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The global inter-network governance of UN policy programs on climate change education

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ABSTRACT

This paper examines the hows and whys of the global inter-network governance of two United Nations intergovernmental organizations with a policy focus on climate change education. Study data include web-audits, social media analyses, and interviews with policy actors involved in the network governance of these policy programs. The research suggests how each organization is functioning via UN-specific forms of semi-structured network governance, in which non-state actors have increasingly played key roles, but alongside the continued influences of state actors and the hierarchical structures of the intergovernmental organizations. We also found that the two organizations under study are engaged in forms of ‘inter-network governance,’ including via joint reports, meeting collaboration, and intermediary policy actors. The drivers of this inter-network governance are also discussed, including historical siloing of education and environment in different national ministries, macro and micro forms of institutionalization of the collaboration between the two organizations, and the greater mainstreaming enabled by the prominence of the United Nations Sustainable Development Goals. The study suggests the positive outcomes of the network and inter-network governance at play in the UN organizations, and how that has been key to the global development and mobilities of climate change in education policy. The study has implications for international organizational theory, network governance studies, and understanding the global governance of climate change in education policy.

1. Introduction

The role of education policy in helping to address climate change is one of the most important, and most under researched, areas in the field of global education policy. This is surprising given the increasing number of United Nations (UN) international organizations (IOs) that have now developed policy programs with a focus on climate change education. These include the UN Education, Scientific and Cultural Organization’s (UNESCO) Education for Sustainable Development (ESD) program, which has a growing emphasis on climate communication and education (CCE) (see [Table 1](#) for a glossary of acronyms). The UN Framework Convention on Climate Change (UNFCCC) Secretariat’s Action for Climate Empowerment (ACE) program also centres on various forms of CCE. While environmental concerns have historically been relegated to the margins of UN education policy, they have now become more mainstream policy foci and a core element of the UN policy regime ([Tinkly, 2017](#)). This is evident in the UN Sustainable Development Goals (SDGs), released in 2015 to guide intergovernmental and governmental policy activity until at least 2030. SDG Target 4.7 focuses specifically

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Table 1
Glossary of acronyms

IO	International organisation
CCE	Climate communication and education
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
SDGs	Sustainable Development Goals: Established by the UN General Assembly in 2015 and including 17 Goals and 169 Targets
ESD	Education for Sustainable Development: UNESCO's education sector terminology for advancing sustainability and global citizenship
GAP	Global Action Programme on ESD: UNESCO's ESD Program from 2015-2020
ACE	Action for Climate Empowerment: The term used by the UNFCCC to refer to country commitments to education, training, public awareness, public access to information, and public participation on climate change
COP	Conference of the Parties: Annual meeting of member countries who signed the original 1992 UNFCCC, typically held at end of calendar year
SBI	Subsidiary Body Intercession: Annual meeting of member countries who signed the original 1992 UNFCCC, typically held at mid-point of year
NDC	Nationally Determined Contributions, target-setting documents submitted by countries to UNFCCC every 5 years as per the 2015 Paris Agreement
NC	National Communications, reporting documents submitted by countries to UNFCCC every four years as agreed in the original 1992 Convention
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
EFA	Education for All: UNESCO-wide policy program from 2000-2015
NGO	Non-government organisation

on ESD, and Target 13.3 includes a focus on CCE, and both share use of the same monitoring indicator. As this paper will elaborate, the story of the recent emergence of the prominence of CCE across these policy programs is partly a story of UN IOs engaging in inter-organizational network governance.

In this paper we seek to elucidate how two of these UN IOs – UNESCO and the UNFCCC - have been furthering their CCE-focused policy programs by collaborating across their respective networks, and with the third policy program of the SDGs. We first examine how each of the two UN IOs have increasingly each engaged in forms of network governance. This includes through non-state actors, national governments, and UN IO staff actors sharing participation in the decision-making and mobilisation of the CCE policy programs. We explore this increase in network governance of UN IOs in relation to the continued salience of their bureaucratic-administrative structures and hierarchies as intergovernmental agencies. The UN IO programs under study thus provide a window into the interplay between more traditional hierarchical structures of global governance, and the increasingly distributed networks of global governance.

Second, the study sheds light on how the relations between the two UN IOs under study demonstrate forms of inter-network governance—i.e., the ways that the interactions between the UN IO policy networks have become an integral component of their network governance. We consider how UNESCO and the UNFCCC's collaborations with state and non-state actors associated with their policy programs exemplify forms of inter-network governance specific to IOs. We elaborate on the hows and the whys of this inter-network governance of UN IOs in relation to their policy programs on CCE.

Finally, the analysis also suggests how, through their inter-network governance, UN IOs are key in positioning CCE in intergovernmental and governmental policy with growing importance and urgency. The UNFCCC's ACE program is gaining visibility in global climate negotiations (Kolleck et al., 2017; McKenzie, 2021), and UNESCO's focus on ESD has been partially mainstreamed via SDG 4.7. In addition, UNESCO has recently released a new vision for 'transforming education' to 'to shape the future of humanity and the planet' (UNESCO, 2021). Within this converging global policy field of education and environment, it is timely to closely examine the interactions between UNESCO and the UNFCCC, including the synergies of their network governance of CCE programs.

2. International organizational and heterarchical theories

To study the role of UN IOs in governing global education policy, we draw in part from IO theories that understand UN IOs not only as reflections of state interests, but as partially autonomous actors (e.g., Barnett & Finnemore, 2004). Even in cases with relatively less autonomy, IOs are key policy actors with unique functions, not least of which is to help produce and facilitate the networks that advance their policy agendas. IO scholarship helps us contemplate bureaucratic and organizational elements of IO governance that might be creating incentives for greater levels of interaction between policy networks (Biermann & Koops, 2017). In relation to IO theory in education, there is considerable work on the role of IOs as influential actors in global policy directions (e.g., Tikly, 2017; Verger, Novelli, & Altinyelken, 2018). Much of this work has been focused on the World Bank and UNESCO (e.g., Edwards et al., 2017; Mundy & Verger, 2016), and increasingly on the OECD (Auld, Rapple, & Morris, 2018).

In contrast, network governance scholarship has focused on the role of non-state actors in global governance, including in relation to UN IOs. This body of work emphasizes newer "heterarchical" or networked forms of global governance. This includes the influences of corporate and entrepreneurial non-state actors, the role of tech platforms in facilitating the mobility of policy ideas and data, and how policy influences now cross time and space in topological ways to extend beyond the input and decision-making of government (Lewis, Sellar, & Lingard, 2016). However, despite these heterarchical influences, UN IOs retain core elements of organizational hierarchy and vertical relationships, including through their links to nation-states government entities that give them their mandates (Junemann & Ball, 2012). Often accounting for the role of states and IOs in heterarchical thinking is undertaken conceptually in this literature, and more empirical work can help uncover the intricacies of these interactions (McKenzie & Aikens, 2021). This includes paying attention to how the "embedded institutional legacies and imperatives" of UN IOs interact with a policy heterarchy that includes diverse types of non-state actors and modes of interaction (McCann, 2011, p. 109).

Examining the role of IOs in networked forms of governance in education policy has commonly focused on the work of the OECD (Lewis, 2020; Lewis, Lingard, & Sellar, 2016) and its evolving role in a global governing complex (Sorensen, Ydesen, & Robertson, 2021). Numerous studies have examined the OECD's administration of PISA as a "linked mechanism of epistemological and infra-structural governance" (Lingard & Sellar, 2016, p. 368). Of particular interest is how policy networks can enable the development of epistemic communities with shared values. In this way, diverse and often spatially dispersed actors can "exert policy influence across multiple polities and scales" (Lewis, Sellar, & Lingard, 2016, p. 35). The increased network governance of UN IOs means that non-state actors can circumvent the mediating role of national states by accessing global policy processes directly through the IO. In other words, along with a broader shift to network governance, UN IO governance appears to have become more networked as well.

This necessitates closer examination in the field of global education policy, especially with UN IO's growing role as orchestrators that facilitate policy networks (Abbott et al., 2016). It is also a salient topic in light of a remarkable increase in inter-organizational relations observed in recent times (Biermann & Koops, 2017). While some research on IOs in education has foregrounded network analyses, we are not aware of studies that have looked at IO networks in relation to their inter-organizational governance of education. In this paper, we consider how and why UN IO's include network and inter-network governance strategies, even as they continue to operate within an organizational architecture of global governance that remains tethered to the governing institutions of national states.

3. Methods of studying network governance

Our qualitative research design follows key aspects of a policy network ethnography. On one level, network ethnography draws attention to the mapping of a network, which means identifying who the network actors are (individual and organizational); how they relate to each other (both past and present); and what network elements have played a mediating role in these interactions (e.g., places, events, documents, funding, etc.). On another level, network ethnography is also interested in the why of network actors' interactions, and with what effect on the policy field that they constitute (Adhikary and Lingard, 2019; Ball, Junemann, & Santori, 2017). In our case, we take a network research approach aimed at better understanding processes of UN IO network governance. As part of a larger study, this includes a focus on how a range of policy actors engage as, and with, the UN IOs under study, in forms of network governance involved in the development and impact of the global CCE policy programs.

We collected primary data through web-auditing, social media analysis, and interviews (Sperka & Enright, 2019; Hogan, 2016). Web auditing provided a starting point for laying out the field of investigation, investigating network relationships, and generating data for the network mapping process. It also provided background information that contextualized the relevance of policy actors and their relationships to the policy programs. Online sources for the web-audits included relevant websites such as personal and organizational websites, biographies and profiles, archival repositories of policy-making documentation, press releases, blogs, and annual reports. Web audits helped to identify key actors related to the policy programs and the relationships among them, but also to find signs, traces, or indications of how these actors have interacted to influence the policy programs. Pointing to policy actors, their relationships, and influences worthy of further investigation and analysis, web audits helped identify the initial and subsequent sample of interviewees. This online research also helped generate more specific questions for individuals that were directly relevant to each actor's roles in the policy network. Online data collection also included qualitative analysis of social media activity related to key policy actors (via Twitter mainly), though this analysis is not drawn on in the current paper.

Semi-structured interviews were conducted with 32 international ESD/CCE policy actors, or "key network personnel," within and outside of the UN IOs in the study (Macdonald et al., 2020, p. 178). Interviews, which ranged in length from 60-90mins and were conducted remotely in 2021, sought to gain insights into the whos, hows, and whys of the network interactions and influences on policy programs. Interviewees included UN IO personnel with key roles in the policy program (e.g., Secretariats, Executive Committees, report authors), as well as affiliated network actors that have had significant interaction with the policy programs such as NGO leaders, UN Chairs, research consultants, key national government representatives, etc.).

We used NVivo 12 to organize and analyze project data, including detailed coding of both web audit data and interview transcripts (Jackson & Bazeley, 2019). Topical codes were developed deductively from background literature (e.g., references to meeting venues, forms of media or other material infrastructure supporting policy actor influence), with additional inductive categories drawn from the data. As key themes were identified, such as aspects of network governance of each UN IO policy program and their interrelations, we returned to the data and coding to identify additional sub-themes and data to help elucidate the topic further.

Finally, our methods also involved qualitative network diagramming as an analytical device (Avelar, et al. 2018). The resulting network diagram is not an exhaustive and absolute representation of the networks and their relationships, but rather shows the network actors most often found in the data, and their relationships to the two UN IOs. In other words, the diagram represents our synthesis, drawing from web-audit and interview data, of how key policy network actors are engaging in the network and inter-network governance of the two UN IOs.

4. The network governance of UN IOs

The study's web-audit and interview data suggest that each of the two UN IOs under study operates via networks of state and non-state policy actors to move their CCE-related policy programs forward, including through inter-network governance across the two UN IOs (see Figure 1). Unlike other networks, the UN IOs are still very central in the network governance, demonstrating a particular form of network governance. They indeed function as networked and topological heterarchies, with a range of interrelationships across time and space among a wide variety of state and non-state actors (Ball & Junemann, 2012; Lewis, Sellar, & Lingard, 2016). However, the

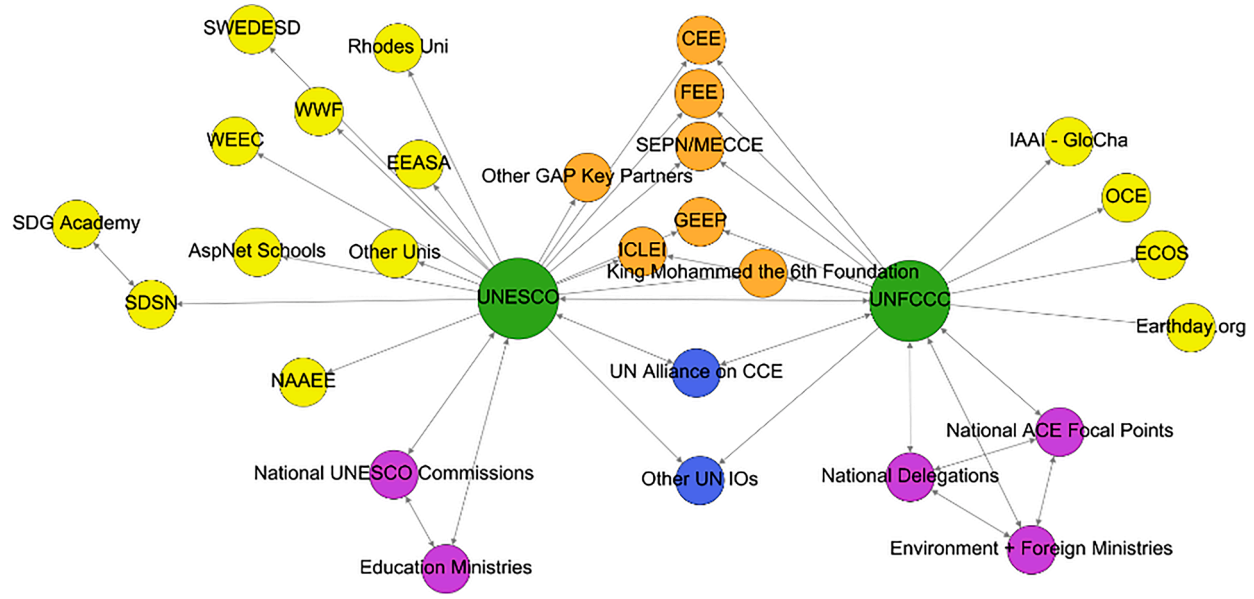


Fig. 1. The UN IO CCE structured networks and inter-network actors.¹¹

state-centered and hierarchical administrative structures of the UN IOs still play a key role in relation to the broader networks influencing their governance. Below we outline some key aspects of how each UN IO is functioning via this type of *semi-structured network governance*, before moving in the following sections to discuss the modes and drivers of the *inter-network governance* evident between the two UN IO networks.

4.1. UNESCO ESD network governance

UNESCO's Education for Sustainable Development (ESD) Section has a policy network that includes actors across national governments, other UN IOs, and a variety of non-state actors from civil society. Interviews with ESD Section staff suggest that non-state actor participation is largely facilitated by the ESD team's role as information and knowledge managers in delegating expert authority (Barnett & Finnemore, 2004). For example, during the Decade of ESD (2005-2014), UNESCO convened three expert groups made up of academics, policy makers, and practitioners from around the world. These groups were convened in person during international ESD policy meetings, and remotely and asynchronously, to conduct a variety of tasks contributing to the production, management, and dissemination of expert knowledge. They were charged with devising program strategies, designing monitoring and evaluation mechanisms, and developing action frameworks. The expert groups granted non-state actors from across civil society, but especially academics from universities and research institutes, a significant role in steering and shaping the Decade of ESD (Interview 2, UNESCO staff). The subsequent UNESCO Global Action Programme (GAP) on ESD also convened expert groups in the form of 90 civil society Priority Area Partners (2015-2022). The planning and design of the ESD for 2030 Framework that followed (spanning 2020-2030), involved over 250 selected experts, in addition to stakeholder consultations with GAP Key Partner organizations. Most recently, UNESCO has launched an ESD for 2030 Global Network (2022-2030) to help advance the ESD 2030 Framework, with a focus on knowledge sharing, advocacy, cooperation, and contribute to monitoring and evaluation (UNESCO, 2022). The selection and convening of partners and network members through these activities is a core function of UNESCO's ESD Section team, and also how it gains input, prestige, and impact.

The UNESCO ESD Section has worked with national governments in establishing these programs and networks, especially ministries of education. This includes in hosting meetings and setting program directions, disseminating ESD materials to policy makers, and in monitoring and reporting of country progress on ESD. Three national governments stand out in interview data as key member-state sponsors of the UNESCO ESD agenda: Japan as the primary donor to the ESD Section (and planned host to the 2023 UNESCO meeting); Sweden as the most consistent secondary donor; and Germany through its in-kind contributions hosting a 2009 World ESD Conference, and again in 2021. In addition, a range of national and subnational government members participate in expert groups, meetings, and other UNESCO ESD activities. At the intergovernmental level, other UN organizations have also played a role in the UNESCO ESD network, including UNITAR, UNEP, UNECE, and of course the UNFCCC.

The innovative nature of public policy on ESD requires a high degree of advocacy and technical assistance for adoption by member states, who thus rely on UNESCO for knowledge and technical expertise related to new policy frameworks (Barnett and Finnemore, 2004). The UNESCO ESD Section has relatively few staff members, and relies on funding from donor countries and consultancies with academics and NGOs to undertake reports, meetings, and other activities. Moreover, engaging with stakeholders from a wide cross-section of civil society endows this UN IO with moral authority that legitimizes ESD policy advocacy efforts (Menashy & Manion, 2016). For all these reasons, UNESCO staff overseeing the ESD policy agenda operate primarily as conveners of policy actors, facilitators of information, and network orchestrators (Abbott et al., 2016).

4.2. UNFCCC ACE network governance

Web-audit and interview data also point to the importance of network governance in UNFCCC ACE work. However, as per key ACE team interviews, while the UNFCCC relies on network governance to develop and fulfill its mandate, the network role is more constrained than in the case of UNESCO. Whereas UNESCO has wide latitude to engage in significant policy advocacy work, and greater autonomy to set the agenda for its policy programming, UNFCCC staff are expected to remain neutral on policy positions. They facilitate formal intergovernmental meeting negotiations, while also helping member-states make progress on what they have agreed on during these negotiations (Interview 28, UNFCCC ACE Focal Point). Accordingly, UNFCCC governance is more traditionally hierarchical and state-centric. In research literature on the UNFCCC, this has been considered somewhat of a "straightjacket" (Busch, 2009, p. 245), significantly limiting the UNFCCC Secretariat's ability to promote policy positions.

Despite these constraints, the ACE workstream is illustrative of how the UNFCCC still functions via network governance through involvement of non-state participation in setting and achieving its agendas. On the one hand, the Secretariat's primary points of contact with member parties for the ACE agenda are the ACE National Focal Points, which nearly all national governments have now designated. The vast majority of these are representatives of national ministries of environment or foreign/external affairs, and negotiate all ACE agenda items at UNFCCC meetings as part of their national delegations. On the other hand, as per the majority of our interviews with ACE stakeholders, ACE is considered one of the UNFCCC programs most engaging of civil society actors. Corresponding with the expectation of a politically neutral approach, UNFCCC ACE staff support the organization's mandate by identifying gaps, needs, and options put forward for member states to fulfill their obligations under the original convention (1992) and the Paris

¹ We have not focused on the relationships that may also exist among other network actors outside of their work on UN IO policy program governance, and thus these are not included in the network diagram.

Agreement (2015). In this way they influence the agenda “in a roundabout way,” exercising “some flexibility... to identify that good practice and to highlight that” (Interview 28, UNFCCC ACE Focal Point). The UNFCCC ACE team draws significantly from sub-national and non-state actors that comprise the ACE policy network to provide “new sources of moral agency” (Ball & Junemann 2012, p. 136), as well as expertise and “know-how of specialized actors” (Abbott et al., 2016, p. 2). To support member countries in meeting their responsibilities to the ACE agenda, the UNFCCC ACE team draws together key state and non-state actors to share expertise and examples of policy design, implementation, and monitoring mechanisms.

A substantial part of how the ACE team conducts these activities is through network orchestration. In their own words, the UNFCCC ACE Focal Point spoke to what they see as their role in facilitating connections:

We connect different actors in the space who may not otherwise be connected, and that leads to... our convening power. A big part of what we do is to convene, whether it's workshops or technical meetings or meetings of focal points, it's to... help build that coherence and to bring these actors together in a way that supports the different agendas and supports countries in delivering their responsibilities in respect to those different agendas. (Interview 28, UNFCCC ACE Focal Point)

To this end, non-member stakeholders (non-state actors in UNFCCC parlance) from across the ACE policy network are regularly involved in ACE policy programming, including through: a) the dedicated ACE day at each Conference of the Parties (COP) meeting; b) annual ACE Dialogues, which have been held for the eight previous years at the intercession meetings ('Subsidiary Body Intercession' or SBI meetings) in Bonn, Germany, mid-way between the COP meetings each year; c) the ACE workshops now being held remotely via web-conference in the lead up to COPs as a response to Covid-19; and d) the extensive stakeholder consultations conducted as part of the process of the review of the prior ACE-focused Doha Work Programme (2012-2020) and in developing the new ACE Glasgow Work Programme decided upon at COP26 in 2021.

In the case of the UNFCCC, and with regard to ACE policy program specifically, our data corroborates other researchers' claims that the Secretariat now “plays a central role in shaping the educational agenda in the UNFCCC” (Kolleck et al., 2017, p. 122; see also Hickmann et al., 2021). This is in part by managing knowledge and communication flows, but also by “strategically connecting to other influential actors” (p. 122). This reflects broader political shifts towards network governance in global climate policy strategies. With the adoption of a voluntary, bottom-up strategy to climate diplomacy in the Paris Agreement (Sabel & Victor, 2017), “sub- and nonstate actions are increasingly seen as both complements to and ‘means of implementation’ for national pledges” (Chan et al., 2015, p. 469). In this atmosphere, collaboration between national states, subnational states, and non-state actors is emphasized as part of an effective comprehensive framework for action in climate governance. UN IOs are now understood to play a central role in facilitating such collaborations. In this light, the Secretariat now wields more influence on the climate agenda by increasingly orchestrating pro-climate policy activity with non-state actors, indirectly putting pressure on member states to make progress and support more ambitious policy positions in negotiations (Bäckstrand & Kuypers, 2017).

In summary, both the UN IO ESD and ACE work streams are shaped by network activities and influences. These complement the hierarchical procedures of international intergovernmental administrations, as they “bring together a diverse range of government and non-government actors in processes of policy production and enactment” (Lewis, 2020, p. 31). The networks we have described in brief, and the visual network representation shown in Fig. 1, point to the central facilitative role that the UN IOs undertake in these policy networks, as well as the continued role of state actors and formal hierarchical governance structures. Thus, the networks operate via what we have termed, semi-structured network governance - a mix of distributed heterarchical relationalities and formal administrative, intergovernmental structures. The network graph in Figure 1 also shows that even as each UN IO has its own policy network involved in its governance, there are key points of connection and overlap across the two networks. In the next section we discuss actors and events involved in these points of network convergence, and how they constitute modes of inter-network governance.

5. Modes of inter-network governance

The study data suggest several points of connection between the two UN IO networks, as seen in Fig. 1. The most significant of these is the direct interaction between the two UN IOs in relation to their work on CCE. This appears to be a relatively recent development, occurring over the last seven or so years, as UNESCO has focused increasingly on CCE. In addition to ongoing communication between UN IO staff in relation to CCE is evident, and the cross-promotion of activities and events, joint reports and meetings are two key activities that have particularly furthered the inter-network governance of the two UN IOs. In what follows, we talk about each of two modes of inter-network governance, and close the section by also discussing the inter-network convening role of non-state actors.

5.1. Joint reports as inter-network governance

A significant area of inter-network activity is in the joint production of key policy documents. Three of the most prominent international policy documents published on CCE to come out of the UN system between 2016 and 2020 were produced and published by UNESCO in collaboration with UNFCCC. Two of these include *Action for Climate Empowerment: Guidelines for accelerating solutions through education, training and public awareness* (UNESCO/UNFCCC, 2016), and *Integrating ACE into Nationally Determined Contributions: A short guide for countries* (UNESCO/UNFCCC, 2020). Providing guidance on national ACE implementation, these reports include recommendations for developing national ACE strategies and addressing ACE in national target-setting in Nationally Determined Contributions (NDCs) required under the 2015 Paris Agreement. As suggested by the list of names on the acknowledgements pages, the reports included input and review from a range of governmental and civil society actors. A third document, *Country progress on climate change education, training and public awareness* (UNESCO, 2019), provides a stocktake on progress in including ACE/CCE in countries'

goal setting NDCs, as well as countries' National Communications (NCs), due every four years under the original climate convention (1992). This report was published by UNESCO, and authored by non-state inter-network actor SEPN/MECCE (see also McKenzie, 2021)².

Talking about why UNESCO collaborated with UNFCCC on each of these policy reports, the UNESCO ESD Section Chief explained that they were responding to an opportunity to bring the environment and education sectors together in addressing CCE:

We really initiated that in the team, because we had the feeling this is really very important... to make a contribution to this agenda. All of it within this overall strategy to bring these two sectors closer together, you know? The climate, environment, sustainability sector, globally and at member state level; and then the education sector. And then of course, concretely, also the report that we did [with SEPN/MECCE] on reviewing country [National] Communications, that was also because we thought, you know, that 'data sells' to vis-à-vis the education stakeholders. (Interview 3, UNESCO staff)

The UNESCO ESD Section team's interpretation of their organizational mandate incentivized them to take the lead with a policy document that supported another organization's policy program (UNFCCC ACE). The Section Chief was even more emphatic in explaining why UNESCO took the lead with the NDC Guidelines: "We were just keen to do it... because we see ourselves as the education agency, so we have to do it." The nature of CCE being at the intersection of education and environment pulls the work of one UN IO into the programmatic realm of another IO, including in relation to civil society actors involved in the research and production of the reports.

Explaining this collaboration on policy reports from a different organizational perspective, the UNFCCC Secretariat's ACE Focal Point bluntly clarified that the UNFCCC simply did not have a mandate for producing such reports:

They [UNESCO ESD team] led the development of the ACE and NDCs report. They could do that because we didn't have a mandate to do it, but anyone can produce a report, and countries want to... They're the sorts of things where we do walk a line because that requires a level of resources that we didn't [have] - and that's why our mandates are important, because we're funded on the basis of the mandates. If we don't have a mandate to produce a report, we can't use donor funding to produce a report. (Interview 28, UNFCCC staff)

In other words, due to one UN IO organization's limitations (limited mandate, limited resources) its staff link up with another organization that does have the mandate and resources for the activity that both UN IOs would like to undertake (e.g., producing/publishing CCE reports). The latter IO in turn engages its civil society network to provide research and input for the reports, which are then published as UN IO joint documents. This example illustrates the link between the limits of UN IO organizational mandates, resource constraints, and the engagement of civil society in UN IO activity, including via reports as a manifestation and output of inter-network governance. For Ball (2016), in this emergent form of heterarchical governance, the "policy network is a set of interactions, interdependencies, and exchanges, and a form of power relations which do governing work and through which policy moves, or rather, is moved" (p. 561).

5.2. The role of meetings in inter-network governance

As we have discussed in relation to pilot study data, meetings are also a key aspect in the network governance of the UN IOs under study (McKenzie & Stahelin, *in press*; see also Avelar et al., 2018). They likewise appear to be important in building the relationships and influences that constitute what we found to be inter-network aspects of UN IO governance. As described already, both the UNFCCC ACE and UNESCO ESD sections host regular high-level events, which are attended by national governments, other intergovernmental staff, and non-state actors. Since 2015, at least one UNESCO ESD staff has been attending UNFCCC ACE events, and recently they have also been assisting in organizing ACE focused days and events at UNFCCC meetings. Likewise, in some cases in recent years the UNFCCC Secretariat's ACE Focal Point has attended UNESCO events. Both the direct in-person interactions between the staff of the two UN IOs at meetings, plus their bringing together of networks via forming panels and inviting attendees, contribute to an increased meshing together of the activities and non-state actor participants involved in the respective network governance of the two UN IOs.

As one example evident in the web-audit data, the chief of the UNESCO ESD unit gave several talks at the 8th ACE Dialogue, held virtually leading up the UNFCCC SBI instead of in-person in 2020. Presentation topics included fostering inter-sectoral collaboration to enhance ACE implementation and ACE integration into countries' NDCs under the Paris Agreement. Numerous other UNESCO Regional staff and UNESCO GAP Partners also were listed as speakers at this UNFCCC event, including staff from several organizations identified in the study as key inter-network non-state actors, including the Centre for Environment Education (CEE), Mohammed VI Foundation, and SEPN/MECCE. An interviewed UNESCO ESD staff member was enthusiastic in recounting their role in the 8th ACE Dialogue, where for the first time UNESCO participated in helping organize the event with the UNFCCC:

² The Sustainability and Education Policy Network (SEPN) and the subsequent Monitoring and Evaluating Climate Communication and Education (MECCE) Project are both Partnership Grant projects funded by the Social Sciences and Humanities Research Council of Canada (SSHRC). With SSHRC funding of \$4.5M since 2012, plus additional matching funding, these initiatives have had relatively significant capacity to undertake research and contribute to UN IO activities over the past decade. As director and postdoctoral fellow with these projects, we acknowledge that at times we are thus also part of the networks under investigation in the current study; which is a SSHRC-funded Insight Grant project on the role of policy actors in UN IO policy programs on climate change education.

With [the UNFCCC ACE Focal Point] and her team, we were able to really work together, especially around these ACE Dialogues that took place last year regionally. And for that partnership, of course, we had to bring in our networks. It was a collaborative process... indeed, some of the speakers in those dialogues were coming from the existing partner networks through GAP that we had established in each region... and on their side, Ministries of Environment and other ACE National Focus Points that they have. So, really, that kind of partnership was very well established during last year. (Interview 18, UNESCO staff)

As will be discussed further below in relation to incentives for inter-network governance, historically the UNFCCC ACE work has mainly engaged with national Ministries of Environment, and the UNESCO ESD section with Ministries of Education: UNESCO's participation in organizing UNFCCC ACE events in recent years has worked to shift this. At the UNFCCC's COP26 meeting in 2021, in coordination with the UNFCCC, UNESCO organized a high-level gathering of several Ministers of Education and the Environment, to promote inter-ministerial collaboration and coordination on climate change education.

UNESCO has also brought in many of cadre of non-state actors they normally work with to participate in, and speak at, UNFCCC events. At COP26, another prominent event, "Teaching for Climate Action: Schools Shaping the Future" was co-organized by UNESCO, OECD, and Education International, the global federation of teachers unions. The UNESCO Associate Director General for education also participated in a roundtable on climate literacy that included Education International and Earthday.org. In sum, through its central coordinating role in the annual day of education at COP meetings, UNESCO has inserted itself quite visibly at the heart of the ACE of the UNFCCC, and has been instrumental in facilitating the participation of new non-state network actors, previously part of UNESCO' network, and now increasingly involved in the UNFCCC.

Participation across policy program meetings takes place reciprocally, with the UNFCCC ACE having a notable footprint in UNESCO ESD events as well. For example, the UNFCCC Secretariat's ACE Focal Point spoke at both the UNESCO ESD for 2030 Framework Launch in 2020, as well as at a pre-Conference workshop for the Berlin World Conference on ESD in 2021. She also helped facilitate the process to have the UNFCCC Executive Secretary give opening remarks for the Berlin Conference. The UNFCCC also worked with UNESCO on a Webinar Series leading up to COP27 in 2022, which is "dedicated to the goal of greening every education policy and curriculum to be climate ready" (UNESCO, nd). Webinars included speakers from both the UNFCCC and UNESCO, as well as a number of civil society actors (e.g., Education International, university administrators). As these examples suggest, both invitational meetings and public events in recent years have been a means for the two UN IOs to bring their networks of state and non-state actors together, to each bolster the network and activities of the other, and reciprocally build greater global capacity and action on CCE.

5.3. Inter-network governance facilitated by other policy actors

The study data suggest that inter-network governance activities are not driven exclusively by UN IOs, but also by state and non-state actors. This includes via activities and initiatives convened by civil society organizations, research networks, or national governments in the case of UNESCO ESD and UNFCCC ACE.

One salient example is a non-state policy actor initiative to facilitate CCE collaboration across UN IO policy programs and networks. To contribute to the formal review at the end of the UNFCCC Doha Work Programme on ACE, and to gather non-governmental stakeholder recommendations for a successor work programme, the India based NGO Centre of Environment Education (CEE) conducted two international consultations in January of 2020. The consultations were led by CEE, but they invited staff from UNFCCC and UNESCO to the consultations to jointly introduce the context and expectations, and provide facilitation of the discussions. As one CEE staff member described it,

We took the self-initiative, and we wanted to be the people who could collate all the inputs, and bring in those inputs more strongly at the UNFCCC. And with a very good relationship with both UNFCCC and UNESCO, we thought we could bring them on the table so that we get more concrete inputs for the success of the work programme. So that was the whole idea which led us to be in that leadership role. We thought we could be the best facilitators, and with our relationship with different stakeholders... we had a very good connections because we have been part of the [North American Association for Environmental Education], then we are part of the ESD, then we are part of the ACE dialogues. So *we have this whole network of people whom we have been meeting at various conferences*. Even we had organized an ESD conference back in 2015...And then, you know, *extracting from that network* and even facilitating those kinds of reports, we thought we were in a good position to hold those consultations. (Interview 15, CEE, emphasis added)

Rather than simply submitting its own feedback to the review process, CEE initiated an international consultation of civil society stakeholders from across the globe to collate input and deliver a collective document. There are several noteworthy aspects to this inter-network facilitation role. It involves an intermediary civil society organization supplementing the work of a UN IO (UNFCCC). They strategically aimed to reach more stakeholders through their deep ties across the two UN IO policy networks, based on their active participation over a number of years across both. Ultimately, as a result of this inter-network activity, the UNFCCC policy program review incorporated inputs not only from the known UNFCCC ACE community, but also from policy actors across UNESCO's ESD policy network who would not have otherwise participated.

This example also speaks to the networking labor and strategies engaged by policy actors outside of the UN IOs that result in inter-network governance, where a space is created for policy programs to meet, overlap, interact, and mutually reinforce each other. The same CEE staff spoke to the organizational networking ethos that enables this approach: "CEE always believes in partnerships and networks. And as part of our region, we cannot be everywhere, so our organization promotes lots and lots of local partnership, regional partnership, national, international partnerships. So we believe in partnerships so that we can have that multiplied effect" (Interview

15, CEE). While this is one example organization, there are also several other civil society network actors that also contribute to the cross pollination of actors and capacity between the two UN IOs through various initiatives and partnerships (see Figure 1).

We have shown some key modes of inter-organizational collaboration that have fostered the interactivity of UN IO's policy networks in relation to their CCE-related policy programs. These examples of cross-programmatic participation are deliberate efforts to form programmatic bridges across separate but increasingly interdependent agendas. In the next section, we discuss some of the underlying enabling factors or motivations that have driven this emergence of inter-network governance, including the historical marginalization of ESD and CCE in the education and environment sectors, gaining more momentum together, and the rise of the mainstreaming of ESD/CCE through the Sustainable Development Goals (UN, 2015).

6. Drivers of inter-network governance

A significant factor driving the inter-network governance across UNESCO and UNFCCC policy programs is the marginalization of the CCE policy agenda from the mainstream in its two constitutive regimes: global education policy and global environment (and climate) policy. Our analysis suggests that these conditions of marginalization have created an incentive for UN IOs to seek "legitimacy-providing support" laterally across policy programs and their networks (Biermann & Koops, 2017, p. 17). The resulting inter-network governance has helped increase the profile of each program and strengthened legitimacy in their respective domains. As we suggest below, the progressive mainstreaming of these UN IOs' policy products, recently inspired by the emergence of the SDGs, further legitimizes the convergence of their agendas, in turn acting as another driver of their inter-network governance.

6.1. Siloed national government ministries

Historically, the environment has not been seen as a core policy agenda in the education sector. Conversely, education has not been central in the global environment/climate policy regime. The UNESCO ESD Section and the UNFCCC's ACE Unit are thus very small and under-resourced administrative subunits that have had to work very hard to raise the visibility and legitimacy of CCE within each of their respective policy fields.

In the case of UNESCO, without a broader embrace of the environmental dimension of education, the ESD Section staff have had to fight for relevance, funding, and support. A former recent UNESCO ESD staff member for example, explained that it was not too long ago when the concept of sustainable development was still very new within UNESCO's education sector. The prevailing attitude at the beginning of the Decade of ESD (2005) was that education and sustainability were part of different agendas:

Within UNESCO's education sector it was still *Education for All*, [which] was considered a mandate of UNESCO. So people felt like, 'What is this? This new thing, environmental thing. This is not what we do.' ...So there was a lot of alignment not with the sustainability movement, but with more traditional international educational development frameworks and processes. (Interview 2, UNESCO staff)

As a result, within the Education Sector and throughout UNESCO, Section staff had to constantly educate colleagues and superiors to show how ESD was aligned with the existing global education policy framework of *Education for All* (EFA), as well as the then ongoing *UN Literacy Decade* (2005-2014) (Interview 3, UNESCO staff).

The marginalization of the ESD agenda within UNESCO is in part due to a parallel lack of prioritization by national Ministries of Education, which give the organization its mandate, and which have been very slow to take up a focus on environment. This meant that ESD Section staff not only had to educate within the organization, but also continuously engage in external policy advocacy with education ministries to link education and the environmental sectors:

Something where a lot of work needs to be done is to convince the education sector how dramatic [the climate crisis] is. Of course environment ministries know, they don't always act upon it, but they know. But the education sector is still very much within their own discourse, and that's what I see as part of our job, you know, to sensitize them, basically. (Interview 3, UNESCO staff)

UNESCO, as an international bureaucracy of global governance, remains tethered to siloed structures of national government systems that have been slow in embracing sustainability in the education agenda, as also noted emphatically by a leading member of civil society associated with ESD: "I think that this has been one of the difficulties for UNESCO, is that they took the role of the leaders of this Education for Sustainable Development, but in fact, the ones giving them the mandate didn't buy into it" (Interview 9, Foundation for Environmental Education staff). This has presented a significant source of inertia when trying to promote and mobilize a cross-issue and cross-sectoral policy such as ESD. By the end of the Decade of ESD, a lack of alignment between sustainable development and education sectors, and correspondingly, a lack of inter-ministerial communication and collaboration, were clearly identified as major challenges to the advancement of ESD (UNESCO, 2014).

The situation of agenda marginalization also exists in the case of the UNFCCC ACE policy program. Many of the interviewed policy actors expressed frustration that in the 30 years since the establishment of the UNFCCC, there has been so little progress in mainstreaming climate change education. This was discussed by interviewees in relation to a lack of agenda alignment, a chasm between climate and education sectors, and the institutional silos that make inter-ministerial collaboration so difficult. While the most stringent and despairing critiques came from civil society interviewees, even individuals affiliated with the UNFCCC were quick to underscore how marginal the ACE agenda is within the global climate policy field. As a former UNFCCC official said,

“You have to remember that the people that engage with the climate change treaty have historically been – and remain so, very much – environment ministries and foreign affairs ministries, maybe occasionally an energy ministry. But education is seen as being something so far away from what they’re supposed to do. They know they have a responsibility towards it, but they don’t see it as their job. (Interview 8, UNFCCC former staff)

In this context, the UNFCCC Secretariat’s ACE Focal Point, and others who might be interested in the ACE agenda within the Climate Secretariat, have tended to be “relatively junior” and with “relatively little influence” (Interview 8, UNFCCC former staff). Likewise, the National ACE Focal Points, or members of the party delegations designated in charge of negotiating the ACE agenda, were usually “very junior people with very little clout or power within their national governments” (Interview 8, UNFCCC former staff). With a few exceptions, a low level of priority is given to ACE by most government delegations in the UNFCCC climate negotiations.

The policy marginalization and inertia that has challenged these UN IO CCE policy programs is indicative of traditional policy agenda boundaries, and rigid sectoral and institutional silos of government structures. In the following section, we discuss how these conditions of marginalization and siloing have set the stage for the two UN IOs to work together and across their policy networks.

6.2. Overcoming inertia through formal inter-organizational relations

The institutionalization of formal inter-organizational relations between UNESCO ESD and UNFCCC ACE has happened through several mechanisms, which we discuss in turn. At the macro level, UNESCO and UNFCCC in part initiated collaboration on CCE through an inter-organizational initiative cutting across the entire UN system called the *UN Alliance on Climate Change Education, Training and Public Awareness*. It was launched in 2012 “with a view to promote meaningful, result-oriented and effective international cooperation in support of action on climate change education, training, public awareness, public participation and access to information” (aka ACE). Originally incorporating seven lead agencies, including UNFCCC and UNESCO, the Alliance now includes over a dozen UN agencies. A former UNFCCC Secretariat ACE Focal Point emphasized the Alliance recognized the “importance of alignment and cooperation between the authorities responsible for environment and for education at all levels” (Interview 6, former UNFCCC staff). Among other things, the Alliance helped institutionalize a day dedicated to education at every annual COP meeting (more recently referred to as ACE day). Ever since the first thematic day on climate change education was organized at COP21 in 2015, the Alliance has made the “dedicated day and side events much more visible” and “worked together a lot to make sure that we have a booth and side events, and a common program for the day, and coordinated action as much as we could” (Interview 5, UNESCO staff). Following from this, inter-organizational collaboration on CCE was formalized on a more individual level within the organizations by institutionalizing liaising positions. For example, by virtue of its role as Secretariat of the Alliance, the UNFCCC ACE unit participated as a partner in UNESCO’s GAP Key Partners networks (on Priority Area 1 of “Advancing Policy”). As a result of this formal inter-organizational linkage, their networks also have increasingly come into contact, leading to increased scope and scale of inter-network governance activities, as discussed in the ‘modes’ section.

At a micro level, the interactivity and merging of agendas between the two UN IO networks has also been shaped by individual actors working within the mandates and constraints of their organizations. Reflecting on all the points of convergence across UNESCO and UNFCCC policy programs, a core member of UNESCO’s ESD Section was clear about the strategic importance of “bringing the agendas together” and the need to “converge much more,” including through additional jointly planned programming.

It was in very concrete terms between our team and then the ACE Focal Point in the UNFCCC Secretariat... at least at our levels, we tried to coordinate as best as we could, and tried to sort of create opportunities for each other and involve each other as best as we could, and to the respective processes. It was more, I have to say: It was always widely very much appreciated in the two organizations, but it was more happening at our level, at the level of the two teams, basically. (Interview 3, UNESCO staff)

Another UNESCO staff member was even more emphatic when describing the impact of individual efforts, speaking to an individual UNFCCC staff member’s efforts to shape UN IO policy programs:

I think, again, giving credit to [former UNFCCC Secretariat ACE Focal Point], I think she has put that on the agenda of the COPs... without her, having UNFCCC saying, ‘we welcome other organizations to really push the education agenda,’ it wouldn’t have had a foot. And I wouldn’t have had an entry point, now speaking from my perspective [within UNESCO]. I’m sure for the [non-state] organizations it is the same. So I think it was because UNFCCC created that space... decided to be dedicated to education, which was not obvious in the years before, at all. And then we could walk on and say, *there’s a role for us to play also in the UNFCCC process and the climate change agenda at that level*. (Interview 5, UNESCO staff, emphasis added)

Through the activities of this one UN IO staff, in this case, space was created for another UN IO to come in and help establish a foothold for education in the climate agenda.

The individual efforts to merge agendas shows how specific actors play key functions within the inter-network governance of the UN IOs; they mobilize to advance the policy programs, in part through convergence of their program activities, sometimes despite national governments’ lack of prioritization. This exemplifies the work of policy actors playing key roles as “norm entrepreneurs with organizational platforms” (Finnemore & Sikkink 1998, p. 898). These individuals constitute an important part of network governance, helping to “secure initial and ongoing support for specific policy agendas by building, and sustaining, social relationships across institutional, and public/private, boundaries, particularly when policy networks involve a diverse array of actors and agencies” (Lewis, 2020, p. 75). In doing so, they help enable the conditions for more ongoing inter-network collaboration and governance.

6.3. Shifting from margins to mainstream with the SDGs

The convergence of the environment, sustainable development, and education policy agendas through Target 4.7 of the SDGs is the final point we will consider in terms of the drivers of inter-network governance of the two UN IOs and their work on CCE. SDG Target 4.7 on ESD has been momentous in allowing ESD to gain a stronger foothold in mainstream global education policy. It is also closely linked to Target 13.3 which names CCE specifically, including through the two targets sharing a single monitoring indicator of 4.7.1. Through 4.7, ESD has become an increasingly visible and prominent part of the current global education policy agenda. Tikly (2017) goes so far as to suggest that ESD is at the heart of an actual “regime change” in global education policy from *Education for All* to current programs, including the *Education 2030 Framework for Action* (UNESCO et al., 2015).

These developments have had a clear impact on how the UN IO staff members see the status of their policy programs. For the ESD Section Chief, the SDGs provided a renewal of the mandate to continue working on ESD: “I would really more see the SDGs as the overall framework, now, where we also *derive a renewed mandate for our ESD work*, and within [that] *the climate change work*” (emphasis added). This renewed mandate, furthermore, has raised the status of ESD within UNESCO, where there is now “very, very strong interest around ESD and climate change education... and we can really feel that ESD, as a topic, is moving to the center part of the education agenda” (Interview 18, UNESCO staff). This staff noted that where much of the previous policy shifts focused on *quality* education, now it was also about *quality* for what, in an era of human and planetary sustainability challenges: “The relevance of education is becoming much more important. In that regard, target 4.7 is becoming much more visible, and ESD, as well.” Another UNESCO staff member stated:

“ESD for a long time was always thought of as a kind of marginal agenda, which also *thanks to the SDGs*, becomes in its language and understanding, much more central. Definitely already in the UNESCO education sector itself, where ESD was a tiny program, and everybody else wouldn’t even talk about... Now it became very much mainstream, but it definitely was not [before]” (Interview 5, former UNESCO staff, emphasis added).

It is clear through all these statements that there is a feeling of legitimization of CCE and ESD through the SDGs, and in particular SDG 4.7. The mainstreaming brought about by SDG 4.7 finally also provides a common language between education and sustainability. These factors have spurred the convergence of education and environment agendas and ultimately raised the status and visibility of ESD, and CCE as part of that. This also functioned to incentivize and legitimize inter-network governance across UNESCO and UNFCCC’s policy programs, using the shared targets and terminologies of the SDGs.

7. Discussion and conclusions

For the stewards of UN IO policy programs in this study, collaboration has helped foster the convergence of the education and climate agendas, and stimulated UN IO inter-network governance and collaboration. The ESD team sees in the ACE agenda the opportunity to legitimize its own environmental agenda within education ministries, and in the broader global education policy field through the gravitas of the climate policy regime. Conversely, the ACE team, nearly alone within the UNFCCC Secretariat in their focus on education, has natural allies in UNESCO’s ESD Section. The bridging of the two networks enables incorporation of their respective areas of expertise and moral authority, and bolsters the standing of their initiatives with member state actors. This mutually beneficial orientation is indicative of an interdependency between IOs that is even more salient when dealing with cross-sectoral policy innovation. Narrow mandates, limited resources, and agenda boundaries create legitimization deficits, and provide good reasons to collaborate and draw from each others’ material and symbolic resources. Thus, whereas Addey (2021) finds that two IOs such as UNESCO and OECD struggle in a crowded/competitive policy field and compete for legitimacy, we find in the case of collaborations between UNESCO and the UNFCCC that their interactivity, including of their broader networks, activates “legitimacy-providing support” (Biermann & Koops, 2017, p. 17).

Although creating partnerships across IOs is now seen as “an emerging norm of good governance in international affairs” (Biermann, 2011, p. 174)—in other words, as an end in itself—in our study it can also be understood as a means to a larger goal. There are material benefits to be achieved by “merging complementary competences and avoiding costly duplication in order to free resources for other activities” (Biermann & Koops, 2017, p. 12). However, symbolic considerations are likely just as important, involving “non-material exchange, such as relying on another organization’s reputation and legitimacy or forming an organizational identity via inter-organizational discourse” (p. 9). Facing marginalized positions in their respective policy fields, policy entrepreneurs’ efforts to nurture and facilitate inter-network governance can be understood as “the quest of organizations to increase their centrality within networks” (Biermann & Koops, 2017, p. 21). It is also part of “a process aimed at gaining legitimacy and political credibility” (p. 21) to overcome institutional silos and agenda boundaries sedimented in traditional governing mechanisms.

Notably, overcoming these challenges in the era of network governance is done not only by way of inter-organizational relations (whether formal or informal), but also via engagement with each organization’s policy networks of sub-national and non-state actors. Individuals play key roles/functions as nodal actors facilitating activity across policy networks, resulting in points of convergence across UN IO policy programs and their networks. This inter-network collaboration on policy programs has strengthened the convergence of the agendas, which in turn further legitimizes the UN IOs policy programs. This perfectly exemplifies how “material and discursive flows help to constitute, sustain and expand the very networks and epistemic communities through which these flows occur” (Lewis, 2020, p. 36). IO collaboration to foster inter-network governance in this sense is a strategy by norm entrepreneurs to overcome inertia (immobility) in the face of intractable policy challenges.

This case thus points to the organizational basis of network governance, particularly where UN IOs pushing marginalized policy

agendas are concerned, and speaks to the mix of hierarchical and networked elements of governance in this policy heterarchy. We see the UN IOs acting as intermediary entities between hierarchical, state-centric forms of governing, and emerging horizontal, networked forms of governance where non-state actors have a more pronounced role in policy processes. This can also be understood as a hybrid form of network governance, which is not as distributed or topological as other forms of network governance (Junemann & Ball, 2012). Our findings suggest that UN IO staff and structures, including decisions made by national government member parties on what to fund, prioritize, or follow up on, remain key to their ability to develop and mobilize policy programs. Yet policy program success also increasingly relies on broader interwoven networks of non-state actors who provide funding, leadership, expertise, moral authority, and other contributions to the governance of the UN IOs and their policy programs.

Our findings reveal how inter-organizational relations mean that policy programs become mutually reinforcing, compensating for the legitimation deficits in their respective fields by banking on each other's authority with their respective constituencies. Network governance in this light, or inter-network governance, is particularly useful for cross-sectoral policy innovations that require the convergence of agendas from separate fields, and which find themselves at earlier stages of norm life-cycle development (Finnemore & Sikkink, 1998). Future research could examine the continuing role of policy networks and heterarchical modes of governance, in the stages of development and impact of UN IOs and their policy programs, including increased engagement with forms of inter-network governance. Through the focus on semi-structured network governance and its inter-network aspects, this paper builds into the literatures of both IO theory and network governance studies.

Finally, we hope the analysis can also be fruitful for the UN IOs and their networks discussed, in better understanding some of the ways in which the UN IOs operate as semi-distributed networks, including in cross pollinating ways. The research suggests the positive outcomes of the network and inter-network governance at play in the UN organizations, and how that has been key to the global development and mobilities of climate change in education policy. It bears noting that this is an ever-shifting terrain. As varying UN institutional arrangements and actors, state and non-state influences, and broader sustainability policy priorities and climate urgencies modulate, so will the forms and modes of CCE global governance. Unfortunately, it seems momentum in this area looks set to continue to build as the climate crisis escalates (IPCC, 2022), also suggesting the need for this to be a growing area of focus in critical policy and network governance studies in education.

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