

THE EDTECH HUB

Research and innovation to fulfil the potential of EdTech

 MENU

15 EdTech research papers that we share all the time

Posted on [24th January 2020](#) by [Caitlin Moss](#) in [general](#)

We hope you saw our [recent blog post](#) responding to questions we often get about interesting large-scale EdTech initiatives. Another question we are often asked is: “What EdTech research should I know about?”

As [Sara's blog post](#) explains, one of the Hub's core spheres of work is research, so we ourselves are very interested in the answer to this question. [Katy's latest](#) blog post explains how the Hub's research programme is addressing this question through a literature review to create a foundation for further research. While the literature review is in progress, we thought we would share an initial list of EdTech papers that we often reach for. At the Hub we are fortunate enough to have authors of several papers on this list as members of our team.

All papers on this list are linked to a record in the [EdTech Hub's growing document library](#) – where you will find the citation and source to the full text. This library is currently an alpha version. This means it's the first version of the service and we're testing how it works for you. If you have any feedback or find any issues with our evidence library, please get in touch.

TABLET USE IN SCHOOLS: A CRITICAL REVIEW OF THE EVIDENCE FOR LEARNING OUTCOMES

This critical review by our own Björn Haßler, Sara Hennessey, and Louis Major has been cited over 200 times since it was published in 2016. It examines evidence from 23 studies on tablet use at the primary and secondary school levels. It discusses the fragmented nature of the knowledge base and limited rigorous evidence on tablet use in education.

[Haßler, B., Major, L., & Hennessey, S. \(2016\) *Tablet use in schools: a critical review of the evidence for learning outcomes*. Journal of Computer Assisted Learning, 32\(2\),](#)

139-156.

THE IMPACT AND REACH OF MOOCS: A DEVELOPING COUNTRIES' PERSPECTIVE

This article challenges the narrative that Massive Open Online Courses (MOOCs) are a solution to low and middle-income countries' (LMIC) lack of access to education, examining the features of MOOCs from their perspectives. It argues that a complicated set of conditions, including access, language, and computer literacy, among others, challenge the viability of MOOCs as a solution for populations in LMIC.

Liyanagunawardena, T., Williams, S., & Adams, A. (2013) The impact and reach of MOOCs: a developing countries' perspective. *eLearning Papers*, 33(33).

TECHNOLOGY AND EDUCATION – WHY IT'S CRUCIAL TO BE CRITICAL

A thought-provoking read, Selwyn's book chapter argues that technology and education should continuously be viewed through a critical lens. It points to how the use of technology in education is entwined with issues of inequality, domination, and exploitation, and offers suggestions for how to grapple with these issues.

Selwyn, N. (2015) Technology and education – Why it's crucial to be critical. In S. Bulfin, N. F. Johnson & L. Rowan (Eds.), *Critical Perspectives on Technology and Education* (pp. 245-255). Basingstoke and St. Martins, New York: Palgrave Macmillan.

MOVING BEYOND THE PREDICTABLE FAILURE OF ED-TECH INITIATIVES

This article argues that a narrow vision of digital technology, which ignores the complexity of education, is becoming an obstacle to improvement and transformation of education. Specifically, the authors critically reflect on common approaches to introducing digital technology in education under the guise of promoting equality and digital inclusion.

Sancho-Gil, J.M., Rivera-Vargas, P. & Miño-Puigcercós, R. (2019) Moving beyond the predictable failure of Ed-Tech initiatives. *Learning, Media and Technology*, early view. DOI: 10.1080/17439884.2019.1666873

SYNERGIES BETWEEN THE PRINCIPLES FOR DIGITAL DEVELOPMENT AND FOUR CASE STUDIES

The REAL Centre's report, which includes contributions from the Hub's own ranks, is one of the few we've seen that provides an in-depth exploration of how the **Principles for Digital Development** apply to the education sector. It uses four case studies on the

work of the Aga Khan Foundation, Camfed, the Punjab Education and Technology Board, and the Varkey Foundation.

REAL Centre (2018). Synergies Between the Principles for Digital Development and Four Case Studies. Cambridge, UK: Research for Equitable Access and Learning (REAL) Centre, Faculty of Education, University of Cambridge.

EDUCATION TECHNOLOGY MAP: GUIDANCE DOCUMENT

This report by the Hub's Jigsaw Consult colleagues accompanies a comprehensive **map of 401 resources** with evidence on the use of EdTech in low-resource environments. The evidence mapping reviews certain criteria of the resources from sources such as journal indices, online research, evaluation repositories, and resource centres and experts. The type of criteria it maps include: the geographical location of study, outcomes studied, and type of EdTech introduced. While not inclusive of the latest EdTech research and evidence (from 2016 to the present), this mapping represents a strong starting point to understand what we know about EdTech as well as the characteristics of existing evidence.

Muyoya, C., Brugha, M., Hollow, D. (2016). Education technology map: guidance document. Jigsaw Consult, United Kingdom.

SCALING ACCESS & IMPACT: REALIZING THE POWER OF EDTECH

Commissioned by Omidyar Network and written by RTI, this executive summary (with the full report expected soon) is a useful examination of the factors needed to enable, scale, and sustain equitable EdTech on a national basis. **Four country reports** on Chile, China, Indonesia, and the United States examine at-scale access and use of EdTech across a broad spectrum of students. It also provides a framework for an ecosystem that will allow EdTech to be equitable and able to be scaled.

Scaling Access & Impact: Realizing the Power of EdTech (Executive Summary).
Omidyar Network.

PERSPECTIVES ON TECHNOLOGY, RESOURCES AND LEARNING – PRODUCTIVE CLASSROOM PRACTICES, EFFECTIVE TEACHER PROFESSIONAL DEVELOPMENT

If you are interested in how technology can be used in the classroom and to support teacher professional development, this report by the Hub's Björn Haßler and members of the Faculty of Education at the University of Cambridge emphasizes the key point that technology should be seen as complementary to, rather than as a replacement for, teachers. As the authors put it, "the teacher and teacher education are central for the successful integration of digital technology into the classroom." The report is also

accompanied by a toolkit (linked below) with questions that can be used to interrogate EdTech interventions.

Haßler, B., Major, L., Warwick, P., Watson, S., Hennessy, S., & Nichol, B. (2016). *Perspectives on Technology, Resources and Learning – Productive Classroom Practices, Effective Teacher Professional Development*. Faculty of Education, University of Cambridge. DOI:10.5281/zenodo.2626440

Haßler, B., Major, L., Warwick, P., Watson, S., Hennessy, S., & Nichol, B. (2016). *A short guide on the use of technology in learning: Perspectives and Toolkit for Discussion*. Faculty of Education, University of Cambridge. DOI:10.5281/zenodo.2626660

TEACHER FACTORS INFLUENCING CLASSROOM USE OF ICT IN SUB-SAHARAN AFRICA

In this paper, the Hub's Sara Hennessy and co-authors synthesise literature on teachers' use of ICT, with a focus on using ICT to improve the quality of teaching and learning. They find evidence to support the integration of ICT into subject learning, instead of treating it as a discrete subject, and to provide relevant preparation to teachers during pre- and in-service training to use ICT in classrooms. Although this evidence has been available for a decade, the implications of the paper's findings are still not often reflected in practice.

Hennessy, S., Harrison, D., & Wamakote, L. (2010). *Teacher Factors Influencing Classroom Use of ICT in Sub-Saharan Africa*. Itupale Online Journal of African Studies, 2, 39- 54.

INFORMATION AND COMMUNICATIONS TECHNOLOGIES IN SECONDARY EDUCATION IN SUB-SAHARAN AFRICA: POLICIES, PRACTICES, TRENDS, AND RECOMMENDATIONS

This landscape review by Burns and co-authors offers a useful descriptive starting point for understanding technology use in sub-Saharan Africa in secondary education, including the policy environment, key actors, promising practices, challenges, trends, and opportunities. The report includes four case studies on South Africa, Mauritius, Botswana, and Cape Verde.

Burns, M., Santally, M. I., Halkhoree, R., Sungkur, K. R., Juggurnath, B., Rajabalee, Y. B. (2019) *Information and Communications Technologies in Secondary Education in Sub-Saharan Africa: Policies, Practices, Trends, and Recommendations*. Mastercard Foundation.

THE INFLUENCE OF INFRASTRUCTURE, TRAINING, CONTENT AND COMMUNICATION ON THE SUCCESS OF NEPAD'S PILOT E-SCHOOLS IN KENYA

This study examines the impact of training teachers to use ICT, on the success of NEPAD'S e-Schools. The e-Schools objectives were to impart ICT skills to students, enhance teachers' capacities through the use of ICT in teaching, improve school management and increase access to education. Unlike other studies on the subject, Nyawoga, Ocholla, and Mutula crucially recognise that while teachers received technical ICT training, they did not receive training on pedagogies for integrating ICT in teaching and learning.

Nyagowa, H. O., Ocholla, D. N., & Mutula, S. M. (2014). *The influence of infrastructure, training, content and communication on the success of NEPAD'S pilot e-Schools in Kenya*. Information Development, 30(3), 235-246.

EDUCATION IN CONFLICT AND CRISIS: HOW CAN TECHNOLOGY MAKE A DIFFERENCE?

This landscape review identifies ICT projects supporting education in conflict and crisis settings. It finds that most of the projects operate in post-conflict settings and focus on the long-term development of such places. The report hones in on major thematic areas of professional development and student learning. It also presents directions for further research, including considerations of conflict sensitivity and inclusion in the use of ICT.

Dahya, N. (2016) *Education in Conflict and Crisis: How Can Technology Make a Difference? A Landscape Review*. GIZ.

DOES TECHNOLOGY IMPROVE READING OUTCOMES? COMPARING THE EFFECTIVENESS AND COST-EFFECTIVENESS OF ICT INTERVENTIONS FOR EARLY-GRADE READING IN KENYA

This randomized controlled trial contributes to the limited evidence base on the effects of different types of ICT investments on learning outcomes. All groups participated in the 'base' initiative which focused on training teachers and headteachers in literacy and numeracy, books for every student, teacher guides that matched closely with the content of the students' book, and modest ICT intervention with tablets provided only for government-funded instructional supervisors. The RCT then compared outcomes from three interventions: (1) base program plus e-readers for students, (2) base program plus tablets for teachers, and (3) the control group who were treated only with the base program. The paper finds that the classroom-level ICT investments do not improve literacy outcomes significantly more than the base program alone, and that cost considerations are crucial in selecting ICT investments in education.

Piper, B., Zuilkowski, S., Kwayumba, D., & Strigel, C. (2016). *Does technology improve reading outcomes? Comparing the effectiveness and cost-effectiveness of ICT interventions for early-grade reading in Kenya*. International Journal of Educational Development (49), 204-214.

[FORTHCOMING] TECHNOLOGY IN EDUCATION IN LOW-INCOME COUNTRIES: PROBLEM ANALYSIS AND FOCUS OF THE EDTECH HUB'S WORK

Informed by the research cited in this list (and much more) – the Hub will soon publish a problem analysis. It will define our focus and the scope of our work. To give a taste of what is to come, the problem analysis will explain why we will prioritise teachers, marginalised groups, and use a systems lens. It will also explore emergent challenges in EdTech research, design, and implementation.

EdTech Hub. (2020). Technology in education in low-income countries: Problem analysis and focus of the Hub's work (EdTech Hub Working Paper No. 5). London, UK. <https://doi.org/10.5281/zenodo.3377829>

Conclusion

It is important to note that we have included a mix of research types at varying levels of rigour, from landscape reviews and evidence maps, to critical reviews and case studies. Our list is not comprehensive and has some obvious limitations (they are all in English, for one). If you are interested in exploring more papers and evidence, don't forget to check out the [EdTech Hub's growing document library](#), where you will find not just links to the full papers in this list but over 200 resources, with more being added each day.

What interesting EdTech research have you recently read, and what did you take away from it? Let us know in the comments section or on Twitter at [@GlobalEdTechHub](#) and use [#EdTechHub](#)

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