

Digitalization in the education sector is an opportunity for social justice

By Nina Smidt

Published on 27 April 2021 in German at the Forum Bildung Digitalisierung (Forum Education Digitalization) blog

For both industrialized nations and developing countries, the pandemic has accelerated digitalization in education. Is the increased importance of education technology an opportunity to counteract global social injustice and pursue universal participation in education?

My first day as Managing Director at Siemens Stiftung was last year in mid-March – the day Germany entered a lockdown for the first time in the country’s history. The changes that the pandemic would bring were enormous: each and every one of us was affected then and continues to be affected today. In nearly every corner of the globe, businesses, organizations, and social and political systems were forced to make a fundamental reckoning with the status quo. All of a sudden, *VUCA* was no longer an abstract management-speak acronym but a tangible feeling impacting everyone, from the smallest children to the elderly. The concepts of *volatility*, *uncertainty*, *complexity* and *ambiguity* forced their way into the collective consciousness of what had previously been considered the “safe” western world. We faced challenges at Siemens Stiftung, too: one of the focus areas of our work is in German and international education cooperation – a particularly delicate sector that was severely impacted by the crisis. We grappled with the issue of how global education systems were going to take on such a challenge. As an internationally-active foundation, how would we ensure that the education system with all its stakeholders does not just eke by during these trying times, but can also change in a positive and permanent way from the efforts to confront the pandemic?

OER: A tool for education justice

The impact of the pandemic on education is dramatic. UNICEF’s Executive Director, Henrietta H. Fore, has spoken of a “catastrophic education emergency.” According to a [UNICEF study](#), coronavirus lockdown measures have kept more than 168 million children out of school entirely. 214 million children – every seventh child on earth – have missed more than three-quarters of their school lessons. UNICEF calls the youngest members of society the silent victims of the crisis and highlights the link between social status and the degree of educational impact. Even if digital lessons that replaced in-person instruction in industrialized nations are often inadequate, children in emerging and developing nations have had it worse. Of the 14 countries that have been under near-constant lockdown from March 2020 to February 2021, two-thirds are in Latin America and the Caribbean. There, a total of 98 million schoolchildren continues to have essentially no access to education.

Looking beyond the pandemic, what can be done in support of an education system that allows everyone to participate, including those who are socially disadvantaged? Recent years have seen the emergence of Open Educational Resources (OER),

which are proving to be an effective tool in democratizing education. OER are openly-licensed teaching media, ideally accessible for free on digital platforms. In 2012, the UNESCO global congress announced the [“Paris OER Declaration”](#) in support of universal participation in quality education. The declaration states that OER are “teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions.” Countries such as the US with its [“National Education Technology Plan 2010,”](#) or Brazil, the Netherlands, Poland, and Great Britain, have been pursuing OER strategies for some time. International stakeholders such as UNESCO, the OECD, the European Union, and foundations support OER platforms for education materials in developing countries, where free access to such media represents an essential step toward providing children access to education. In November 2019, the UNESCO General Conference adopted a [Recommendation on OER](#) that saw member states agree to stronger inclusion of OER in national education work and policy.

Beyond the essential role in education justice, adaptable OER support inclusive processes and reflect the heterogeneous nature of today’s learners, two reasons Germany’s Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF) is working on a strategy for supporting OER. Siemens Stiftung is serving in an advisory role in this process. Our foundation has gathered extensive experience in the field of e-learning since the creation of the [Media Portal](#) in 2009. The Media Portal features free materials for STEM lessons in three languages (German, English, and Spanish). Initially, the Media Portal contained a mixture of OER and non-OER materials. It took a tedious three-year process to manually convert all the materials, with German copyright law proving to be a difficult hurdle. Each of the 6,500 licenses needed to be reviewed, and in some cases, renegotiated. In the end, 3,500 media remained. This number has grown to 4,400 since 2018, and all materials are now OER.

The need for free, digital lesson materials was clear from the spike in demand that occurred when the Media Portal switched entirely to OER, and again during the transition to online learning brought on by the pandemic: From 2018 to 2019, clicks increased by more than 80 percent alongside an uptick in media usage figures and a marked increase in website and media traffic.

There has been a steady increase of platforms featuring free teaching materials that target a range of age groups and include resources for professional orientation and vocational training. For example, the German Ministry for Economic Cooperation and Development (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung, BMZ) has joined GIZ and Siemens Stiftung in working with local ministries in African countries on the e-learning platform [atingi](#), which provides vocational education and orientation for young people. The success of OER platforms largely depends on regionalization of the content that is specific to each target group: it must all be adapted to fit the cultural and living environments of schoolchildren. Providing children and young people all over the world with access to quality education, as outlined in the [United Nation’s Agenda 2030](#), is not enough; the materials must also be tailored to an individual’s background.

Working together on quick and pragmatic answers

An OER platform is a creation from and for a wide range of stakeholders. For efforts made on virtual and hybrid education systems to succeed and bring about change, the dynamic spectrum of symbiotic relationships must be sufficiently addressed and include all stakeholders. Triggered by the demands of the pandemic, Siemens Stiftung made the decision in summer 2020 to join one of the largest networks of partner institutions and experts – known as [RED STEM Latinoamérica](#) – in initiating an independent OER partner portal. Experts from 70 Latin American partners in 13 countries, ranging from education ministries to universities and local NGOs, came together to develop new education materials. In just two months, the [Centro Recursos Educativos Abiertos](#) (CREA) OER Portal was launched. It includes media, programs, and teaching formats from a variety of sources in response to urgent calls from education stakeholders and systems.

In collaboration with 12 additional international partners, a further 530 materials on STEM subjects and sustainable development were added to CREA. These were developed by the partners themselves and from within their networks. Critical cooperation agreements with education ministries in Peru, Colombia, and Chile, in addition to education authorities in major cities, were implemented quickly with no red tape. By the end of the year, the portal had been accessed 20,000 times.

It was the awareness of all stakeholders of the need for urgent action that allowed CREA to come together so quickly and without complication. Everyone involved was on equal footing with each other, eliminating overreach and stepped-on toes. Each partner fed materials into the platform with no contractual obligations or bureaucracy. Decisions were made based on the common goal of making urgent improvements to education systems in each country for the benefit of children and young people.

Learning from partnerships

The undogmatic approach of battle-tested nations is a clear key learning that should be introduced into the discussion in Germany. Flexibility, a culture of learning from mistakes (CREA should continue to improve even after the crisis ends), and a collaborative approach are positive takeaways that should be retained moving forward. Country-specific rules and organization-specific norms take a back seat to generating solutions and creating collective impact. All stakeholders involved in this international partnership – from local universities and ministries to Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Siemens Stiftung – learned from each other and gained significant experience.

Further steps are already in the mix, with work beginning on a fused version of the Media Portal and CREA. Initially focusing on technical compatibility and licensing, it will later include a common approach to how materials are adapted: A child in the northern hemisphere doesn't see the Southern Cross in the sky; certain contexts may mean a papaya is a better fit for the food pyramid than an apple. The challenges of the VUCA world can be addressed through partnerships and networks. By pooling a broad range of expertise through collaborative efforts, it is possible to identify complex issues and create solutions.

The provision of OER is not without its problems, beginning with the lack of access to hardware for every student and every teacher. Equipping schools with affordable, basic computers could solve this problem in emerging and developing countries, but

local data packages are often expensive or not available at all. For OER to reach their full potential, there is certainly more work to be done. But such unanswered questions only unlock the potential for more solutions: How can Siemens Stiftung support social initiatives and inspire social entrepreneurs to focus their energies in the education technology sector? There is a long road ahead and many milestones to achieve in pursuit of social justice in the global education landscape. Let us use digitalization and cooperation as tools along the way.

About the author:

Dr. Nina Smidt Has been Managing Director and Board Spokesperson at Siemens Stiftung since 1 April 2020. Prior to her work at Siemens Stiftung, she was Director of International Planning and Development at ZEIT-Stiftung Ebelin und Gerd Bucerius from 2011 to 2020. From 2006 to 2011, she was CEO of Bucerius Education at Bucerius Law School in Hamburg.

She was also President of American Friends of Bucerius in New York from 2010 to 2020. Previously, Nina Smidt was Vice Director of the International Center for Graduate Studies at Universität Hamburg and Communications Program Manager at Jacobs University in Bremen.