Youth Transitions and Transformations through ICT-enabled Education for Climate Change and Sustainable Development

Holland, Charlotte and Dagher, Leila and Mansouri, Noura and Bennett, Dinah and Ni, Huan

September 2021

T20 *Task Force 2: Climate Change, Sustainable Energy & Environment*

Accelerating Youth-led Transformative actions through ICT-enabled Education for Sustainable Development.

Charlotte Holland, Associate Professor, Dublin City University, charlotte.holland@dcu.ie

Leila Dagher, Associate Professor of Economics, American University of Beirut, ld08@aub.edu.lb

Noura Mansouri, Research Fellow, KAPSARC, noura.mansouri@kapsarc.org

Dinah Bennett, Women's Economic Imperative, dinah.bennett@weiforward.org

Huan Ni, 倪欢, Shanghai Green Light-Year Environmental Service Center, nihuan@green-lightyear.org

Date: 28th June 2021

Abstract:

We are living in a dynamic and changing world, one that requires youth and young people to be critically informed and prepared to address a range of global sustainability challenges. This policy brief calls for the establishment of a *G20 Commission on Youth Education for Sustainable Development* to identify the support needed to accelerate the integration of ICT-enabled education for sustainable development, and to provide guidance on the (re-) formation of national policies and strategies to increase youth voice and agency vis-à-vis sustainability at local and national levels. In doing so, the G20 will empower and support youth-led transformative actions for climate change and sustainable development in partner countries.

Challenge:

The recently launched '*ESD for 2030*' plan[1] highlights within its priority actions the need to empower and mobilise youth to address the seventeen sustainable development goals (SDGs) articulated within the 2030 Agenda for Sustainable Development (United Nations General Assembly, UNGA 2015). To do this, Education for Sustainable Development (ESD) policies and practices must enable transformations in youth agency for sustainability within and beyond G20 countries, while also developing the knowledge, skills and competencies for youth transitions to new ways of living, learning and working in the digital age[2]. Within this policy brief, ESD is understood to empower learners to make critically informed decisions and take actions to ensure "*environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity*" (UNESCO 2014, 12).

The progress in implementing ESD within G20 countries has been slow due to the challenge of differing understandings, interpretations and tensions in conceptual framings of ESD[3]. This progress has been further impacted by the greater emphasis by educators on the cognitive dimensions of learning within education for sustainability and considerably lesser emphasis on the socio-emotional dimensions (UNESCO 2019). In addition to this, the issues of weak in-country coordination between the education sector and national agencies in charge of environmental strategies, and the lack of whole-school approaches[4] at local levels to advance education for sustainable development have negatively impacted

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[1] The ESD for 2030 plan was approved by the United Nations General Assembly in 2019 (UNGA 2019a) and a roadmap was launched by the United Nations Educational Scientific Cultural Organisation, UNESCO in 2020 (UNESCO 2020a, 2020b).

[2] The 'Digital Age' is a period arguably starting in the 1980s and continuing in the 21st century where the rise of digital technologies and digital ecosystems is dramatically changing ways of living, learning and working.

[3] The fuzziness and ambiguity within conceptualisations of ESD, and the related concepts of Environmental Education (EE), Climate Change Education (CCE) and Global Citizenship Education (GCED), have resulted in multiple, often contradictory interpretations and applications in the practice of sustainability education even within the same jurisdictions (Blum *et al.* 2013). For the purposes of this policy brief, ESD is understood to include EE, CCE and GCED.

[4] A whole-school approach is "*a cohesive and collaborative action by a school community*" aimed at advancing student "*learning, behaviour and wellbeing,*" which includes: an overarching supportive, safe and inclusive school culture; programs that focus on social emotional learning; and respecting differences and eliminating disparities; among other things (Futures Without Violence 2021). https://www.futureswithoutviolence.org/the-whole-school-approach/ Accessed 24 June, 2021.

the scaling-up of actions for sustainability (ibid). Furthermore, many of the policies and strategies associated with educating for sustainable development across G20 countries have to date largely underplayed the role of youth in tackling climate change and related global challenges. While there is engagement of youth in national consultation exercises, there is little evidence of youth involvement in actual decision-making on the framing of sustainability policies (UNGA 2019b). Furthermore, gender equality in education is central to sustainable development (Tembon et al., 2008), as the provision of equal access to quality education for all positively impacts not only the literacy levels and life opportunities of individual learners but also the overall development of families, communities and countries (OCED 2012). As shown during school closures throughout the COVID-19 pandemic, the failure to provide adequate supports for youth, in particular girls and young women, seriously impacts their access to education which if not addressed as a matter of urgency, will have serious ramifications for their future career options and trajectories (United Nations Children's Fund 2020). G20 governments, therefore, need to strengthen the participation and voice of all youth, particularly girls, young women and associated organisations, in education policy formation to ensure equality of access to quality ESD.

Finally, the uncertain and evolving nature of the future of work within the digital age heralds a significant intergenerational equity issue for youth (UNGA 2019b), which underscores the importance of leveraging Information and Communication Technologies (ICTs) within the practice of educating for sustainability. In this regard, ICT-enabled ESD can act as a hook to motivate and engage youth in action on existing global challenges, and as a vehicle to develop the transversal skills (such as: digital literacies, entrepreneurial skills and 'learning to learn' competencies) necessary for lifelong learning and future work opportunities. To enable the latter, educators across the G20 partnership need specialist training to both improve their technological and digital literacies, and to enhance their understanding of the ESD pedagogies used to foster global competence among youth[5], while inspiring locally-relevant and culturally-appropriate agency for climate change and sustainable development.

Rationale

There are currently in the region of 1.8 billion youth between the ages of 10 to 24, which is the largest generation of young people in the history of the planet (UNESCO 2021). Mass actions on and for climate change and sustainability organised by youth for youth are gaining momentum. Initiatives with global reach in this regard include the '*Fridays for Future*' global movement for climate action[6], the '*Youth webinar series on the futures of education*'[7], and the '*Social Innovation Warehouse*'[8]. These initiatives clearly demonstrate that young people are concerned about and wish to take action on climate change and sustainable development. However, many more young people need to be included in policy and strategy formulation for sustainable development, in order to ensure that planning for the future is equitable, just and sustainable for all.

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[5] OECD (2018, p.4) describes global competence as learners' capacities to "*examine local, global and intercultural issues, understand and appreciate different perspectives and world views, interact successfully and respectfully with others, and take responsible action toward sustainability and collective well-being*". It is important to note that the OECD's framing and motivations for assessment of global competence have faced criticism (Auld and Morris 2019a, 2019b; Engel, Rutkowski, and Thompson 2019), as highlighted within Holland et al. (2020).

[6] Fridays for Future is a social movement for climate action set-up by Greta Thunburg and like-minded activists. https://fridaysforfuture.org Accessed 4 February, 2021.

[7] The *Youth webinar series on the futures of education'* was established by youth in collaboration with the Office of the UN Secretary General's Envoy on Youth in 2021. https://en.unesco.org/futuresofeducation/sites/default/files/2021-02/UNESCO%20-%20Futures%20of%20Education%20-%20Youth%20Webinar%20Series%20-%20Concept%20note.pdf Accessed 23 February, 2021.

[8] The Social Innovation Warehouse is an initiative of the Youth 20, Argentina (2018), which contains a repository of youth-led actions for the SDGs that can be scaled up at national levels and beyond. https://youth20.org/siw/ Accessed 4 February, 2021.

Climate change for example is a real and present issue for youth particularly those living in countries as shown in Figure 1, where the "*the youth population accounts for a sizeable share of the total population*" and *"also depend heavily on agriculture – a sector that is highly exposed to climate change*" (International Fund for Agricultural Development, IFAD 2019, 194). Youth in these countries will very likely need to migrate elsewhere to find a means of living if the climate challenge is not resolved. Furthermore, the onus for home caring will likely revert to girls and young women in times of difficulty across these regions as evidenced during the COVID-19 pandemic (United Nations Children's Fund 2020), pointing to the deepening of existing gender divides. Moreover, if climate goals are not achieved, youth in these countries are likely to experience additional hardships as seniors of the population in 2050, and beyond. This clearly demonstrates that the principles of equity, particularly intergenerational equity and gender equality, must underpin the practice of sustainable development, and youth voice and participation in decision-making on policy formation and actions vis-à-vis sustainable development is critical for achieving this.
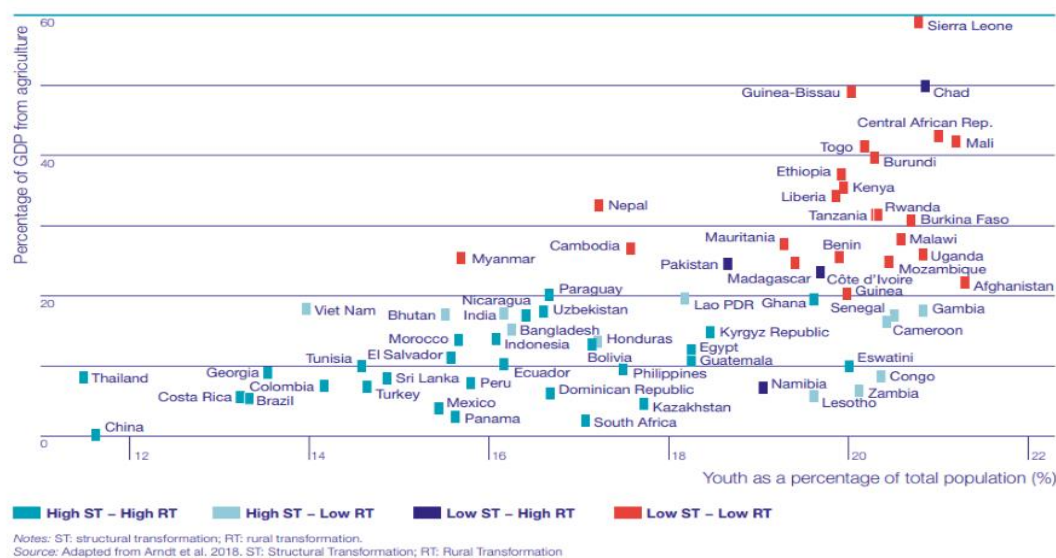

Figure 1: Agriculture dependency and youth as a percentage of total population (IFAD 2019, 196)

As young people transition into adulthood, they have the potential to become significant beneficiaries from their own and others' actions to empower sustainable futures. However, if sustainability challenges are not addressed in a meaningful way, young people are more likely to find existing inequities being reinforced or new equity issues emerging as they get older (Beder 2000). To fully address inequities brought about by climate change and other SDG challenges, youth need to be active participants in policy formation for climate action and sustainable development, and in the translation of such policy into practice as outlined within the priority action 4 of *ESD for 2030* (UNESCO 2020a; 2020b). Therefore, an imperative exists to educate youth about key concepts, contexts and practices of sustainability, in ways that empower youth voice and agency in transformative actions for sustainability.

Education for sustainable development seeks to empower all learners with the knowledge, skills, values and attitudes to address complex issues outlined within the sustainable development goals, such as: climate change, poverty and the loss of biodiversity. ESD becomes transformative when learners' values-bases are re-oriented toward sustainability and their actions, such as changing modes of travel or consumption patterns to reduce carbon emissions, contribute to the creation of just, peaceable and sustainable futures for all. Therefore, in the implementation of ESD, educators need to foster values-based, sustainability-oriented ecologies of learning (Wals 2019) informed by a range of pedagogies

including: problem-based[9], design-based[10], and challenge-based learning[11]. In addition to this, educators need to foster among youth a range of sustainability competencies including: strategic competency[12], systems thinking competency[13], normative competency[14], anticipatory competency[15], and critical thinking competency[16] (UNESCO 2017). To maximise impact and outcomes, ESD needs to be fully integrated in teaching and learning from early childhood education onwards. This not only protects the youth of today from experiencing intergenerational inequities and challenges borne out of unsustainable practices, but also future proofs the next generations of youth from such experiences[17].

Moreover, given the importance of technological literacies for living and working now and in the future, learners need to learn about technology and learn through technology during formal education. To progress this, educators at all levels need access to quality ICT professional development programmes that build dual competencies in 'teaching *with* technology' and 'teaching *through* technology' (Selwyn 2020) in the context of ESD. The latter in essence means educators need to know how to use technologies to support teaching and learning about sustainable development within the classroom and also how to deliver ESD through online media within blended and remote learning contexts.

Proposal:

It is our contention that through the activation of the following policy recommendation, the G20 can garner support amongst its partner countries to accelerate the reforms of national educational policies and practices in ESD and to enable youth to contribute toward the creation of more equitable, just and sustainable futures for all.

The **first policy recommendation** is to establish a '*G20 Commission on Youth Education for Sustainable Development*' to provide guidance on ways to accelerate the integration of ICT-enabled education for sustainable development across the G20 partnership and to enhance youth participation within national policies and strategies. This *G20 Commission* will be steered by a multi-stakeholder group with relevant expertise in sustainable development, that includes representation from

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[9] Problem-based learning (Barrows 1996) is a student-centred approach in which learners engage in open-ended or real-world problem solving as a way to promote learning of concepts and principles (as opposed to direct presentation of facts and concepts).

[10] Design-based learning (Nelson 1983) is an inquiry-based form of learning that integrates design thinking and design processes that require collaboration with articulated roles, and the generation of ideas, prototyping and construction of artefacts.

[11] Challenge-based Learning (Nicols and Cator 2009) is a framework for learning while solving real-world challenges, and is collaborative and hands-on in nature, involving sustained investigations through the identification and generation of big ideas, deep questioning, discovery and ultimately, the production of solutions aimed at solving the challenge.

[12] UNESCO (2017, p.10) define strategic competency as: "the abilities to collectively develop and implement innovative actions that further sustainability at the local level and further afield".

[13] UNESCO (2017, p.10) define systems thinking competency as: "the abilities to recognize and understand relationships; to analyse complex systems; to think of how systems are embedded within different domains and different scales; and to deal with uncertainty."

[14] UNESCO (2017, p.10) define normative competency as: "the abilities to understand and reflect on the norms and values that underlie one's actions; and to negotiate sustainability values, principles, goals, and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge and contradictions."

[15] UNESCO (2017, p.10) define anticipatory competency as: "the abilities to understand and evaluate multiple futures – possible, probable and desirable; to create one's own visions for the future; to apply the precautionary principle; to assess the consequences of actions; and to deal with risks and changes."

[16] UNESCO (2017, p.10) define critical thinking competency: "the ability to question norms, practices and opinions; to reflect on own one's values, perceptions and actions; and to take a position in the sustainability discourse."

[17] The modelling of, and educating for, sustainability needs to be implemented with learners of all ages, including very young children. Indeed, education for sustainability is being integrated in early childhood education within some countries, notably New Zealand and Australia. There are mounting calls from educators for support within government for its broader integration in early years/ pre-primary, as noted in this letter to the Guardian on 20th January 2020: https://www.theguardian.com/education/2020/jan/30/sustainability-must-start-in-the-nursery. Furthermore, in absence of legislation, some early childhood providers are moving ahead to implement education for sustainability within this sector, as shown here: https://www.earlyyearseducator.co.uk/features/article/education-for-sustainability-agents-of-change.

governments, policy-makers, education, private sector, civil society, and youth from across the G20 partnership. The participation by national education ministries and agencies in the *G20 Commission* will be critical to the successful framing and implementation of ESD policy and strategy reforms in partner G20 countries. In this regard, the *G20 Commission* will foster authentic participation with representatives of national education ministries through regular consultation and communiqués on proposed ESD policy and/ or strategy reforms throughout the time-span of this transnational endeavour. The scope of this *G20 Commission* will be to implement the following two policy recommendations.

The **second policy recommendation** is to develop and implement a coherent and inclusive G20 strategy for the advancement of youth education for climate change and sustainable development, that will: a) improve the coordination and implementation of youth policy on ICT-enabled ESD at national and local levels across the G20 partnership, and b) provide guidance on financial support and other resources that can be accessed by G20 countries to accelerate educator training on ICT-enabled ESD[18]. To activate this policy recommendation, the *G20 Commission* will examine ways in which teacher education and youth education *for* sustainable development have been successfully promoted and supported within national policies and agencies throughout the G20 partnership, and the alignment of national ESD policy with the global targets and priorities reflected within the Education 2030 agenda (UNGA 2019a). Within this exercise, the *G20 Commission* will further seek to identify good practices at local and national levels with respect to strategies for upskilling educators in both ICT-enabled learning and the aforementioned core competencies and pedagogies of ESD, as promoted by UNESCO (2017), while also building critical awareness of the role of technology *in* and *for* society. In terms of the latter, the *G20 Commission* may make recommendations for the provision of funding for relevant educator training on ICT-enabled ESD, through new or existing programmes such as the online master degree of ICT in ESD developed through the European Commission Erasmus programme[19]. The *G20 Commission* will also examine the translation of ESD policy into practice in formal education settings, with a view to identifying whole-school approaches that contribute to the cognitive, socio-emotional and behavioural development of youth with respect to sustainability.

To counter concerns of capitalist-dominated agendas and worldviews driving neoliberalism and individualism within ESD policies and practices (Sharma 2018, 2020; Dill 2012, 2013), the *G20 Commission* will endeavour to ensure the promotion of values-creating paradigms centred on "*nurturing individuals who can lead contributive lives*" (Sharma 2020, 91) within this strategy for the advancement of youth education on sustainability. In this regard, the *G20 Commission* will prioritise the cross-pollination of intercultural, non-dualistic perspectives in policy and strategy formation to "*bring forth diverse and creative solutions to global issues such as environmental degradation and climate change*" (Sharma 2020, 90). To support this, case studies will be sourced from a diverse range of settings on ESD initiatives that showcase new ways to build knowledge and awareness of sustainability living from an early age, such as the integration of Gunther Pauli's fables[20] within the sustainability and clean energy strands of the K-12 curriculum in China (Dagher et al. 2020). Furthermore, the activation of youth action for ESD through non-formal learning modes, such as the values of social justice and environmental sustainability fostered within Islam (RizV and Unissa 2015) and other religions, will also be considered within deliberations and discourses on ESD for youth. Through these actions, the *G20 Commission* will promote inclusive and critical examination of sustainability challenges and solutions, and of the interconnectedness between the local and the global within ESD policies and practices (UNESCO 2018).

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[18] The activation of this policy recommendation by the *G20 Commission* responds directly to calls in the T20 Argentina Communiqué (2018) for "*preparing young people for the labor market, democratic participation, and wellbeing*" (p.18). It also aligns with policy brief recommendations outlined at the 2020 T20 Saudi Arabia within the policy brief on youth empowerment for climate action (Dagher *et al.* 2020), which called for educator training to improve environmental education for young people.

[19] The Master of Science (MSc) in ICT in ESD was funded by the European Commission Erasmus program and is currently offered in Egypt at Heliopolis University and Aswan University: https://www.hu.edu.eg/coe/ict-esd-master-program/

[20] Gunther Pauli developed over 300 fables that teach children about connecting science, sustainability and a better world. To date, over 200 of these fables have been integrated within the K-12 curriculum in China. https://www.gunterpauli.com/fables.html

The **third policy recommendation** is to develop a roadmap to further promote authentic youth engagement in national policy and strategy formation, and youth-led transformative actions for climate change and sustainable development across the G20 partnership. In line with sustainable development principles, the *G20 Commission* will utilise culturally-responsive frameworks to assess youth engagement in policies and practices across G20 partner countries, such as the 'P7 Model' for visioning, planning, enacting and evaluating youth participation (Cahill and Dadvard 2018). Through this exercise, the *G20 Commission* will examine how to increase the youth engagement, particularly focusing on those who are marginalised or disenfranchised, in decision-making and action on climate change, sustainable development and related challenges. To enhance collaboration, the *G20 Commission* will work together with youth groups, including the Youth Engagement Group (Y20), the Young Global Changers programme[21] and UN Women[22], to examine factors impacting on youth participation across the G20 partnership. Through this process, the *G20 Commission* will articulate ways for policymakers to increase the participation of youth, particularly young women and girls, in policy discussions and decision-making relating to climate change and sustainability in partner G20 countries, such as described below.

> One example for increasing youth participation would be to reform registration rules and lower any age-based criteria preventing youth engagement in national policy forums and committees, as recommended by the Organisation for Economic Co-operation and Development, OECD, (2020).

The *G20 Commission* will further outline policy reform measures that can strengthen relationships between young people and public institutions, such as through targeted youth participation in policy formulation. Finally, the *G20 Commission* will within this roadmap, articulate policy mechanisms and resources to support and scale-up youth-led transformative actions on climate change and sustainable development at national and trans-national levels. Moreover, the roadmap will outline ways in which successful actions '*by* youth *for* youth' on climate change and sustainable development can be holistically monitored and assessed within and across partner countries, in line with priority action 5 of *ESD for 2030* (UNESCO 2020a; 2020b).

Conclusion

In implementing these policy recommendations, the *G20 Commission* will address the challenges outlined at the outset vis-à-vis the need for policy and practice re-orientations at local, national and global levels to enhance youth participation in, education for, and actions on climate change and sustainable development.

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[21] The Young Global Changers programme is an engaged global network of young individuals who wish to change the world for the better. The programme gives voice to the younger generation and empowers these young changemakers to share their ideas and solutions for a better future for all. https://www.global-solutions-initiative.org/young-global-changers/

[22] Through its LEAP framework, the UN Women's Youth and Gender Equality Strategy (2017) is empowering young women and young men to work together as partners in achieving gender equality. https://www.unwomen.org/en/what-we-do/youth

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