in the remaining three categories at Part 2 compared to Part 1.



Further support:

This theme prompted questions through free text comments regarding where expertise needs to reside to address critical issues of transportation planning. The free text comments in this section are notable, in that they are explicit as to where the expertise currently lies and where it is accessible outside of architecture (in other departments, within other courses, and local, regional and national planning authorities).

Areas to focus on:

There is relatively little expertise within architecture programmes related to transport planning. The comments, however, also question the degree of expertise required in this category as related to architectural education and practice. This is questioned less in other sections, suggesting that there is work to do in contextualising 'Connectivity and Transport' in terms of the knowledge schedule and where schools have positively commented on existing resources and specialist knowledge available to them, this perhaps represents an example of the potential for knowledge sharing across UK schools.

Summary of Findings

- There has been an amazing response from Schools given the timing, stress of the past two years, and other surveys taking place around the student experience, Schools' responses to Covid, etc. Schools have been generous in terms of highlighting what they are doing and providing very useful context for the survey. There have been useful criticisms of the survey content and structure, including the lack of definitions of the three main tiers; awareness, knowledge, and expertise. The survey only captures breadth and coverage rather than depth, something we aim to address in Phase 2 of this initiative.

- From the free text comments, it is clear that Schools are employing a wide variety of imaginative means to engage with climate literacy and that there is a degree of self-awareness in terms of Schools acknowledging climate literacy areas which they need to develop.

- There's a wide range of awareness, knowledge and expertise among Schools, and this first tranche of research has helped identify the gaps for further research (see section 6) while also demonstrating the traditional strengths in architectural teaching.

- Clear areas for support with further developing climate literacy in Schools are indicated under various headings including financial risks and net zero economy, life cycle costing, investment and procurement, biophilic and sensory design, resource efficiency and geographic implications, whole life carbon, offsetting, and the general heading of 'Water', 'Connectivity and Transport', and 'Ecology and Biodiversity'.

- The findings raise issues of where the levels of Awareness, Knowledge and Expertise currently sit and 'should' sit. There are wider questions at Part 1 and Part 2 and the role architecture plays in addressing climate change and the climate emergency within the industry. In many areas, a greater level of expertise is deployed at Part 2 compared to Part 1, which makes sense in terms of learning and teaching progression. However, greater consistency of knowledge is still required at Part 1 across all themes.

- When utilising teaching resources outside of the departments, a small but significant number of schools noted cost barriers to commissioning expertise from outside of their departments due to institutional re-charging of teaching resources between departments/faculties. Outsourcing academic input will have cost implications which may prove challenging for some.

Conclusions

> ***"This has been a useful survey to reflect and appraise our school research and teaching. We look forward to seeing the results. Thank you."***

The new RIBA Climate Literacy Knowledge Schedule provides a firm structure for enabling students and practitioners to have a relevant degree of awareness, knowledge and expertise in relation to the relevant headings set out in it. It does not prescribe the percentage level of awareness, knowledge and expertise that staff in Schools of Architecture should have in relation to each heading, leaving this to the Schools to establish for delivery of their curricula.

Nevertheless, the aim of the overarching interdisciplinary Climate Framework within which the RIBA Schedule sits, is that all practitioners, students and staff should have at least an awareness of each heading within the Schedule, and additional knowledge and expertise where necessary. From this point of view, it would seem sensible to support Schools as a first step in enabling all staff to have awareness of content related to each and every heading, and appropriate knowledge (as relevant) to help inform their teaching.

The RIBA has previously indicated a willingness to support Schools through its RIBA Academy and the development of a specific resource related to supporting climate literacy for students and staff. It would seem useful then, as a next step in Phase 2 of this initiative, to understand what Schools would like to potentially use from this resource, both in terms of format and content, given that there already exists several toolkits or libraries freely accessible addressing these issues, some specific to architectural education.

It is notable that very few responses in this survey describe a full range of expertise existing within one School, suggesting that there is either significant cross departmental and industry collaboration, or significant gaps in support. Whilst it is clear that many Schools are able to draw on a wide range of expertise from further afield within their university and from industry at large, it is not clear how many actually do this from this survey.

The survey findings also suggest that Schools are open to receiving support for their curriculum from industry and other academics within their institutions. This raises the question of whether it could be possible for Schools to support each other in terms of resource availability. This could be in the form of skill/expertise swapping between Schools and with industry on a digital basis, via an open bartering system. This might best be done at a local or regional level but should not preclude interaction at a wider level where necessary. There is an opportunity in Phase 2 of this initiative to find out from Schools what type of further support they would like in order to develop various curricula areas related to the Climate Literacy Knowledge Schedule. This might take the form of a supported dialogue within each School to identify requirements based on a common set of questions related to the Schedule.

One particular challenge lies in understanding the difference between student perceptions of staff skills and resources available and how staff perceive this. There have been several student

surveys carried out via StuCAN (Student Climate Action Network - currently standing at 22 active groups representing their School) which would seem to indicate that the available expertise both within and outside of the School is not translating into what students perceive they are being taught in terms of climate literacy, perhaps indicating issues with the way courses are structured and studio briefs are formulated. Further exploration to establish what resources are available within each School and their wider Institution, but are not currently used, would also be informative and suggest a way forward for Phase 2 of this initiative.

Recommendations and rationale for Phase 2

- That SCOSA develop a proposal for the RIBA Academy to support the development of curricula related to the new Climate Literacy Knowledge Schedule with resources to be defined from a SCOSA consultation exercise with all UK (Architecture) Schools.

- Given that 50% of responses were blank in the section asking about expertise outside of architecture/department, further investigations are needed to obtain a more complete picture. It is proposed that SCOSA support these investigations with the deployment of a research assistant to gather this information from Schools.

- As part of a trust building exercise between all Schools, and with a view to developing a skills exchange process, it is proposed that each School commit to developing or releasing a single digital output to support learning and teaching related to a specific heading in the RIBA Climate Literacy Knowledge Schedule for all Schools. This could take the form of a qualitative webinar, or a set of lectures or workshops etc. This would be co-ordinated by SCOSA to help ensure all headings in the Schedule are covered.

- Phase 2 - As part of a qualitative development process, it is proposed that each school will be provided with a framework and questions for discussion concerning where they need support for developing their curricula in relation to the new RIBA Climate Literacy Schedule.

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