



CLIMATE ACTION IN THE WORKPLACE: A BLENDED LEARNING APPROACH TO TRADE UNION CLIMATE TRAINING

Case Study Final Report
Global Scope

This research was conducted by:



This research was made possible with funding from:



MECCE Project Funded Case Study

Climate Action in the Workplace | A Blended Learning Approach to Trade Union Climate Training¹

EXECUTIVE SUMMARY

Just and Green: Labor's Ecological Question is an open-access, online course offered by the Global Labour University (GLU). The focus of this case study is the blended learning model developed by the Global Labour University Online Academy. The model combines online learning with localised workshops delivered by the certified trainers of the GLU Online Academy. Each trainer sets up a study circle of unionists, labour, and environmental and community activists, supports them in completing the online course, and develops tailored modules on the intersection between issues of climate change and labour, just transition, and environmental justice. The trainer then delivers these modules through localised workshops. This blended learning approach follows the spiral learning model of education, whereby the trainers enter into a reiterative and highly participatory process of developing connections between the knowledge and experience of participants, and the theoretical concepts and arguments of the course. This serves to deepen their understanding of the root causes of the environmental and climate crisis, and the power relations which sustain the status quo, with the aim of facilitating local action towards just transition and environmental justice.

In total, 13 of the 16 trainers certified to lead the *Just and Green* course were interviewed for this case study, with representatives from Africa, Asia, and the Americas. The focus of the case study was on trainers' experiences in implementing their training, and how the training influenced their workplace climate actions, including advocacy for and the outcomes of climate action. In the interviews, the trainers were asked what they have learnt about climate change, sustainability, and labour, and how the blending of online training and local action has informed their activities with workers.

This case study provides an example of the potential for a blended, emancipatory model of education to move people from awareness and knowledge about the environmental and climate crises to action. As a case study of quality climate change education and training, there are three notable aspects.

First, the trainers begin by exploring participant knowledge and experience, which means that global education is linked to local contexts and needs for action. This approach is critical to recognising and validating workers' knowledge and experiences, thus playing an important empowering role for working people and their communities. This is especially important in challenging the dominant approach of problem-solving where experts are brought in to find solutions to local problems, which often serves also to depoliticise issues. Second, the blended learning model provides inclusive education at a global scale through two major ways. On the one hand, the open-source format of the course allows activists across the world to study for free without any intermediate structure authorising access, which would be the common practice in trade union education. On the other hand, trainers facilitate access to and translations for materials for workers who are outside formal education systems and may not have the digital skills and/or technologies in place for online learning. In this way, the trainers are crucial in supporting participants in their online learning. Third, the

¹ The views in the report are not necessarily endorsed by the MECCE Project, which funded the research.

examples provided in this case study show how this model of blended learning is a driver for local climate change action, as study circles continue to work together to affect change in policy and their working and environmental conditions.

Ultimately, the *Just and Green* case study has implications for how we consider education, and its role in responding to the climate crisis and the unjust working conditions that impact the health and well-being of many workers across the world. Through the work of the trainers, the *Just and Green* course provides a link between global theoretical and policy debates, socio-ecological transformations, and the people's struggles for economic and environmental justice.

CCE PROGRAM OVERVIEW

This case study is of the blended learning model of the free online course, *Just and Green: Labour's Ecological Question*,² which has been developed and provided by the Online Academy of the Global Labour University (GLU³). The *Just and Green* course offers opportunities for learning on issues of labour and environment for free to workers and activists worldwide; there are no restrictions or approval procedures. Anyone wishing to study the topic only needs an email address or social media account. This enables participation from Africa, Asia, and the Americas, and by people who would not otherwise have access to university education (in many cases any form of education) on the connections between work and environment.

The trainers, who are the focus of this case study, are a critical component of the blended learning model developed by the GLU Online Academy. Whereas the online learning is more individual, the blended learning facilitated by the trainers has a collective character. Each trainer sets up a study circle with trade unionists, labour, and other activists from their own network. Trainers combine support for studying and completing the online course (though online tutoring) with a process of deepening and building new knowledge collectively (through organising and facilitating localised workshops). The first batch of trainers was developed in the process of preparing the online course *Just and Green: Labour's Ecological Question*. These first trainers were involved in piloting the course and their feedback was used to improve the course before it went public.

The GLU Online Academy attracts enrolments in its courses through email and social media. It reaches out to trade unions and labour-support organisations across the world at all levels - local, national, regional, and international - as well as academic institutions which are engaged with labour topics. The GLU email list has around 5,000 contacts and more than 1,800 people have enrolled in the *Just and Green* course. Predominantly from Africa and Asia, course participants tend to come from the labour movement - trade unionists, activists, educators, and researchers. The training and introductory flyers are available in French and Vietnamese, and forthcoming in Spanish and Portuguese. Aside from these four languages, the English version contains subtitles in Serbo-Croatian, Bangla, and German - all with the view of increasing outreach to workers and activists who may not be able to access the content in English.

Given the implications of energy transitions for workers and the union movement, the GLU Online Academy has also recognised the need for trade unionists to understand the key debates around the jobs vs. environment dilemma that workers face in the context of the climate crisis, the tensions and contradictions in the different framings of just transitions policies, and the broader role of labour for

² *Just and Green: Labor's Ecological Question* is available at this [link](#).

³ GLU has been in operation for over 20 years, and is a partnership between the International Labour Organisation, the trade union movement, NGOs and seven universities from Europe, Asia, Africa, and America. The aim of the GLU Online Academy is to provide free access to education and training opportunities to enable trade unionists to actively participate in policy discussions relevant to their work and members, increasing analytical and organising capacity.

socio-ecological transitions. The *Just and Green* course is premised on the argument that the environment is a labour issue. It provides a glimpse of worker struggles for environmental justice across continents and sectors as well as a general overview of theoretical debates on labour and the environment, and labour policy proposals.

The blended learning model of worker education developed by the GLU Online Academy combines the free online course materials developed and delivered by academics with a number of synchronous online events and localised workshops conceptualised and implemented by GLU Online Academy certified trainers. The course materials are developed and presented by academics on topics such as the relationships between jobs and the environment, green growth, de-growth, environmentalism, just transition, decarbonization, global labour transformation, natural resources, economic and ecological policies, and working conditions. Each intervention involves a trainer setting up a study circle (a community of learners), mentoring them in their process of studying in the online course, and then organising face-to-face workshops on topics most relevant for the members of the study circle. The recruitment for blended interventions is focussed on workers, trade unionists, and activists, including labour, environmental, and community activists.

The training also goes beyond the individual consumption of knowledge, which is typically emphasised in online course delivery. The course uses blended learning, where the online course is a starting point for deeper and more contextualised conversations. This is accomplished through engagement with the course experts and the online tutor, and through localised workshops delivered by GLU Online Academy certified trainers. The trainers are a critical component of this highly participatory model of worker education as they serve as an important bridge between the academic content and the local issues, supporting the process of action on the ground. The approach reflects Freire's model of spiral learning, an apt foundation for the *Just and Green* course, as well as for action-orientated and inclusive climate change education. Spiral learning begins with the participants' experiences and knowledge, which are then built on with the trainer through theory and examples, as depicted below.

Spiral learning is in contrast to the standard model of education, which Freire referred to as 'banking', where knowledge is deposited in the students by the teacher. Spiral learning intends to reveal and challenge power relations, reflecting Freire's concern for the oppressed, and to foment action. It implements this approach through a process of building people's critical consciousness and transformative capacities, which "are the material and concrete expressions of critical consciousness in terms of 'new' abilities and actions that seek to transform 'realities' and sustain the process of transformation" (Serrano & Xhafa, 2012, p. 4). Thus, critical consciousness is understood as the three intertwined dimensions of:

"an understanding of the systemic nature of oppression and injustice based on the lived experiences of people; an understanding of the need to resist the underlying causes of peoples' oppression and exploitation; and a recognition that people have the capacity to act to change their circumstances" (ibid.).

In this specific case, the first dimension involves an understanding of the systemic nature of the environmental crisis, which, similar to the labour crisis, originates from the fundamental reliance of capital on labour and environmental exploitation (Wissen, online course).

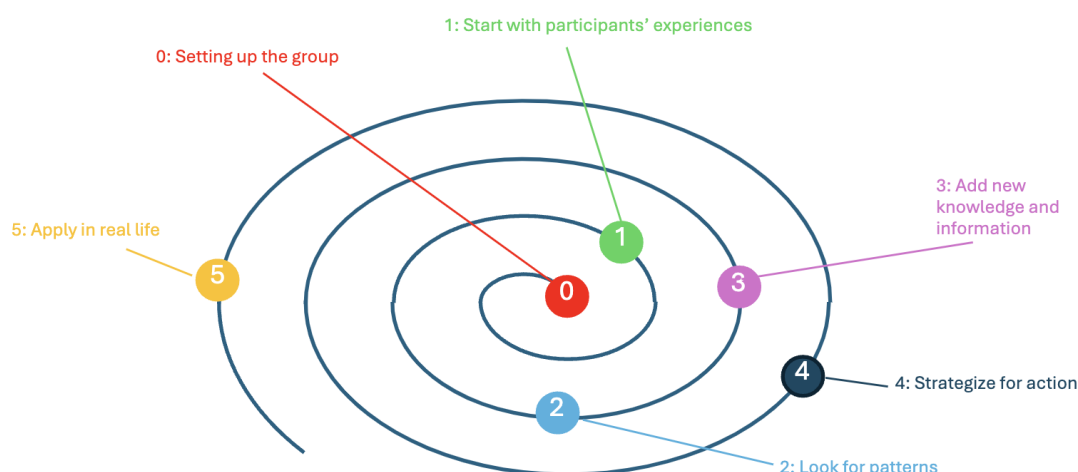


Figure 1: Spiral Learning Model (Source: GLU-Online Academy, forthcoming)

To be certified, the trainers undergo an intensive 6–9-month training scheme. The training equips trainers with the necessary skills to mentor adults through online learning, and to develop tailor-made modules following the spiral learning model to be delivered through highly participatory localised workshops. As of August 2024, the GLU Online Academy has set up a network of nearly 150 trainers in 45 countries from English-speaking and Francophone Africa, the Americas, and Asia. There are intentional efforts to ensure the sustainability of this learning model. On the one hand, the trainers seek to integrate the online course and model in the regular trade union education programmes through partnership agreements with trade unions and labour-support organisations which they facilitate. On the other hand, the model also provides the trainer with enough flexibility to carry out such interventions on very low or even zero funds.

METHODS

The aim of the case study of the GLU Online Academy training for the *Just and Green: Labour's Ecological Question* course is to understand how training for labour climate action elicits wider benefits through enabling trade unions and the labour movement more generally to engage more meaningfully 1) in the struggles for environmental justice and 2) in the policy debates for socio-ecological transformations.

In response to the aim set out above, the project is informed by the following questions:

1. How has the online *Just and Green* course influenced understanding of climate policy and courses of action, by trainers as well as participants?
2. How has the blended learning model of the GLU Online Academy enhanced trainers' capacity to facilitate learning and action by workers in their communities?
3. How has the blended learning model been beneficial for local climate action?

As the *Just and Green* course is founded in the pedagogies of Paulo Freire, both trainers and participants can be expected to learn from the course. The case study focuses on the experiences of the trainers, who will have learnt through engagement with participants in the spiral learning process, as well as their own *Just and Green* training to support their work.

- a. What research methods did you use? Provide a description. Please provide protocols and questions/interview schedules as an annex to this report.

The method used for this case study is semi-structured interviews with trainers from the *Just and Green: Labour's Ecological Question* course. In the interviews, the trainers were asked about:

- What they have learnt about climate change, sustainability, and labour.
- How the blending of online learning, localised workshops, and local action has informed their activities with workers.
- Their experiences in implementing their blended learning interventions, and how the interventions have influenced their workplace climate actions.

The interview questions are included in the appendix to this report.

Ethics approval for the interviews was provided by La Trobe University's Human Research Ethics Committee on the 28th of February 2024, approval no. HEC24032.

Semi-structured interviews were conducted with 13 case study participants out of a total of 16 people who have acted as trainers for the *Just and Green* course. There are relatively even numbers of female and male participants, and the distribution of participants from Africa, Asia, and the Americas is also relatively even, as shown in Table 1 below. The sample of 13 out of the total of 16 trainers provides a more than adequate representation of the GLU Online Academy trainers.

Table 1: Summary of Interview Participants

Continent	Female	Male	Not Interviewed	Total
Africa	2	3		5
Americas	3	1	2	6
Asia	2	2	1	5
Total	7	6	3	16

The trainers were all mid-career adults who had either a career in the union movement or education prior to or in addition to their role in *Just and Green* training. Three of the interviewees had acted as trainers for cohorts in countries other than where they live; those participants are listed as where they are located as they have trained in multiple locations. The trainers also discussed who had attended their *Just and Green* courses, which included formal and informal workers from the agriculture, textile, transport, and public sectors, as well as unionists and academics.

FINDINGS

Most Important and Interesting Findings

This case study of the *Just and Green* course shows how education can foster climate action through processes of making people aware of, or sensitising them to, the conditions that are contributing to the climate crisis and their circumstances as workers. The localised workshops are conceptualised and organised by the certified trainers and are part of the blended learning intervention which follows the logic of the spiral learning model. As such, trainers start with the experiences of participants with the topic and seek to connect their knowledge and experience to theoretical and analytical concepts and arguments discussed in the course, as well as to examples of struggles for environmental justice and just transitions elsewhere.

Just and Green: Labour's Ecological Question and the work of the GLU Online Academy are distinct within contemporary education provision. Importantly, the course provides free access to contemporary understanding of the connections between labour and climate action to adult learners who are outside of formal education within their country and thus addresses a gap in climate education. Also, the focus on climate action as the primary outcome of the training sets it apart from the vocational focus of much post-secondary education and addresses resounding criticism of the inequitable outcomes of higher education (Marginson, 2023).

The trainers are usually from trade unions and other labour-support organisations and have an interest in the topics of the online courses and/or the model of education pursued by the GLU Online Academy. One trainer talked about an incident where the connection between just work and the environment was made clear:

"... there was a fracking boom across North America, and I'd say it started probably around 2012, 2013 and there was a terrible disaster in Canada at a place called Lac-Mégantic, and there was a single engineer on a train. He went off duty. The train had some problems with the braking system while he was off duty. The brakes released and it was a runaway train and it ploughed into a town and it immediately caused an explosion that immediately killed 47 people. So in the process of being active with this group of North American railroad workers we were dealing with issues of danger, safety, toxicity and they're now begging the question why was the fracked oil going from the US through Canada and what were the risks that were not only to the workers but to the affected communities along the railroad tracks?" – Interviewee No.1

Interviewee 12 reflected on floods in Mumbai in 2005, which led to informal garment workers returning to their villages as their homes and workplaces were inundated.

Another trainer expressed more general concern, based on their experience in the union movement and the need to highlight the connections at the core of the *Just and Green* course:

"They see. They see the climate change as an event ... which can pass ... that's why I decided to [train] the people to understand the problem, to check some causes, to check some manifestations of this and what are impacts in our life and check also some categories of person who are suffering [with] change." – Interviewee No.7

However, others reported that the process to become a trainer coincided with the COVID-19 pandemic and developed their understanding and experiences during lockdowns. The trainers developed an appreciation for the ecological issues as a result, extending from their foundation in the union movement:

"I would say that personally, although the ecological problem had always been an issue in my life, it was not, I would say, a core thing in me. And it was actually becoming part of this Just and Green course that I started to think of possible ways to link the Union agenda with the environmental agenda. But before that, I think I was like many other trainers and also like a lot of the Union leaders at least in Argentina, we kind of see that as two separate worlds I think that before doing this, I was also part of that, I would say, more generalised opinion within the labour movement." – Interviewee No.16

The blended learning model used to deliver the GLU Online Academy course combines the freely available academic materials from the university with local trainers to guide and support participants and assist in contextualisation. An integral aspect of the trainers' work is the localisation of the course materials. The trainers identify how theory and examples of struggles in other countries

provided by the experts who contribute to the online course are relevant to the experiences and issues facing participants within their local contexts.

In an example from India, the GLU Online Academy course materials on global supply chains were used to support farmers' transition to cooperative and organic farming:

"So the course or the session that I had developed with them was a little bit about the global supply chain online ... And then the first thing we discussed is like I got it from them how they identified themselves and then also give them statistics about well, majority of Indian farmers are informal workers that they are marginal landholders... then the next session was like an expert session where this person, the expert had developed an organic farmers group of more than 1,000 farmers who had a registration and then they were selling their produce and how they divided everything." – Interviewee No.12

In response, the participants in the training resolved to farm organically, grow different crops, and establish regular markets for the exchange of produce. The group of farmers were working together to both improve the outcomes of their work and transition to more sustainable practices.

Interviewee No.2 referred to a presentation by one of the authors of the Lucas Plan, where a group of workers in the United Kingdom presented an alternative plan for the future of the aerospace company they worked for, to develop socially useful skills in response to potential job losses. This experience had informed the interviewee's approach to the training, as:

"... most trade unionists are worried about their working conditions, their salaries ... [saying] "OK. I agree that that's important, but I don't have time for that. But learning from other experiences may make you think, OK, there will be a moment in which they will be afraid of losing their jobs ... I know this experience and I know what the world needs. OK, I may offer something different in the trade union or in discussing with people, I may be able to think of something different for those groups of workers that may get offlaid someday." – Interviewee No.2

This localisation and contextualisation further promote inclusion and retention, and are outcomes of the spiral learning model used in the training. The spiral model builds from the knowledge and experience of students, and the trainer works to bridge between local and global knowledge. As one trainer explained:

"... what we're trying to do is centre the learner in the process ... of the spiral and take them through a series of steps where we find out what they know, but also, we discover what they don't know. We set goals and objectives, you know that are always correlated, at least in the context of what we're talking about with the Just & Green course and how they and their local conditions and circumstances could take the ideas that they're learning, and find out what they don't know, to fill in more ideas to kind of scaffold it up. And then to have them end the course with concrete ideas of how they could apply them in the world." – Interviewee No.1

Through these interactions, the *Just and Green* course also bridges the gap between workers and the benefits of education, and also addresses the shortcomings of free, open-access education provided in massive online open courses (MOOCs): low completion rates, a lack of localisation and contextualisation, and a singular direction of information from educator to students (López Meneses et al., 2020). Interviewee No.2 noted that "it's important for the trainer to gather the group to know

what their needs are, and then you see how you manage the online part of the course.” Examples of how trainers helped participants include:

- Providing access to online materials and quizzes for people who do not have internet. This included through in-person meetings held in the offices of the trainers, making audio recordings, and downloading course materials for sharing with participants. All the course materials are downloadable: thus, the workshop participants would use internet spots to download materials. Trainers also send downloaded scripts for their study circles.
- Translating course materials into participants’ languages, initially through online translation services and later on through more accurate, human translation.
- Attracting workers who would otherwise not have access to more formal, including trade union, education. Examples include informal workers such as garbage pickers in Argentina, seamstresses in India, and agricultural workers in Benin.
- Developing personal interactions, which encourages the development of a community within cohorts and in turn promotes student retention.

Climate justice is at the heart of the case study. A central aspect of the model of education is the unmasking of power relations: both in society and in the classroom. The course promotes justice by beginning with the knowledge of participants and addressing the aim of revealing and challenging power relations. Both of these are critical to empowering people who have been made to feel powerless and unable to make any change to their reality. One trainer discussed the power relations within their cohort:

“... it was the informal labour movement and the formal labour movement around the same topic discussing, OK, what's more important, labour rights or the idea of recycling or taking care of the environment. What's more important? Can one be done without the other? ... I think that goes to the heart of the course. That's because that's 'Just and Green: Labour's Ecological Question' so I think that goes straight to the discussion point of the course.” – Interviewee No.2

There are other examples within the case study of climate justice and progressing workers’ rights. A participant from South Africa discussed the health impacts of sulphur on coal miners and how the shift to renewable energy would improve workers' lives and address climate change at the same time. Interviewee No.6, who also translated the course materials so they were accessible to French-speaking participants in Benin, provided an example of the training leading to direct policy outcomes:

“After the workshop, they go to the local government to know what is going on about climate change. When they make the research, they find that the local government are making policy about protection of environment, protection in the high area. They ask now to be part of the process because they plan to validate the policy program, and now they were able to participate on the different meetings.” – Interviewee No.6

This intervention has led to changes to the government’s policy on international investment in agriculture and environmental protection. This exemplifies how the *Just and Green* course enables people to challenge power relations for the benefit of both workers and the environment in the context of climate change.

In South Africa, through open and engaging conversations, the participants of the blended intervention were also able to see and analyse the link between the environmental crisis and other pressing problems facing their communities such as energy, poverty, and access to clean water, land, and air—and indeed to the fundamental problems of the capitalist system. The spiral learning process began with participant knowledge of the local hydrological systems, and then to the variations and

impacts of climate on the environment, farming, and economic activities, as well as social and cultural impacts. Following this sharing, the participants' experience and understanding was:

"...extrapolated into global impacts starting with those manifesting locally especially intensifying and recurrent droughts, heatwaves, and floods, to others they read about in social and mainstream media. There were feelings of shock and betrayal that such vital issues are not part of the education system or of public consultations on the environmental impacts assessments, as required by law, during applications for licence to mine and use of water in mining development projects." – GLU Online Academy, forthcoming, p.24

An interviewee from the Philippines discussed the implications of the Jeepney⁴ modernisation process, which includes the electrification of diesel vehicles, the reliance on coal-fired power generation, and the economic implications for Jeepney operators (see also Gatarin, 2024). These examples draw attention to fostering local action to address the intersections between just work and climate change as the primary purpose of the *Just and Green* course.

The trainers also reported ongoing meetings with their study circles, to continue working together to influence policy and improve working conditions and environments. The trainers saw the course as an important intervention, including:

"[Just and Green is] a tool for organising. And I without it, I would not have been able to influence the social metamorphosis, if you like, of the Climate Justice Coalition." – Interviewee No.8

"I will not be there every time, but what I can do is to give them tools, material information, all kind of things that can empower them and they will be able by themselves to fight for the goodness... for the better life for the self." – Interviewee No.6

Some trainers had previous experience in the labour movement or in taking and training other courses for the GLU Online Academy. The *Just and Green* course built on this experience and knowledge of the trainers, instilling greater understanding of the need and possibility for action:

"I could see that there are very interesting experiences from workers all around the world that are putting like a break to those corporate abuses, and that's something that I've always felt like useless for climate change action, you know. Like OK, until they change their mind, we won't be able to do anything. And I learned that there are ways in which we can, like, act together and change things you know, like I never thought of that as something that we could work on." – Interviewee No.2

Other trainers indicated that particular aspects of their knowledge of the issues had increased through participation, including the connection between emissions and the distribution of wealth, the links between the climate crisis and capitalism, and increased knowledge of climate change.

In general, the trainers had found their experience of the *Just and Green* course rewarding, with one describing the opportunity to connect with people internationally through online training as 'inspiring' (Interviewee No.1). Another saw the connections between education and empowerment as crucial:

"As a way in which people can free themselves, not only gain knowledge for the purpose of knowledge. Now the idea is that you gain knowledge and you share it with others and

⁴ A type of public utility vehicle widely used in the Philippines for public transportation.

you learn from others and you teach others all the time. So that you all get free together. That's the ... for me it's the most important part. That's why I love this project and that's why I wanted to mention I think that the spiral and the blended are like approaches, but the general like substance of the courses is the participatory education the idea of liberated.” – Interviewee No.2

The pride and fulfilment resulting from training are evident, as many interviewees discussed how they went on to use the resources, including teaching methods, to organise other activities and work with other social and environmental justice movements on the ground, including in collaboration with their study circle participants after training had ended.

Trainers discussed how the mix of people in their cohorts made it an interesting experience, and that participating in *Just and Green* was a “really wonderful experience in terms of content and in terms of the training process” (Interviewee No.15).

CASE STUDY IMPACTS

Influence of the Case Study on Conceptualizations of Quality CCE

In this case study, quality climate change education is conceptualised as founded in participant knowledge and experience; inclusive education at a global scale; and as a driver for local climate change action. Together, these aspects of the *Just and Green* course provide the basis for its impacts in the places it is delivered.

First, the *Just and Green* course uses the blended mode of learning, combining online and face-to-face activities to pursue a pedagogic approach which begins with and extends from the experience and knowledge of participants to new knowledge and application of skills acquired through local action - the spiral model. The blended learning facilitated by the trainers is anchored in an experiential model of learning, which recognises and validates people’s existing knowledge and experiences. The spiral learning model helps participants systemise and build patterns, and add new knowledge in an organic and critical way. This also provides the foundation for the spiral learning model, where the trainer guides the participants between their knowledge and experience, and the academic materials available through the GLU Online Academy. While the spiral learning model draws on the mid-20th century work of Paolo Freire (1970, 1996), its innovation is the work of trainers to implement this in conjunction with the MOOC to draw together the local and contextual knowledge with the global. Through these approaches, the *Just and Green* course bridges the ‘glocal’ demands for climate action.

“The course provided me the basics of the concept of Just Transition, its historical backdrops, the origin of the current ecological crisis, the key factors, drivers and the existential crisis of the present environmental problems facing the planet. It also made me realise how important it is to mobilise the workers, like-minded individuals, labour/trade unions and civil society organizations to expose the blatant violations of environmental regulations by the capitalistic forces, the extractive practices they adopt to exploit various natural resources so critical for the survival of the marginalised people across different regions in the world and how to make them accountable for the mess they have created.” – Student reflection, posted on the Just and Green website.

Second, a notable aspect of the *Just and Green* course and the GLU Online Academy approach to education is inclusivity: the course is made available to people outside formal education systems who

could not otherwise afford to study. While there are many opportunities for open access education available, a main contribution of the *Just and Green* course trainers is in facilitating access to material through internet provision and translation. This enhances the accessibility of the education offered, since in some cases, course participants do not have access to the technology and infrastructures for online study. The trainers and the blended learning approach also support inclusivity by building from the knowledge and experience of participants, supporting people to not just start, but to continue their education. The multiple levels on offer within the *Just and Green* course, and the associated accreditation, is also an important aspect of its inclusivity, as it provides opportunities for people with a range of prior educational attainment to undertake the training. The spiral learning model and the trainers are, again, integral to this. The spiral learning model recognises the importance of knowledge and experience as the starting point for education, and does not discriminate in the application. The trainers, and their training in the spiral model, enable these connections to be made in ways not possible without the study groups that they establish and lead through the course.

"Participants started some of this discussion tonight ... from different types of organisations. I don't think they got to get involved in each other's organisations, but they started to see each other with different eyes... they are, again, like it builds some sort of a confidence between these two types of organisations. It wasn't something materialised in something concrete, but I could see that they were inviting each other into activities." – Interviewee No.2

The third innovative conceptualisation of climate change education is that the *Just and Green* course considers education as a precursor to action. In following Paolo Freire's principles of spiral learning and scaffolding from participant knowledge, the course is designed to promote action. Throughout this process, the course seeks to make visible hidden power relations, both in terms of the topic discussed, and also in the classroom.

Through the three dimensions of critical consciousness and transformative capacities identified by Serrano and Xhafa (2012), participants in the blended learning interventions of the *Just and Green* course are empowered through the experience. The education provided has a tangible impact on people's lives and their communities, as shown through the examples discussed above. This conceptualisation of education as a foundation for action, and particularly climate action, is exceptional in the context of education systems across the world becoming increasingly focused on employment outcomes (Marginson, 2016).

"This course has helped me to appreciate how important it is to see environmental issues as labour issues and the need for workers' groups to engage in discussions to logical conclusions to secure safer jobs and decent livelihoods for all. I am committed to educating more people on this and introducing them to the Just and Green course." – Student reflection, posted on the Just and Green website"

The student reflections on the course included in this report indicate how participation in study groups has inspired people to action, instilling a desire to pass their knowledge and experience to others. This outcome was also evident in the responses of the trainers in the interviews, for example, in the continuation of study circles discussing issues of labour and environment after the course was completed:

"We noticed that the government has elaborated some policies on climate change in diverse sectors, sectors of agriculture, sectors of infrastructure... But when we look at

these policies, it seems for us, we unions, something is not done ... everyone will continue to read the policies and we are going to extend that in our group.” – Interviewee No.7

Another trainer talked about their second cohort in the *Just and Green* course and a successful action that included:

“People from Academia, environmentalists, labour officials, and other trade union members. We actually had that sensitisation and awareness program to commemorate the Workers' Day. We had this campaign; we went out with our banners. We had other Trade Unions join us. We had people from Trade Union Congress join that work that day. We had our banner, we had other placards where we actually did a campaign on proper waste management.” – Interviewee No.10

“There was actually a whole lot of change even in the people around there, which we actually demonstrated as well how they can package their garbage before disposing. A lot of positive impacts came as a result of that sensitisation work.” – Interviewee No.8

The examples included here provide insights into how the *Just and Green* course has an impact on not just the participants, but also their communities through the action fostered through participation.

The trainers also saw potential to improve the training and people's experiences of the *Just and Green* course. This included additional translations of course materials, and improving access to course materials and the quizzes at the end of modules. One trainer suggested that a process for developing participant experiences into case studies would improve the course, which reflects the spiral learning model and enhances contributions by participants. Another trainer indicated that they would have benefited from more time with their cohort in the early stages of the *Just and Green* course, to develop a greater understanding of their experiences. The trainers are also participating in writing a workbook to bring together all the knowledge acquired through the *Just and Green* course to support popular education and the use of the spiral learning model.

Finally, as a result of student action, a mandatory course for all students at the University of Barcelona on the ecological and social impacts of climate change has been introduced. Similar to the *Just and Green* course, this new, mandatory course includes ‘not only the climate but global inequality and global injustices’ (Cols, cited in Harper, 2023). This is also an important and radical development in how universities are fostering the development of climate-aware graduates and is intended to act as an example to other universities. While this is an important step in climate education, the comparison highlights how the *Just and Green* course and the GLU Online Academy are taking quality, university-led, education beyond the walls of academia through open access and trainer-supported delivery to unionists, as well as labour, environmental, community, and other activists.

The Impact of Blended Interventions

Further examples of the impact of the *Just and Green* course are included in GLU Online Academy materials. This includes:

“In South Africa, a group of participants have joined the Climate Justice Coalition, and have used a similar model to the Just and Green course, instigated campaigns for environmental justice. The Sekhukhune platinum mining belt community has submitted to the mining company's demands to install solar panels and is organising several marches to keep up the pressure. The community has also initiated a Socially-Owned Renewable Energy Project supported by the Lawyers for Human Rights, Centre for Applied Studies and 350.Org.

Participants in Just and Green training in Zimbabwe have joined the Community Social Service Accountability Initiative, which includes local government and community members and leaders in response to issues with garbage burning in Mbare, Harare. This has helped reduce GHG emissions and for a review of Local Council by-laws to reflect issues of climate justice regarding urban agriculture, building designs, and use of alternative energy sources. The residents are also separating the garbage.

In Nigeria, Just and Green training has led to the integration of climate change and just transition in trade union conferences, the creation of a climate change and just transition desk, as well as engagement in media advocacy. By bringing together trade unionists, climate change activists, lawyers, academics, students, and policymakers, the study group provided the opportunity for the Nigerian labour movement to work alongside other progressive groups. The group is currently seeking to register as an NGO.

In Trinidad and Tobago, Just and Green participants opposed a “Just Transition” government Bill. The government had not consulted with labour, and as a result, 150 unionists were included in a discussion on a “progressive just transition” platform from a people's perspective. The unions are currently working to develop a people-centered Just Transition policy.”

– Source: GLU Online Academy Flyer)

Scaling and Applicability of the CCE Initiative to Other Contexts

The connection between academia and the lived experiences of workers, mediated by the trainers, makes the *Just and Green* course broadly inclusive, socially and geographically, in ways that separate it from other examples of university-level climate education. The course is developed and delivered in conjunction with the union movement, which also underpins the potential to extend the scope of the *Just and Green* course.

However, the limitation to this reach is also the foundation for its impact: the trainers.⁵ Trainers run study circles as volunteers, and having undergone training, provide their time and expertise in environment and employment without pay. In the interviews, trainers indicated that this is the main restriction in delivering blended interventions for the *Just and Green* course. However, at the same time the trainers acknowledge that use of this model also allows the *Just and Green* course to be offered without fees to students: it is both essential to the inclusivity and a restriction to greater inclusivity. The reliance on the volunteering of time to translate course materials is also an impediment to increasing access to the course to additional language groups. There are, however, examples where the trainers have replicated the model of the blended learning for the *Just and Green* course without any funding from the GLU Online Academy or indeed without any funding at all. For example, in the former case, a certified trainer from South Africa in partnership with a number of local organisations is delivering blended interventions as part of a broad coalition of environmental justice in the country.

Ultimately, the *Just and Green* case study has implications for how we consider education, and its role in responding to the climate crisis and the unjust working conditions that impact the health and well-being of many workers across the world. The case study highlights what Freire (1970, p. 514) refers to as *conscientisation*, that people need to be invited to ‘grasp with their minds the truth of their reality,’ as a precursor to action. This radical view of education aligns with day-to-day climate change adaptation literature that sets out the sensing of the impacts and risks as foundational in taking

⁵ This is also the case for the academics who present the online course materials but were not included in this study.

action, where sensing is 'an analytical device for thinking through how experience and relations are reworked across entities, environments, and technologies' (Gabrys, 2019, p. 724), but in this case study, sensing is fostered through education.

"The training makes something move. I don't know if that gets into something concrete, but it moves us and that's something." – Interviewee No.2

APPENDIX A. INTERVIEW QUESTIONS

Interview Questions

1. Introduction
 - a. Confirm rights as a participant and consent to be recorded.
2. Trainers' understanding of climate policy and courses of action
 - a. How did you come to be a trainer for the Just and Green course?
 - b. How many times have you acted as a trainer for the course?
 - c. What was the motivation for you becoming a trainer?
 - d. What did you learn in becoming a trainer?
 - i. Policy
 - ii. Action
3. The blended learning model of the GLU-OA and trainers' capacity to facilitate learning and action by workers in their communities.
 - a. What have been your experiences in delivering the blended training model?
 - b. In what ways does the blended model enable or help climate learning and action in communities?
 - i. Are there ways it could be improved, or problems to be addressed?
 - c. How does the blended model address aspects of community inclusion and equity?
4. How has the blended learning been beneficial for local climate action?
 - a. Tell me about the circumstances or context where you were the trainer?
 - i. Community groups
 - ii. Just and green contexts for climate action.
 - b. How did training change or influence workers' response to the situation?
 - c. What were the outcomes of the training in the community?
5. Since the training ended, are you aware of any further developments that may have resulted?

As there is a requirement for media to support the case study, participants would also be asked if they are willing to be filmed, which would be separate to the interview.