The Global Convention on Higher Education: Achieving Equitable Access to Quality Education Through Digital Innovation for Learner Mobility

The world's education systems are struggling to deliver equitable access to quality education, and therefore the skills needed for life, work, and sustainable development.[1] The global COVID-19 pandemic caused an almost immediate shift to online learning environments, but the lack of preparedness for remote learning led to crisis-level learning losses for many students, further exacerbating economic inequality[2]. UNESCO's landmark report on the future of education noted that 'far too often, formal learning does not meet the needs and aspirations of children and youth and their communities'.[3] As more and more people throughout the world use digital tools to access learning, livelihood opportunities, and job candidates, new technologies present tremendous opportunities for expanding access but also introduce new risks and dangers.[4]

As the first United Nations convention on higher education, the *Global Convention on the Recognition of Qualifications concerning Higher Education*[5] is an attempt to address the growing need for learning opportunities, mobility, and equity in the digital age, especially in the wake of the pandemic. It establishes universal principles for fair, transparent and non-discriminatory recognition of relevant qualifications, including qualifications giving access to higher education and offering flexible pathways for further study and employment. As new digital capabilities and opportunities emerge, the principles of the Global Convention should be central to both the design and innovation approaches. This can ensure that breakthroughs help those that are currently disadvantaged to leapfrog into accelerated pathways, rather than new technologies disproportionately benefiting those already ahead.

The emergent open standards and Web 3.0 technologies of Verifiable Credentials, Digital Wallets and Smart Contracts provide such an opportunity to steer innovation to address inequities. Together with effective policy, these emerging technologies have the potential to help better reflect where learning occurs; how achievements and skills are captured, recognized, and stored; and how learners are connecting with employment opportunities and employers are identifying qualified talent. To achieve this, intentionality and coherence in standards, policies, government incentives and product development is essential.

---

[1] UN, 28 March 2022. Transforming Education Summit, convened by the UN Secretary-General. Concept Note on the Summit Work Streams
https://www.un.org/sites/un2.un.org/files/1._tes_workstream_concept_note_2803.pdf
[2] Joint UNESCO, UNICEF & World Bank report: The State of the Global Education Crisis: A Path to Recovery https://www.worldbank.org/en/topic/education/publication/the-state-of-the-global-education-crisis-a-path-to-recovery?cq_ck=1638565414093
[3] UNESCO: Reimagining our futures together: a new social contract for education
https://en.unesco.org/futuresofeducation/
[4] Goger, A., A. Parco, E. Vegas, 2022. "Learning and working in the digital age: Advancing opportunities and identifying the risks." Washington, DC: The Brookings Institution.
[5] UNESCO, 2019. Global Convention on the Recognition of Qualifications concerning Higher Education

> ***Verifiable Credentials (VCs)*** *are tamper-proof digital records of learning and work that can be verified cryptographically and combined with other digital records for use in pursuing or unlocking educational and employment opportunities.*
>
> ***Digital Wallets*** *are mobile applications used by learners and workers to securely issue, earn, store, and share verifiable credentials to demonstrate evidence of skills and experience.*
>
> ***Learning and Employment Records (LERs)*** *are digital records of learning and work that can be linked to an individual and combined with other digital records for use in pursuing educational and employment opportunities.*
>
> ***Smart Contracts*** *are programs or protocols intended to automatically execute, control, or document specific events and/or actions according to terms of a pre-defined agreement. e.g. an agreement where a learner automatically receives a payment upon a proven completion of a certain course goal or skill attainment target.*

VCs and Digital Wallets can provide individuals with an opportunity to securely store their learning documents and data (decreasing the risk of someone losing educational and professional qualifications and degrees), eradicate fraudulent practices, and make it easier for individuals to have their learning recognized worldwide.Through open VC standards and protocols, these new technologies can provide a bridge for previously disadvantaged learners and workers to access opportunities across borders, such as migrants and refugees who may need to demonstrate their qualifications but lack paper documentation. They also can facilitate the transfer of academic credit and credentials across institutions or across career pathways (for career changers) without starting over. Lastly, they can help institutions recognize prior learning, such as military experience, informal and non-formal learning, and self-study, for obtaining academic credit. This can facilitate more lifelong and work-based learning in the context of an economy with rapidly changing technologies shaping work and tasks in every sector. All of these potential uses may support countries in their efforts to achieve Sustainable Development Goal Four (SDG4).

Additionally, 'earn-and-learn' programs that utilize verifiable credentials and smart contracts can support completion of on-the-job learning by providing micro-scholarships for individuals. This innovation can enable refugees, low income students, and others who need financial assistance to gain access to direct payments while they learn, increasing motivation to complete education milestones and raising future job prospects. By the end of 2020, 82.4 million people were displaced and forced to flee their home countries ([UNCHR, 2021](#)) and among 82 million refugees, only 5% of eligible youth are enrolled in higher education ([UNCHR, 2021](#)). Much of this issue has to do with the lack of prior recognition of their skills, qualifications, and achievements from their country of origin, which oftentimes do not transfer seamlessly or get valued in the same way. By being intentional around how digital innovations are applied into this context, the new breakthroughs can help address the existing and longstanding imbalances in both higher education and employment opportunity access.

In line with SDG4 and the aspirations of the Global Convention on Higher Education, **further research and consultations are needed to design an architecture approach to digital innovations in education and employment** where the primary objective is to address established inequities. The aim is to facilitate international academic mobility and promote inclusive access to higher education, by ensuring the right of individuals to have their qualifications evaluated through

fair, transparent and non-discriminatory mechanisms. This document puts forward how to steer the abovemented emerging technologies to specifically meet the aims and principles laid out by UNESCO and secure the leapfrogging potential.

Key Elements to consider for Digital Innovation based on the Global Convention on Higher Education

The Global Convention on Higher Education establishes universal principles for the recognition of higher education qualifications and qualifications giving access to higher education and offering avenues for further study and employment. Within that, the Convention articulates agreed principles to facilitate fair and transparent recognition of diverse qualifications. The following three key elements are particularly relevant to enable digital innovation to address established issues:

- **Equity:** A core objective of the Global Convention is to promote fair recognition of qualifications to ensure inclusive and equitable access to quality higher education and to support lifelong learning opportunities for all, including refugees and displaced persons. Digital Innovations should consider how economically disadvantaged communities will access the new interventions and ensure literacy and competency based on their current means and capabilities.
- **Mobility:** The Global Convention defines mobility as the physical or virtual movement of individuals outside their country for the purpose of studying, researching, teaching, or working.[6] Digital innovations in education and employment should ensure interoperability of skills and experience across borders, where access and recognition is not dependent on the physical location of the individual or the place of learning.
- **Sovereignty:** The Global Convention does not define sovereignty explicitly, i.e. that all learner records are accessible and/or controlled by the individual (or their guardian) and that all identity systems are transparent and aim to preserve privacy and data agency. For Digital Innovations to deliver on this objective, they should ensure that data pertaining to a specific individual is not dependent on being stored or managed in a third party platform, whether nation state or private sector, and that the individual is given the tools to manage the access to their data independently of third party intervention.

With these three key elements for digital innovation as the backdrop, the following section provides an overview of possible interventions for discussion with the aim of supporting countries to equitably and ethically deploy technologies such as Verifiable Credentials, Digital Wallets, LERs, and Smart Contracts in education and employment.

Possible Interventions to Ensure Digital Education Technologies Improve Equitable Access to Higher Education

Building on the Higher Education Roadmap proposed during the World Higher Education Conference (WHEC2022), UNESCO recognized that: "**In the face of mounting global challenges threatening our common future, we have to take a quantum leap to reinvent higher education as a basis for building a safe, more just, democratic and sustainable world**" (Ms. Stefania Giannini, Assistant Director-General for Education, UNESCO).[7] Through collaboration and innovation, UNESCO invites partners to help make their institutions accountable to individual

---

[6] UNESCO, 2019. Global Convention on the Recognition of Qualifications concerning Higher Education

[7] UNESCO, 2022, Beyond Limits. New Ways to Reinvent Higher Education. Working document for the World Higher Education Conference (WHEC). 18-20 May 2022.

learners, their societies and the well-being of our planet at large.The proposed interventions for discussion below represent several ideas for achieving the goal of reinventing higher education, specifically with a focus on making education and career technologies more safe, just, democratic, and sustainable.

1) Establish a trusted issuer network

As the only UN agency with a broad mandate in higher education, UNESCO has the unique responsibility to facilitate stakeholder consultations and could provide Member States around the world with access to a trusted issuer network that would allow **State Parties of the Global Convention** and their relevant recognition authorities to maintain better control and sovereignty over digital credentials. This network can be set up such that each member agrees to a set of interoperability standards that enable the secure and smooth transfer of data and credentials between education and employment systems. Respecting the autonomy and diversity of higher education institutions and systems, a database of quality assured providers could offer certification processes for trusted issuers and list State Parties of the Global Convention.[8]

The Trusted Issuer Network could make it possible to allow employers, universities, governments, and organizations to verify and validate data without forcing users to reveal their personal identifiable information (PII) for each interaction, establishing trust relationships across national borders and with the individuals themselves. The Trusted Issuer Network will, thus, create global infrastructure for quality control and fraud prevention that, on the one hand, offers workers and learners more data privacy and mobility; and, on the other hand, it offers employers and educational institutions more transparency and confidence regarding the value and legitimacy of foreign-earned credentials.

2) Secure adoption of universal wallets

Universal wallets define a common data model and set of interfaces for representing and acting on stored credentials. That is, they define standard ways for learners to interact with their credentials. For example: how to add an achievement or skill, search for a particular credential, lock your wallet, or export everything into another wallet. Universal wallet standards are essential to enable learners to carry and move their credentials into, out of, and between platforms and systems as easily as one can carry files and documents on a Universal Serial Bus (USB drive) from computer to computer, regardless of the computer operating system—MacOS, Windows, Linux, etc. In short, adoption of universal wallet standards unlock interoperability of learner records across systems—empowering learners to collect and carry learning documents between countries across a diverse set of institutions such as universities, online learning platforms, workplaces, libraries, museums, etc. Because the learner holds their own credentials in a common format and interface, learners and institutions are protected from vendor lock-in (e.g. Universities charging to confirm a graduates attainment), granting the individual the ability to pack up and take their data elsewhere. This provides the opportunity to enable learner-centered innovation in the market through 'self-sovereignty' of data.

At minimum, self-sovereignty over learning documents disincentivizes platform exploitation by granting learners the ability to export 'their data' and utilize it elsewhere at no cost, undercutting proprietary data formats which enable exploitation of schools and learners by locking them into one system or making transfers to other systems difficult. At global scale, establishing the right of self-sovereignty over one's own learning data provides avenues for reducing inequity only if the value of formal and informal learning is captured in a common format, which protects documents from loss and facilitates the translation of credentials across institutions, platforms, borders, and communities.

---

[8] It is important to note that automatic recognition (access) does not imply automatic admission to higher education institutions. See also Automatic Recognition.

At their core, universal wallets are important to ensure learners and institutions can view, issue, store, share, and verify Verifiable Credentials. UNESCO can play a key role in driving multilateral support and adoption of open standards to promote data self-sovereignty, slash platform exploitation, and curb access inequities.

3) Prioritize development and funding of broad access mechanisms

Although education technologies can offer many additional learning and livelihood opportunities to people who otherwise could not access them, the growing reliance on online tools for learning and everyday economic activities can leave those who do not have access to an Internet connection, devices, or digital literacy even farther behind. UN Habitat has estimated that 3.7 billion people worldwide remain offline.[9] There are stark differences in Internet access between high-income countries and lower- and middle-income countries. In high-income countries, 70-98 percent of the population has Internet access, compared to an average of 40-42 percent in lower- and middle-income countries.[10] Without intentional, targeted efforts to close the digital divide both within and between countries, education technologies may end up exacerbating inequities in access to quality education despite good intentions.

For this reason, one potential role of a 'Mobility Lab' could be to make funding and technical assistance available to countries to connect their education technology investments to parallel initiatives that focus on connectivity, devices, and digital literacy. In addition, these resources can also be deployed to target refugees and other marginalized learners, such as people with disabilities who may need accessible technologies or interpretation services to use online education tools effectively. As learners become more digitally literate and begin to advance their education, learning English as a second language can also be important because many courses and technical languages are in English.

4) Create and provide training and technical assistance to countries

As noted previously, it is possible to implement education technologies with the best of intentions, but setting up the appropriate governance framework, staff capacity, technological infrastructure or procurement, and culture of buy-in for digital transformation in education systems is a complex process. Given the multi-faceted elements that are important for advancing equity, the efforts cannot be led by an education agency or ministry alone - typically it is also important to engage with legislators to authorize or shift funding and policy, as well as other ministries or agencies that control key aspects such as data privacy/fraud prevention, broadband infrastructure, labor programs, and social services. Even within agencies or institutions, there can be many changes required that affect routine practices such as procurement, financing, technology infrastructure, and policy compliance – and many times people in these roles may need some training or technical assistance to understand their role.

A Mobility Lab for Learning Equity can develop and provide training curricula for different stakeholders involved in the digital transformation process to build their awareness of the purpose, methods, vision, and process. For example, there could be a set of trainings and templates for procurement officials, policy leaders, and technical staff. In addition, it could have teams of technical assistance providers, a community of practice, and access to consultants to provide more customized support, guidance, and coaching.

---

[9] UN-Habitat. (2021). Addressing the Digital Divide: Taking action towards digital inclusion. Retrieved from: https://unhabitat.org/sites/default/files/2021/11/addressing_the_digital_divide.pdf

[10] Van Dijk, J. A. G. M. (2020, July). Closing the Digital Divide: The Role of Digital Technologies on Social Development, Well-Being of All and the Approach of the Covid-19 Pandemic. Retrieved from https://www.un.org/development/desa/dspd/wpcontent/uploads/sites/22/2020/07/Closing-the-Digital-Divide-by-Jan-A.G.M-vanDijk-.pdf

Conclusion

After over 30 years of deploying technology applications into the education and employment sectors, the digital promise of reducing inequity in access to quality education and employment opportunities has yet to manifest itself. As we enter into the next new horizon of digital innovation heralded through Web3 developments, it is important to recognize the mistakes of the past if we are to achieve a different outcome. This paper seeks to present a framework for dialogue in which the key stakeholders, including State Parties to the Global Convention, invested in education and employment sectors, can ensure that the benefits and value unleashed by emergent Web3 technologies can fall disproportionately towards supporting those in society who are most in need.

Questions and comments

For questions and to share your input on the ideas discussed in this brief or the Global Convention on Higher Education, please contact the Learning Economy Foundation (info@learningeconomy.io) or Ms. Vanja Gutovic, UNESCO Headquarters, Paris (glocohed@unesco.org). To learn more about Web3 innovations and the opportunities to address education inequities or to contribute to the debate, visit the Web3 Education Alliance at www.w3ea.org.

Acknowledgements

UNESCO's review of technical requirements was launched by Ms. Stefania Giannini, UNESCO Assistant Director-General for Education. This brief was prepared and edited by Chris Purifoy- CEO of Learning Economy Foundation (LEF), Dr. Wesley Teter of UNESCO, Jacksón Smith- CTO of LEF, John Goodwin- Executive Chairman of LEF, Taylor Kendal- President of LEF, Dr. Annelies Goger of the Brookings Institution, Allyson Parco of the Brookings Institution, Simone Ravaioli of W3C VC EDU and Parchment.