RaY

Research at the University of York St John

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REFLECTION REPORT

LIVING LAB: **LEARNING AT THE JUNCTION**

February–July 2022

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By the Ecological Justice Research Group
Supported by the Institute for Social Justice

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- City of York Council
- the students and staff who gave their time, ideas and energy to the Living Lab

Students leading a guided walk to the junction

Design: **HBA Graphic Design**
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THE YORK ST JOHN **LIVING LAB**

The Living Lab is an interdisciplinary network of York St John University staff and students, external organisations, local activists, and City of York councillors and officers, which aims to find innovative solutions to real-life problems.

The purpose of the Lab is to provide students with the appropriate skills and opportunities to engage meaningfully with ecological and social justice issues[1].

The first York St John Living Lab is also a collaborative action research project of the Ecological Justice Research Group (EJRG), a university-wide collective of academic and professional services staff. In undertaking cycles of planning, action and reflection, we wish to find and embed a culturally responsive pedagogy of ecological justice into our curriculum[2] – a form of Living Lab which meets our students' interests and needs. This Reflection Report is not a 'brochure' for our Living Lab but a critically reflective container for our learning from this first cycle of pedagogical action.

This pilot Living Lab has involved nine different modules from four different Schools of the university: Biosciences (*Biology of Disease*); Education (*Primary Core Curriculum*); Fine Art, (*Expositions*); Geography (*Social and Cultural Geography and Sustainability*); Graphic Design (*Specialist Projects*); Languages and Linguistics (*Multilingualism*); and Performance (*Musical Exploration and Politically Engaged Practice 2*).

Through this university-wide project, our aim is to offer students a 'hands on' learning experience which can help them to develop **advocacy skills and a sense of agency**, as well as applying key ideas from their academic programmes to real issues. Students are encouraged to see themselves as problem-solvers, researchers, and activists, who can make an impact on the world around them. As an **interdisciplinary** project, we promote exciting forms of collaboration and communication across all Schools and departments at York St John.

All Living Labs involve **place-based learning**, which requires students to think critically about the environment(s) in which they live and study. Through learning about the issues faced locally, students have opportunities to interact with the wider **York community** and become active citizens. The project engaged in research festivals and symposia to uplift local voices and create community-centred outputs.

1 EUAC (2022) 'Living Labs Programme', https://www.eauc.org.uk/living_labs_programme

2 Reason, Matthew and Jones, Jonathan (2021) 'Activism and Race within University Teaching and Research', Conversations in Social Justice Series 1, Ep 4, https://anchor.fm/isj/episodes/Activism-and-Race-within-University-Teaching-and-Research-etungc

Work by Graphic Design students at the Pint of Science street festival

PILOT LIVING LAB 2022: **LEARNING AT THE JUNCTION**

For our Living Lab's inaugural year, the project focused on the air quality at the Lord Mayor's Walk junction immediately outside the campus, and how the urban environment could be improved. At a location where monitors consistently record concerningly high levels of pollution, we sought to collaborate with City of York Council (CYC) executive members and officers, and work towards a shared goal.

In this way students' research had the potential to have a real-life impact, for example through informing the council's next Air Quality Action Plan. Interdisciplinary approaches taken by modules included topics such as road and city design, policymaking, health inequalities, and changing public perceptions through art and performances.

Living Lab: Learning At The Junction was therefore not only concerned with a junction between two roads, but also a junction between disciplines, between city and university, between present and future, and between learning and action.

As CYC deputy leader Councillor D'Agorne argued at the launch of the project, pollution must be viewed as a justice issue. He informed students of the health disparities of families, especially young children, who had to pass through the area regularly and spoke of the compelling evidence that "in-car exposure is more severe than walking"[4]. After the Pint of Science Festival, in which students shared their research and artwork with the public, Councillor D'Agorne observed:

> *"It was wonderful to see the creative subject-based approaches students took in looking at the issue of local air pollution. The research shared sparked many fruitful and engaging dialogues with the public – something which I hope will continue into future projects. I look forward to continuing to work with York St John University and its Living Lab to solve issues collaboratively, and to work together towards a greener York."*

The project was run by a core team comprising Jude Parks and Cath Heinemeyer, co-coordinators of the research group, researchers Vicki Pugh and Lucy Hurst, and Sarah Williams of the Estates team.

3 JORAIR website, http://jorair.co.uk

4 De Nazelle, A., O. Bode, J.B. Orjuela (2017) 'Comparison of air pollution exposures in active vs. passive travel modes in European cities: A quantitative review', Environment International 99, 151–160.


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EXCLUSIVE

New Gillygate flats to keep windows shut due to pollution

22nd March

York Press headline demonstrating the local air quality issue

Student exhibits works at junction

LIVING LAB **PEDAGOGY**

The Living Lab pedagogy became established at a range of UK universities during the period 2014–2019, primarily pre-1992 and Russell Group institutions, under the leadership of the Alliance for Sustainability Leadership in Education (EAUC).

In the post-pandemic period it is once more experiencing a renaissance, as universities seek pedagogies which build students' readiness to meet 21st century challenges of intersecting climate, economic and social crises. We learned much from the experience of Living Lab practice at these universities, consulting with Thom Cooper, Sustainability Manager at the University of Leeds and convenor of the EAUC Living Labs Community of Practice.

To adapt the EAUC's insights and accumulated knowledge to the York St John context, we needed to design an approach which could reflect our university's values and culture, encourage collaboration and collegiality, and benefit the local community. In our model, therefore, multiple modules focused simultaneously on the same issue.

While many Living Labs in the UK emphasise STEM subjects and are driven primarily by universities' Estates or Sustainability teams, the impetus for ours came from a meeting of interests between academic and professional services colleagues within the EJRG. We incorporated a substantial Arts and Humanities input as we believe complex justice issues should be approached in multiple creative ways. It was important to us to ensure we could be responsive to emergent opportunities, and create a pedagogy which was inclusive of different subjects and student-led approaches. We hoped to build upon students' open collaboration and creativity, while providing a structure which would give the overall project a sense of momentum.

RESEARCH QUESTIONS

Our research questions, shaped by prior EJRG research into students' expectations, anxieties and agency regarding ecological justice, reflect the above concerns:

Q1: In what ways can the Living Lab approach help students develop a sense of agency, and move beyond student identities to see themselves as problem solvers, researchers, activists, advocates, or collaborators?

Q2: In what ways does the Living Lab approach help embed concepts of ecological justice into a broad range of academic subjects?

Q3: How does being part of a university-wide interdisciplinary project influence student perceptions of their learning experience?

Q4: In what ways does the Living Lab approach contribute to students' development of the Graduate Attributes and enhance their employability and active citizenship?

Structure of this Reflection Report

The main body of this report comprises individual reflections from members of staff (lecturers and Estates staff) involved in the Living Lab, incorporating feedback from students involved. Staff met to share and synthesise these individual perspectives into overall project findings, which are shared in the last section of the Report. Finally, we lay out how our learning from this pilot project will shape the next iteration of our work in 2022–3, focused on the campus food system – Living Lab: Feeding The Campus.

An aerial view of the Lord Mayor's Walk junction on the edge of the York St John campus

Work by Graphic Design students at the Pint of Science street festival

BIOMEDICAL SCIENCE: **BIOLOGY OF DISEASE**

What We Did

Biomedical students investigated local, national, and international health inequalities, and how this was impacted by access to healthcare and healthy environments. In using the local example of pollution at the junction, students explored how exposure to high air pollution levels and particulate matters increase the risk of developing non-communicable diseases (NCDs).

Students were encouraged to think critically about personal responsibility for pollution and how science can influence changes in policy. To engage students' communicative skills, an assignment was set to produce work to inform a fictional council or government on how to best approach the issue of air quality. Additionally, students collaborated with Music students in a 'collab in the lab' initiative.

The five types of non-communicable diseases the students explored:

Sepsis
Systemic infection leading to exaggerated immune responses.

Diabetes
Type 2 and gestational.

Respiratory illness
Emphysema, chronic obstructive pulmonary disease, and asthma.

Neurodegeneration
Alzheimer's disease, dementia, Parkinson's disease.

Cardiovascular disease
includes heart failure, hypertension, ischaemic heart disease, peripheral vascular disease, and stroke.

3RD YEAR STUDENTS

'Collab in the Lab': Music and Drama students responding to demonstrations by Biomedical Science students of air quality monitoring equipment

Lecturers' Observations

Socially engaged learning approach: The project highlighted the significance of using science and communication in advocating for positive change.

Engaging with local issues: Using a known local issue allowed deeper engagement with ideas, as it drew upon students' pre-existing knowledge and used it in creative new ways.

Interdisciplinary collaboration: Working alongside Music students in a 'collab in the lab', students spoke on their data and impacts on the body, and Music and Design students created pieces in response. Despite initial hesitancy, all students engaged positively and enthusiastically with this event. Students found the process rewarding and enriching, while it provided them with the opportunity to demonstrate how much they have learnt throughout their degree.

Thinking beyond the module: Confidence in public speaking increased and students were genuinely surprised at how interested the arts students were in what they did. Students overwhelmingly recommended a similar cross-discipline activity be available to students every year.

Students' Responses

Whilst some found the collaboration with Music to be challenging, different ways of disseminating research have helped others in realising the value of their work and how they can become activists.

Biomedical student Olivia said:

> *'Through research, I now have a wider scientific understanding [and] can engage in conversations with friends/ family'. Another student, Lauren, added 'we can [now] understand pollution on a more scientific level to hopefully challenge ideas on how to improve […] pollution is a much larger issue than I originally thought'.*

A common theme in the responses from students was that they did not previously know the extent to which pollution impacts the body, and how it is impacting the wider York community. Many students shared an excitement to contribute to conversations on pollution, and to use their research for positive change.

Lecturer:
Dr Adam Odell

DRAMA: **POLITICALLY ENGAGED PRACTICE 2**

2ND YEAR STUDENTS

What We Did

Students in PEP2 conduct 'arts activist' projects of their own choosing in groups, and the Living Lab's air quality focus was offered to them as an option. A group of three students chose to focus their project on air quality, and participated in many of the Living Lab's interdisciplinary opportunities: presenting their initial ideas to students from other modules involved during Green Week; visiting the Biomedical Sciences students in their laboratories to find out how air quality is measured; collaborating with a Music student to co-write and perform a song inspired by the story of Ella Kissi-Debrah.

One student conducted a long-term 'craftivist' project, engaging with countless fellow students and the public as she stitched a banner questioning how the air tastes. The students' performances and reflections at the Pint of Science event were featured in depth on BBC Radio York.

Lecturers' Observations

Embodied learning: The local and health-related nature of air quality gave students a strong personal connection to it. A pivotal moment in the process was when the whole class visited the junction to experience its sights, sounds and smells at first hand, meeting a local resident who told them of the respiratory difficulties she and her neighbours attribute to the polluted location.

Interdisciplinary collaboration: The opportunity to work with students from other departments really catalysed the students' enthusiasm and learning.

Putting ecological justice on the subject map: The Living Lab helped raise the profile of ecological issues within the drama subject area, contributing to a noticeable increase in essays later in the semester related to how the arts can help address sustainability and climate change.

Significant challenge: The 'real-world' and public-facing nature of the Living Lab made it a call not all students wished to answer, perhaps because the stakes perhaps felt too high for some.

Students' Responses

Participating students' feedback focused on the personal impact of discovering that air quality affected people's health not just globally, but locally. One student said:

> *"I have always tried my best to behave in a way that doesn't cause more damage to the environment, but it was something that I was engaging in without fully realising how close to home the issues are."*

They also described themselves as arts activists:

> *"As an artist, it is making me consider which are the best ways of engaging with the public in order to enable change."*

Lecturers:
Prof Matthew Reason
Dr Cath Heinemeyer

Drama students conveying residents' views to senior councillors

Students discussed solutions to on-campus air quality issues with the university's Estates team

GEOGRAPHY: **SUSTAINABILITY**

2ND YEAR STUDENTS

What We Did

Students' first in-depth interaction with the Living Lab came from the screening and presentation of the Earthshot documentary on air quality. Students then broke into three groups to explore the policy aspect of improving air quality, examining what they could contribute, what initiatives the University is already implementing and could develop further, and lessons from other universities' policies.

Students researched these topics and interacted with each other, aiming to work with the university's Estates department to advocate for change. A field trip and other interruptions disrupted these plans, but the students did then produce posters for the culminating Pint of Science event, which shared the initiatives they wished to see investigated or developed by the University.

Lecturers' Observations

Documentary engagement: The Earthshot documentary screening was a pivotal moment in the Geography students' learning and engagement. Had this event happened earlier in the semester, it might have engaged students more deeply and provoked them to think about different solutions from the outset. The same applied to interdisciplinary learning opportunities such as the Collab in the Lab, which were productive learning opportunities for students.

Employability: It would be valuable to develop an emphasis on employability in the Living Lab, to help students to see the link between their academic learning within the project and the skills they might develop from it and take into their future lives and employment. Engaging more deeply with external stakeholders would support these skills, as would developing student leadership within the Living Lab. This could either be in the form of guest lectures and visits, or collaboratively set-up projects that help them address or meet their own sustainability goals.

Integrating assessment: Integration of the Living Lab work into student assessment is an essential step for next year, such as a compulsory reflection on the Living Lab in students' written assessment.

Students' Responses

Students expressed that they were delighted to have participated in an activity that could make an impact for sustainable development. The students' deep interest in the topic was evident in their reflective writing on the Earthshot documentary and subsequent workshop. Even though students' involvement with the Living Lab was brief, four students' assignments were inspired by their engagement with the project. One student specifically indicated that designing a poster and manning a stand at the Pint of Science festival helped them gain some employability skills.

Lecturer:
Dr Olalekan Adekola

GEOGRAPHY:
SOCIAL AND CULTURAL

1ST YEAR STUDENTS

Students preparing a representation of the junction

What We Did

Students examined the social and cultural geographies of the junction. They applied ideas from relevant academic debates on inclusion/exclusion, representation, space, landscape, and material culture. They considered how we can 'read' the space in terms of what it says about our culture and social relations. The module assignment was an individual verbal presentation in which students interpreted the junction through the 'lens' of social and cultural geography. Students did not collaborate directly with other modules, however they contributed to Living Lab interdisciplinary events.

Lecturers' Observations

Students gave assessed presentations on the junction, in contrast to previous years when they had presented on an individually-selected contemporary news article. This year's presentations showed them engaging more critically with: the role of space in shaping and reflecting social relations, and in material and symbolic exclusion; identity, intersectionality, performance, and representation; hegemony and normativity.

Memorable moments and challenges: Having seminars in a room which looks onto the junction enabled engagement in real time each week, providing opportunities beyond field visits to the junction. Attending the sharing event in week 7 allowed students to value the inter-disciplinary approach, and to chat to the core team, which led to the "penny dropping" for some students in terms of the relevance of the junction to their learning.

Lessons for next year: Consider ways to enhance student engagement with concepts that they found more difficult to apply to a particular space, such as the implications of their own positionality for their interpretation of a space, and imaginative geographies of the 'other'. Identify and timetable module partnership opportunities in advance.

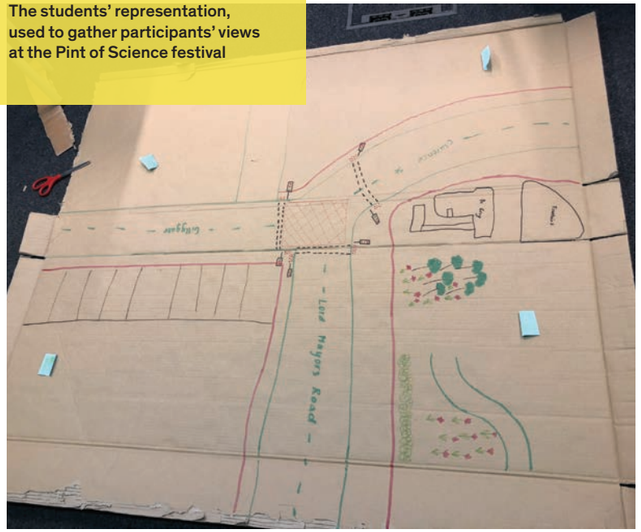
Students' Responses

Student responses indicate that they valued the problem-solving and interdisciplinary aspects in particular:

> *"Learning how the junction functions and ways to make it less car dominated".*

> *"…thinking about usage of the junction in the context of different identities and social constructs".*

The students' representation, used to gather participants' views at the Pint of Science festival



> *"Understanding of air pollution, its causes and effects. Looking at how built environments affect us all differently and shape how we use and experience spaces".*

> *"How even though we all study different subjects and have different knowledge and talent, it's all very relevant and comes together to create an amazing project".*

> *"How the same area has so many angles it can be looked at".*

In their assessed presentations, students thought critically about their learning. One student disaggregated their role in terms of "identifying and discussing", "exploring", and "producing". Another valued how the project had, "open[ed] questions and challeng[ed] social prejudices that exist in everyday life, even in something as seemingly insignificant as a junction".

Lecturer:
Dr Jude Parks

EDUCATION: **CORE CURRICULUM MODULE**

2ND YEAR STUDENTS

What We Did

Prior to introducing the Living Lab project, education students received a lecture for the whole year group on Paul Ernest's approach to 'Critical Maths Education': how Maths should be taught in such a way that children learn about what's going on in the world, including climate justice and racial justice issues. Talks by the Living Lab core team were an excellent input to follow on to this and established the links to Maths education. This was followed by group work, in which the students devised possible approaches to introduce these ideas into their school placements.

Lecturers' Observations

Developing own ideas: Following Living Lab core team visits, students benefited from working in groups, developing their own ideas, which related to work they had done in other subject areas such as Science. This came out in the teaching ideas that they had and it is hoped that during students' time in schools, they will experiment with some of these.

Timetabling considerations: Because students were out on placements, they couldn't take part in the interdisciplinary moments of the Living Lab. Careful timetabling next year will enable the Education students to participate in some of these.

Students' Responses

Some of the students were excited and spoke to lecturers after the session. Students made the link to key activist figure Greta Thunberg. One student brought in a book, Greta and the Giants, and initiated a 'Circle Time' discussion with fellow students – an approach to citizenship education widely used in primary schools.

Lecturers:
Manjinder Jagdev
Linda Mason
and colleagues

Students and public in conversation with keynote speaker Rosamund Kissi-Debrah at the Pint of Science festival

FINE ART: **EXPOSITIONS**

What We Did

Students worked with external company Chrysalis Arts to develop their artistic practice in relation to ecological issues, and make responses to Marton Wood, a woodland managed by Chrysalis as a 'slow art' initiative. Their work in this natural habitat was framed and contrasted by the Living Lab, with its focus on the very urban environment of the University campus.

Chrysalis board member David Haley gave a talk at the interdisciplinary Living Lab mid-project gathering. Artist Rebecca Chesney then joined the students to talk about her work involving the politics of land and the impact of human activity on nature and the environment. Rebecca also took the students on a walk to explore the University campus and surrounding area, including the junction, comparing and contrasting it to Marton Wood. They worked in groups to make digital responses to their experiences. Their work can be seen at https://www.chrysalisarts.com/projects/marton-wood-a-new-slow-art-initiative

2ND YEAR STUDENTS

Artist Rebecca Chesney leading students on a nature walk around campus

Lecturers' Observations

Making connections and contrasts: Framing work at Marton Wood within the Living Lab enabled students to make connections to issues of air quality and to their own everyday locations and experience. It provided a contrast and set of ideas for them to engage with in their practice, provoking them to ask, 'what does this mean to me, here?'

A live brief: Aligning with a wider university project, the project facilitated the sense of a live brief in which students from different subjects were coming together around a single important issue. Whilst students did not have sufficient time to engage in other interdisciplinary project events, the students rose to the complexity and openness of the brief, comprising a commission from an external organisation, a cross-university project, complex ideas of ecological justice, and a digital outcome.

Embedding ecological justice: To embed ecological justice more deeply in our programme, we aim to invite ecologically engaged artists as part of our guest speaker programme, linking to the topics of future Living Labs.

Group workings: Both Chrysalis board member David Haley and the course team felt that the students rose to the challenge of creating work collaboratively in groups, a relatively rare occurrence in Fine Art.

Students' Responses

David Haley observed that students' "'post-COVID' inter-communication and project coordination strategies" were in themselves ecological in nature, and that "their online projects present a great testament to their creativity and provide an excellent resource for the Marton Wood programme to build on."

The students' individual reflections reveal that some really understood the significance of working with an external organisation on a commission, developing a sense of professionalism. Coming at the end of their 2nd year, this project asked them to locate themselves as an artists, with an artist's voice, and take their own particular practice to this wood – and some did indeed achieve that.

Lecturer:
Helen Turner

GRAPHIC DESIGN: **DIGITAL PROJECTS**

1ST YEAR STUDENTS

What We Did

Y1 Graphic Design students were given a brief to respond to the problem of air quality. Living Lab researchers worked with students to unpack the brief and discuss the current issues of air pollution around the University campus. The students had four lessons to prepare work for the Pint of Science (PoS) Festival, and two lessons to reflect on and improve their final outcomes before the module submission.

Students also watched a documentary and listened to voice recordings from residents of the junction to better understand the problem.

The work produced was printed or created physically to showcase at the PoS Festival, and students were present to talk with other students and visitors about their creative responses. Work included: Augmented Reality for the audience to interact with, zines, cycling maps, artist books, masks, and air pollution stickers that collect particles.

Graphic Design student work

Lecturers' Observations

Challenging students: First-year students were pushed to engage with a whole range of approaches and concepts. This brief challenged students to see themselves as problem-solvers, activists, researchers, and collaborators. Students were also able to prepare themselves for the next level of study, which will require a higher level of interrogation and innovative visual communication.

Work that has impact: The process of making work for a worthy campaign allowed students to realize how their work can have a real impact on the community.

Students' Responses

Feedback from the students has been generally very positive. Whilst anxious about showcasing their work to the public initially, the experience built their confidence as emerging professionals.

Student Eliza states:

> *'I enjoyed watching the Earthshot Prize documentary as I could better understand the extent of the problem which I didn't think about or realize was an issue beforehand. I also enjoyed the Pint for Science event and seeing all the work my class had produced and talking to them about it.'*

Student Lucy states:

> *'I enjoyed working on a live brief for a real client and being able to share my work with others. I felt I was doing something positive for a worthy campaign and interacting with a physical space. It was challenging to produce work that would have a public audience, but it was positive and rewarding to be pushed as a first-year student.*
>
> *I really enjoyed discussing my work and the issue with the public and feeling a part of the community. It would have been good to have the festival over the full day to fully engage with the public and to have the opportunity to meet with students on other courses and find out how they responded to the same brief in more detail.'*

To summarize, students felt very proud of what they had produced and gelled together as a group to support each other and represent Graphic Design.

Lecturers:
Clare Nattress
Andrew Byrom

LANGUAGES AND LINGUISTICS: **MULTILINGUALISM**

1ST YEAR STUDENTS

What We Did

As part of the Multilingualism module, students explored ecological justice and the ways science and justice issues are communicated to the public. Taking influence from Sophia Kianni—a climate activist translating environmental messages into as many languages as possible—students considered how local and indigenous languages can be used to spread information.

In Week 8, the class took to the junction to find examples of multilingualism. By looking at the linguistic landscape of York, students were encouraged to think about the variety of languages and semiotic features. Bearing the eco-linguistic environmental angle in mind, students considered what messages were being communicated, why, and their impact. They even picked up on how the non-human seemed to be communicating, with trees appearing 'depressed' and struggling. One student remarked that 'all the trees on the junction look absolutely knackered — really working hard against the air pollution, and suffering!' This information was recorded in notebooks and as photos and, as inspired by Robert Macfarlane's Landmarks (2015), was turned into a plethora of zines, drawings, and a podcast.

Lecturers' Observations

A space for linguistics: Finding a space for linguistics in the Living Lab project has been an interesting challenge. It was important to locate the role of linguistic analysis of language to big issues such as 'air quality' and the 'climate emergency'. This can feel tangential at times, and the Living Lab allowed us to address big issues such as 'air quality' and the 'climate emergency'.

Ideologies of climate change: An understanding of how the language we choose perpetuates or changes a societal message or ideology is very valuable. It was significant for students to see this connection, and how their subject impacts on global issues through engagement with the Living Lab.

Students' Responses

Multilingualism students certainly appreciated the significance of looking at language choices used at the junction, and how to advocate clearly. One student, Will, describes language and linguistics as 'the foundation of communication', arguing that 'signage and how we communicate our ideas [are] important to the success of our cause.' Students showed their excitement for interdisciplinary projects, and hopefulness for more collaborations in the future.

Lecturer:
Dr Clare Cunningham

Languages and Linguistics students working on zines capturing the linguistic features of the junction

MUSIC: **MUSICAL EXPLORATION**

2ND YEAR STUDENTS

What We Did

This opportunity was incorporated into the compulsory Musical Exploration module for all Level 5 music students. It is the 'stretch' module where we encourage the students to learn and develop techniques they may not have encountered before; improvisational practices and experimental processes. This project afforded the students an opportunity to write music for a reason greater than their mark. It was a moment where music could highlight a cause and be meaningfully embedded in an activist event.

As part of the experimental component of the module, students engaged with the junction itself, a visit to the biomedical labs and explored the issues of air pollution though compositional techniques. One group worked on the Living Lab material and produced a piece which took the traffic light patterns of the junction and the descent into air pollution as starting points to create their piece. Air pollution was reimagined and portrayed as noise pollution, order became chaos. Spending time at the junction, rather than passing through it, was a key element in the creation of the piece.

Lecturers' Observations

Providing a platform: It was incredibly helpful for the students to be able to marry experimental music to such a performance moment. Learning about these kinds of musical practices can sometimes feel too abstracted and insular but this provided a platform where more esoteric music had the necessary interpretive freedom required.

From abstract to empowered: The students were able to see how an abstract musical response was the best way to articulate clearly the non-musical 'problems' being highlighted and they felt empowered doing so.

New compositional strategies: Students were very excited by compositional strategies drawn from the setting and the situation and it showed how music can use its temporality—its fleeting aliveness—to show something important.

In future, more time would allow us to explore more examples of activist art making earlier on.

Local band Yorky Pud entertaining the public at the Pint of Science street festival

Music students sharing their composition responding to the rhythms of traffic and pollution at the junction

Students' Responses

One student stated:

> *'I wrote and performed at the event. The song reflected air pollution at Gillygate. [I learned] that the arts can help people understand science.'*

A lot of the feedback I received from the students was surprise at the levels of air pollution and a gratitude towards having been made to think about, and engage with, this issue through their musicking module.

Students saw the value in having thought about ecological issues, and felt more engaged as a result. It helped them feel music is able to be at the centre of many experiences and really felt empowered by that.

One student, in particular, articulated how the musical approaches in this module married particularly well to the Living Lab:

> *'The abstract idea of learning about science through music. Music can be used to help understand the problems explored by Living Lab because of the expressive, emotional nature of performing. This allows for a different perspective into science as music is subjective and science is objective.'*

Lecturers:
Dr Morag Galloway
Dr Murphy McCaleb

Estates staff sharing their knowledge of campus air quality issues with students and the public

YORK ST JOHN UNIVERSITY
ESTATES DEPARTMENT

The Estates Department joined staff and students at key events. Our Energy and Environmental Projects Officer acted as a guest speaker and shared the current work of our team.

The Pint of Science event was a good opportunity to do something with the students and academic staff as a collective group, rather than the usual scenario in which we would attend an event to provide a service to staff and students.

The air quality Living Lab raised questions for Estates that included how we could better use the external spaces on campus to help tackle local air quality issues through planting or other measures, how poor air quality around our campus might impact on our staff who work outside such as the Grounds Team, and how poor local air quality impacts on the way that we ventilate the buildings drawing in air from those locations.

We anticipate that the Living Lab will have a long-term impact for Estates. Through conversations shared on the project we are investigating possible moss screens and air quality planting for the junction at Clarence Street. We have also found out about a Computer Science project that has developed air quality monitoring equipment that we may be able to make use of.

For the future, we hope to see Living Labs projects grow to involve more and more of the teaching modules across the University, as well as more of the non-teaching departments, and to help expand and strengthen relationships with the local community and local organisations.

We would love to see students working with staff and the local community to tackle more of the challenges we face on campus and nearby.

Above all, observing the interdisciplinary approach taken by the academic community to problem-solving was inspiring. It was great to see unlikely relationships being established, such as between music and biomedical sciences. It felt difficult to predict what outputs might come from such interactions and this made for an exciting project with potential for some innovative solutions to emerge.

OVERALL FINDINGS FROM ***LIVING LAB: LEARNING AT THE JUNCTION***

As a pilot project, *Living Lab: Learning at the Junction* was a piece of collaborative action research, involving cycles of action and reflection. Feedback was gathered from participating staff and students in both individual written form and through reflective group discussions. It addressed our research questions, as follows.

RQ1: In what ways can the Living Lab approach help students develop a sense of agency, and move beyond student identities to see themselves as problem solvers, researchers, activists, advocates, or collaborators?

Feedback showed that students were excited to be able to explain topics to fellow students, the public, their family and friends — and really did develop a sense of agency in being able to contribute to conversations around air quality and pollution. Presenting to both formal and informal audiences offered them opportunities to locate themselves as artists, geographers, linguists, educators, scientists or designers.

At the outset, some students did not quite understand how this topic could be applied to their subject, or alternatively felt emotionally overwhelmed by the subject matter of ecological justice. Moreover, the 'call' to respond to a real social need and produce outputs for a real external audience, albeit in supportive environments such as the Pint of Science Festival, was one that daunted some students at first.

In many participating modules, students had a choice whether to respond to this 'call' or choose an alternative topic for their assessed work. However, even for those who chose not to get involved in the Living Lab, there was evidence that it remained of value in giving them ongoing food for thought and opportunities to learn from their classmates' participation. Thus, many Drama students not involved in the Living Lab chose to write essays relating to ecological justice issues in a later assignment, and non-participating Music students reflected very thoughtfully on the potential for them to do similar interdisciplinary work themselves in the future.

The work made by those who did take on the brief often evidenced an emotional as well as an academic engagement. For example, spoken word poetry and original compositions created by students in the Music and Drama modules touched on themes of personal guilt and grief, and anxiety about how the ecological crisis may affect future generations. The feedback from both staff and students surrounding agency indicates that students would benefit from more introductory material specific to each module, both from a technical perspective, and to help channel ecological worries into discipline-specific creative projects.

Counterbalancing such troubling emotions was the stimulating and rewarding experience of collaborating with others. A Music student reported having "learnt how to effectively collab with students from other subjects to bring awareness to air pollution". Some Biomedical Sciences students described themselves as having been enablers of action taken by arts students. However, many students reported only having really grasped the inherently collaborative nature of the project towards the end of it, and their feedback emphasised a desire for more, and earlier, opportunities to work in groups within and across disciplinary boundaries, and to learn from visiting speakers. In-person sharing emerges from the feedback as the energetic centre of the Living Lab.

A development of more committed citizenship or activist perspectives was evident in some students. One Drama student said: "As an artist, it is making me consider which are the best ways of engaging with the public in order to enable change. As a citizen, I can say that it is making me more aware of habits I need to keep and ones I need to pick up." A Biomedical Science student said, "it has taught me about how everyone can make an impact and banding together can help".

Air quality campaigner Rosamund Adoo-Kissi-Debrah, keynote speaker at the Living Lab's Pint of Science street festival

RQ2: In what ways does the Living Lab approach help embed concepts of ecological justice into a broad range of academic subjects?

The enthusiastic engagement of the staff involved in the Living Lab was bolstered and enhanced by the additional time and teaching resources provided by the core team, thanks to funding from the Institute for Social Justice. Staff involved reported that this helped them to undertake innovative curriculum development and lateral thinking within the project. Primary Education lecturers appreciated the injection of the concept of ecological justice into all their students' preparation for school placements, and initial student feedback indicated that many envisaged drawing on this in developing units of work for their pupils. While Fine Art students' final assessed work related to the very contrasting ecological habitat of a nearby wood, their lecturer considered that framing this task within the wider context of the Living Lab helped students to link the topic of ecology to their own daily, urban, lived experience.

Engagement with a real local urban space was key to learning for many students involved. A Geography student said they had learnt an "understanding of air pollution, its causes and effects. Looking at how built environments affect us all differently and shape how we use and experience spaces". A Graphic Design student "learnt to take into account the physical surroundings, to interact with the physical space. In my home university we did not make physical work. Going to the corner was fun and it really inspired me to make work I wouldn't have made otherwise."

For many Graphic Design, Music and Drama students involved, there was a broadening of their understanding of their artistic disciplines, and what these could bring to ecological justice issues, for example "Providing visuals and typography to better understand air pollution in a clearer way". A similar view was expressed by a Linguistics student: "Language and linguistics [are] the foundation of communication. Signage and how we communicate our ideas [are] important to the success of our cause."

An interesting observation was that in collaborative student work produced for the Living Lab, there was some tendency for students' grades to converge around a relatively high average mark. While such 'clustering' can be perceived as problematic in conventional academic terms, staff involved tended to perceive it as a sign that students were meeting each other's high expectations, as well as the real need for quality work for a public audience on a real issue.

Cllr Denise Craghill, City of York Council's Executive Member for Housing and Safer Neighbourhoods, discussing students' work with them at the Pint of Science street festival

Students sharing their interdisciplinary perspectives

RQ3: How does being part of a university-wide interdisciplinary project influence student perceptions of their learning experience?

Interdisciplinarity emerged as, perhaps, the aspect of the Living Lab which most enthused both staff and students. They were strongly motivated by opportunities to meet and learn from students from other courses, and in a small number of cases initiated their own collaborations across disciplinary boundaries. Students found themselves, in a real sense, representing their discipines.

A Geography student reflected on "how even though we all study different subjects and have different knowledge and talent, it's all very relevant and comes together to create an amazing project". Similar sentiments were expressed by a Biomedical Sciences student: "Living Lab enabled communication between different courses in the University, sharing our knowledge with other students with different skills." Indeed all Biomedical Sciences students surveyed agreed with the statement that their disciplinary knowledge was a valued part of the project.

Interdisciplinarity generated a tangible sense of energy and momentum, creating opportunities that were simultaneously social and educational, as several Graphic Design students said: "It was good to work together with other courses. My friend does Music and it was good to be able to talk about it with her"; "It was exciting to know that other subjects were working on this at the same time." Other Design students mentioned the value of getting feedback – including critical feedback – on their work from students on other courses. This mirrored the key professional skill of working with clients and collaborators, helping to develop the robustness this requires.

Several Music students expressed how this interdisciplinarity enabled them to understand air quality as more than just an environmental problem: 'We went to the bio lab and got to experience it in 'real life' and learn how it's a health issue as well as environmental.' Others felt that it was only by the end of the project that they had grasped the value of interdisciplinarity in tackling real world problems, for example that "Music can be used to raise awareness for issues, and it can be used to conceptualise ideas" or simply "That the arts can help people understand science."

RQ4: In what ways does the Living Lab approach contribute to students' development of the Graduate Attributes and enhance their employability and active citizenship?

For first and second year students, employability can seem an abstract concept, but most who participated in reflective post-project conversations perceived a link between employability and the challenge of a live brief. Some students felt this was a very positive challenge; others found it intimidating to have an audience beyond peers and tutors. As a Graphic Design student said, "It was challenging to produce work which would have a public audience but was good and rewarding to be pushed as a first-year student [. . .] I was pleased with the work I produced and feel it fulfilled the brief well."

The 'live brief' or 'commission' presented to students by the Living Lab was crucial in helping students understand and work towards a sense of professionalism. What this meant for each group of students was discipline-specific. Thus, for graphic designers it called upon them to undertake reflective practice and be courageous enough to test ideas on potential clients and the public before modifying them. One student said: "This project forced me to think of the audience, how they would respond to it. And then it was different from just having my work exhibited to people without me there – I was standing there and speaking for my work." In comparison, for Biomedical Science students the professionalism involved was about becoming better science communicators with those who had little scientific background. One stated: "Through research, I now have a wider scientific understanding [and] can engage in conversations with friends/family"; another that "we can understand pollution on a more scientific level to hopefully challenge ideas on how to improve".

The students also engaged in active citizenship through learning about how the conditions at the junction impact local people's health (whether by interviewing them directly or hearing about this from other students and staff on the project). An Environmental Geography student was representative of her peers when she reported being particularly struck by the fact that "the people who live near and on the junction suffer from respiratory issues and illnesses ".

Students were able to make links between these local manifestations of poor air quality, and the national and global issues. The talk by Rosamund Adoo-Kissi-Debrah at the Pint of Science festival was the most frequently mentioned item on the 'Most Striking' word cloud created by students. 'Inspiring talk from Rosamund. Let's try and make this world a better place'; 'Rosamund's powerful and educational talk'.

Collaboration at Pint of Science festival

LESSONS FOR LIVING LAB 2022–23

As the Living Lab moves into its second year, taking a new focus on the campus food system, we will build on our reflective practice during Learning at the Junction. Some of the key learnings which we will bring forward into *Living Lab: Feeding the Campus* include:

A collaborative start: Students strongly valued the opportunities for in-person, interdisciplinary collaboration. They gave clear feedback that they would have liked to have been brought together for an interdisciplinary, in-person event at the very outset of the project, and that would have given them an earlier sense of the opportunities and significance of the Living Lab.

Live co-presence: Students would value a longer culminating event, or multiple opportunities to share their work with those from other disciplines, so as to enable more interchange, feedback and collaboration.

Upfronting employability: As many students did not realise the transferable skills they might develop through participation in the Living Lab until towards the end of the project, it would be beneficial to highlight to students the opportunities to develop their readiness for employment or enterprise. *Living Lab: Feeding the Campus* will incorporate a particular focus on the potential for students to become involved in, or even develop their own, social enterprises.

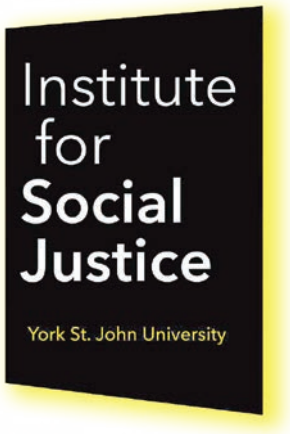
Leading by examples: Providing students with inspiring examples of interdisciplinary research and advocacy related to the Living Lab subject matter from the outset would be very powerful.

Timetabling: The moments with which students engaged most meaningfully were those which were added to their module timetables as requirements. Although this presents logistical challenges, we will aim to add the main 'flagpole' events to the timetables of all students involved in the Living Lab next year.

Assessment: All module leads involved in the Living Lab should be encouraged to incorporate the project into assessment in some form, whether into a compulsory assignment, an option for students to choose, or as part of a reflective journal.

Flexibility: While some form of timetabling and inclusion of Living Lab activities in assessment will be recommended to participating staff in 2022–23, staff appreciated the flexibility to participate in ways and degrees that suited their particular modules.

Conviviality and community: Students' desire to be involved in on-campus events and projects outside their subjects will be met through collaboration with the Students' Union and a wider range of Professional Services departments in *Living Lab: Feeding the Campus.*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