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Engaging Girls with E-Learning
A curated list of good practices

About this document

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About the EdTech Hub Helpdesk

The Helpdesk is the Hub's rapid response service, available to UNICEF offices, FCDO advisers and World Bank staff. It delivers just-in-time services to support education technology planning and decision-making. We respond to most requests in 1–15 business days. Given the rapid nature of requests, we aim to produce comprehensive and evidence-based quality outputs, while acknowledging that our work is by no means exhaustive. For more information, please visit https://edtechhub.org/helpdesk/.

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Abbreviations and acronyms

GRP   Gender Responsive Pedagogy
ICT   Information and communications technology
LMIC   Low- and middle-income country

1. Introduction

The concern with gender equity in e-learning was made all the more urgent by the closure of schools in over 180 countries as a response to the ongoing Covid-19 pandemic (⇡UNESCO, 2020). In 2020, about 91 per cent of the world's enrolled pupils, or 1.6 billion pupils, were affected by school closures (⇡Dreesen et al., 2020). In general, the loss of access to education due to crises has a disproportionate effect on girls, leaving them at a greater risk of never returning to school.

Since Covid-19 has led to a rise in the number of girls who lack access to digital technologies (⇡USAID, 2020), focusing solely on EdTech without incorporating an explicit gender analysis in the design and implementation of e-learning carries the risk of exacerbating gender inequity in education. This risk is even greater in low- and middle-income countries (LMICs), where there are greater restrictions on access to technology and where the availability of EdTech remains limited (⇡Jordan, 2020).

1.1. Document purpose

This document was produced in response to a request from the UNICEF Sudan team that was submitted to the EdTech Hub Helpdesk in October 2021. The UNICEF Sudan team requested a curated list of good practices, examples, and recommendations for engaging girls in e-learning, relevant to Sudan's context. This document is not intended to be an exhaustive list; rather, its aim is to provide a list of good practices with a focus on minimising gender disparities in access to education, while taking into account both the uniqueness of Sudan's context and its comparability to other LMICs from which lessons can be learned.

This document is organised thematically, with each section covering one domain of concern that should be addressed in order to achieve a successful and gender-equitable education system. The five themes are:

1. Socio-economic norms and community campaigns

2. Teacher training

3. Education design and pedagogy

4. Virtual safety

5. Multimodal approaches and connectivity

Each section is further divided into subsections that address:

■ the challenges within the specific sphere of concern;

■ good practices, which could help in addressing these challenges;

■ examples from other countries which decision-makers can draw upon as they consider designs for building a resilient and equitable education system in Sudan.

The final section offers a summary of this paper's recommendations.

This paper uses UNICEF's definition of e-learning. The *UNICEF Sudan E-learning Strategy* defines electronic learning as "the use of electronic technologies and media to deliver learning material and achieve learning outcomes of the audience" (↑UNICEF Sudan, 2021a).

1.2. Gender equity and e-learning in low- and middle-income countries

While there is ample evidence that EdTech can work just as well for girls as it does for boys, girls' learning continues to be hindered by unequal access to technology (↑Allier-Gagneur & Moss Coflan, 2020). Evidence suggests that girls, when afforded adequate access to technological devices, are likely to experience a higher level of empowerment and to use those devices more than boys (↑Webb et al., 2020). However, a gender digital divide limits girls' educational opportunities and prevents them from realising the full potential inherent in EdTech. The various obstacles hindering equal access to education between girls and boys can be classified into social and technological barriers (↑Crompton et al., 2021).

Social barriers exist in multiple forms. There are social inequalities (e.g., poverty and violence) and social norms or attitudes (e.g., child marriage) which directly hinder girls' access to educational opportunities (↑World Bank, 2021). Gendered social expectations mean that girls perform disproportionally more household chores than do boys, leaving girls with less time for education compared to boys. Such expectations also present the potential of conflict between girls' learning and their socially-expected household 'duties' (↑Wenham et al., 2020). Whereas boys are often encouraged to use EdTech, and the use of EdTech can be seen as a masculine activity, girls are discouraged from using EdTech in a number of contexts (↑Crompton et al., 2021; ↑Malala Fund, 2020).

On the other hand, technological barriers are obstacles that arise because gender inequalities and norms affect "the way EdTech is designed, accessed, used, and implemented" (↑Crompton et al., 2021, p. 7). Together, these two

kinds of barriers result in girls having fewer opportunities to access EdTech and thus deriving fewer benefits from the use of EdTech.

1.3. Education and EdTech in Sudan

Technology initiatives must take account of the local context for which they are designed (⇧UNICEF, 2015). With around one-third of the school-aged population — more than three million children between the ages of six and 13 — being out of school, it is indeed clear that Sudan continues to face considerable obstacles in terms of access to education. As a result of Covid-19, schools in Sudan were mandatorily closed in March 2020, lasting for 22 weeks (⇧UNESCO, 2020). It is estimated that school closures affected more than 8.1 million children (⇧Ashii, 2021).

Sudan faces substantial challenges when it comes to access to education, generally speaking, and EdTech in particular. School drop-out rates, especially among girls and children who reside in rural areas, are quite high. Moreover, as UNICEF notes, Sudan is experiencing "a shortage of basic school infrastructure, notably classrooms, school furniture, water and sanitation facilities" (⇧UNICEF Sudan, 2021b, p. 7).

> **"Only 60 per cent of the available classrooms in government schools are permanent with an average classroom pupil ratio of 1:76. This resulted in overcrowded classrooms, open air classes under trees, or children learning in unsafe temporary classrooms. Only two thirds of learners in basic education have access to seats. Separate sanitation facilities for girls and boys and access to clean and safe water is a challenge in Sudan. "**
>
> **– ⇧UNICEF Sudan, 2021b, p. 7**

In terms of access to ICT, almost 75% of Sudan's population have no internet access, and less than 10% of the poorest households have electricity (⇧Dreesen et al., 2020).

Table 1. *ICT access in Sudan. Sources: ⬆ITU, 2017; ⬆World Bank, 2020a.*

	Percentage of population
Access to electricity (2019)	53.8%
Mobile cellular subscriptions (2020)	80.3%
Individuals using the internet (2019)	25.4%
Households with a computer, laptop, or tablet (2017)	18%

Girls are at a disproportionate risk of not being afforded educational opportunities in Sudan. The child marriage rate continues to be high in Sudan, with at least a third of women between the ages of 20 and 24 marrying before their 18th birthday (⬆Dean et al., 2019). It is likely that this rate will persist without measures to ensure that girls are provided with adequate educational opportunities that address their specific needs.

2. Challenges, good practices, and examples

The gender digital divide remains a pressing issue in Sudan when it comes to girls' access to e-learning. While the gender digital divide in lower-income countries like Sudan is all too real, marginalised boys may experience many of the same obstacles in accessing EdTech as do marginalised girls. These obstacles include the lack of adequate infrastructure (limited network coverage and electricity), limited information and communications technology (ICT) hardware in marginalised households, the prohibitive cost of data, and low levels of literacy — including digital literacy (⬆Naylor & Gorgen, 2020).

2.1. Socio-economic norms and community campaigns

2.1.1. Challenges

Socially and culturally constructed gender norms and practices have a direct bearing on how girls use technology and the level of access to technology that they have. Within schools, girls have less access to EdTech than boys, both because girls are less likely to attend school on a consistent basis and because of gendered assumptions (⬆Webb et al., 2020). At home, gendered assumptions about the use of technology also lead to unequal access to EdTech, especially in light of the fact that boys are more likely than girls to have the financial resources, mobility, and societal freedom needed to access EdTech (⬆Webb et al., 2020).

Similarly, limiting girls' access to technological resources and invoking gendered assumptions regarding the use of technology produces an attitudinal bias that girls can internalise (⬆Webb et al., 2020). Girls tend to be socialised into having less confidence than men when it comes to their ability to effectively use technology, regardless of their actual digital skills (⬆Allier-Gagneur & Moss Coflan, 2020).

2.1.2. Good practices and examples

Table 2. *Socio-economic norms and community campaigns: good practices and examples.*

Good practices	Examples
Community campaigns	
Spread information about the benefits (including material benefits such as poverty reduction, career entry and advancement, more employment opportunities, and longer life expectancy), which girls can obtain by having access to EdTech (↑Allier-Gagneur & Moss Coflan, 2020; ↑McMahon & Oketch, 2013; ↑Naylor & Gorgen, 2020). Whenever possible, translate campaign messages into the local languages (↑Belfield et al., 2021). Partner with existing local organisations and work within existing systems of support and communities (↑Belfield et al., 2021).	The Ministry of Education in Ghana, a country that experienced one of the longest school closures globally (53 weeks, from March 2020 to January 2021) launched campaigns to encourage parents to keep girls in school and not increase their household chores (↑Dreesen et al., 2020). One non-governmental initiative in Ghana, the MGCubed project, is of special interest. The MGCubed project team maintained regular communication with the girls and their families (through phone calls, in-person visits, and radio messages which were translated into local languages), increased cash transfers (to cover young mothers, children with disabilities, and older girls) to alleviate economic shocks, and worked with District Education Officials to track the return of girls to school and organise community trainings on learning at home. The project reported that 96% of girls who participated returned to school when school closures ended (↑Belfield et al., 2021).
Gender norms and practices	
Conduct independent research and actively pursue feedback from local actors in order to better understand: 1. The specific nature of the gendered norms and practices limiting girls' access to EdTech in a particular community. 2. How to develop communication campaigns that are tailored to specific communities (↑Bukhari, 2016, as cited by ↑Allier-Gagneur et al., 2020).	A number of countries (Tanzania, Mongolia, The Gambia, and Moldova) have instituted systems of gathering feedback from parents and caregivers that rely on simple tools like SMS and chatbots. Other countries (Azerbaijan, Kazakhstan, Egypt, Serbia, and South Africa) have been using online platforms designed to deliver remote education to track user experiences and generate data regarding the learning outcomes of children (↑Naylor & Gorgen, 2020).

2.2. Teacher training

2.2.1. Challenges

Studies that are based on research in Cameroon, Central African Republic, Congo, and Swaziland suggest that school teachers often share and reinforce gender biases that limit girls' access to EdTech (↑Vilakati, 2014;↑Yeba, 2012 as cited in ↑Webb et al., 2020). Therefore, reducing gender inequity in access to EdTech requires that teacher professional development, training in the use of technology, and gender-responsive teaching are properly addressed (↑Webb et al., 2020).

2.2.2. Good practices and examples

Table 3. *Teacher training: good practices and examples.*

Good practices	Examples
Developing teacher skills	
Train teachers on how to manage a remote or virtual classroom, a task that would require not only improvements in presentation skills and learning how to effectively include technology in lesson plans, but also learning how to psychologically support children (↑Dreesen et al., 2020). Establish channels where teachers can communicate with each other and share good practices and advice (↑Allier-Gagneur et al., 2020). Provide teachers with access to digital communication channels such as email, mobile phone, text, television, and radio (↑Beteille et al., 2020, as cited in ↑Allier-Gagneur & Moss Coflan, 2020).	Komuniti Guru Digital Learning is a learning platform for teachers developed by the Malaysian Ministry of Education and UNICEF in response to Covid-19. The platform not only includes educational materials on remote learning but also acts as a virtual space where teachers can share best practices with each other. The learning community has 2,400 active users, about 50% of whom are teachers who work in rural communities (↑Allier-Gagneur et al., 2020;↑Dreesen et al., 2020). In Sierra Leone, as nongovernmental organisations received feedback about the ways that teachers were adapting to distance learning, some were able to support teachers to replicate these innovations in other communities (↑Bullard & Sonnenberg, 2020, as cited in ↑Allier-Gagneur & Moss Coflan, 2020).

Good practices	Examples
Gender Responsive Pedagogy	
Work on implementing Gender Responsive Pedagogy (GRP) by providing teachers with professional development opportunities which address gender learning gaps and discriminatory teaching practices (↑Crompton et al., 2021).	The Forum for African Women Educationalists launched a toolkit that includes classroom activities meant to help teachers implement GRP in a practical way. The toolkit also offers lessons, good practices, and examples that have been collected from other GRP initiatives which were carried out in a number of African countries (↑Crompton et al., 2021).
Contact between teachers and students	
Maintain contact between teachers and learners when learning is remote. Phones (through WhatsApp or SMS messaging) provide an appropriate channel for sharing materials, asking questions, and offering feedback (↑Bullard & Sonnenberg, 2020, as cited in ↑Allier-Gagneur & Moss Coflan, 2020).	Both South Sudan and Bhutan have used phones for these purposes. In Sierra Leone and El Salvador, linking teachers and marginalised pupils was made possible through the use of call-in centres (↑Bullard & Sonnenberg, 2020, as cited in ↑Allier-Gagneur & Moss Coflan, 2020).
Connections with caregivers and government officials	
Invest in platforms that enable conversations between teachers and caregivers, so that teachers may provide insights and advice to caregivers who lack sufficient experience as educators. Develop communication channels between teachers and government ministries so that it becomes possible for teachers' insights to be communicated to policymakers (↑Bullard & Sonnenberg, 2020, as cited in ↑Allier-Gagneur & Moss Coflan, 2020).	In many countries, teachers are being encouraged to stay in touch with students and their parents through messaging app groups and phone calls (Croatia, Tunisia) (↑Dreesen et al., 2020). Montenegro released videos that included games made by preschool teachers for caregivers and parents (↑Dreesen et al., 2020). A number of countries (e.g., Cameroon, Ecuador, Eswatini, Guatemala, North Macedonia, Montenegro, Oman) have focused on giving adequate support to caregivers so that they, in turn, can support children both in their learning and psychologically (↑Dreesen et al., 2020).

2.3. Education design and pedagogy

2.3.1. Challenges

Existing curriculums and pedagogical methods have received their share of criticism for being "overloaded and irrelevant"(↑Webb et al., 2020). This can put girls at a disadvantage because it depends mainly on memorisation, a time-consuming activity that girls who must also perform household chores cannot afford (↑Webb et al., 2020).

2.3.2. Good practices and examples

Table 4. *Education design and pedagogy: good practices and examples.*

Good practice	Example
Curriculum delivery	
Consider girls' workload when scheduling educational broadcasts. Research on the use of radio suggests that girls prefer tuning in in the evening (↑Allier-Gagneur & Moss Coflan, 2020). Include, to the extent possible, study centres and in-person teaching within the e-learning programme, as research shows that depending only on print and online content has a lower chance of being effective (↑Allier-Gagneur & Moss Coflan, 2020).	UNICEF has developed a remote learning decision tree that allows educators to find out what channels are most suitable for delivering remote education for different populations. Take-home packages are used in about half the countries, including in Jamaica, Jordan, and Mauritania (↑Dreesen et al., 2020).
Data gathering	
Gather data from the girls themselves in order to have a better understanding of their specific needs and how they can be addressed. Participatory approaches to the design of EdTech can prove useful here (↑Crompton et al., 2021).	One initiative conducted by UNICEF in Mongolia and Indonesia used co-designing approaches to incorporate the needs and ideas of girls into the design of EdTech (↑Crompton et al., 2021).

Good practice	Example
Content	
Ensure that women are well represented among those responsible for presenting and creating educational content. (↑Allier-Gagneur & Moss Coflan, 2020). Create educational content that includes "group learning, high-engagement learning, real-world learning, and project-based learning," as research has shown that these learning methods work against the disadvantages inherent in existing curriculums (↑Allier-Gagneur & Moss Coflan, 2020; ↑Naylor & Gorgen, 2020). Evaluate the need to provide educational content in the local languages, as marginalised girls may be less likely to speak the official national language. (↑Allier-Gagneur & Moss Coflan, 2020).	Some of the countries that have a long and tested history of using television for educational programming are Brazil, China, Ethiopia, Ghana, India, and Mexico. The World Bank lists these countries as examples when developing remote educational programmes, provides links which may be used to establish contact, as well as practical advice on designing e-learning programmes (↑2020b, as cited in ↑Jordan, 2020). The World Bank also offers a list of content repositories that can be consulted when developing curriculums for e-learning programmes (↑2020b). In Bangladesh, UNICEF started an 'alternative learning pathway' programme to provide out-of-school adolescents with skills that can give them better employment opportunities and prepare them for further education. After a six-month training period of apprenticeship, critical thinking, and problem-solving, adolescents move on to either self- or waged employment. A study of the programme results found that girls' savings rate was almost four times that of boys (↑UNICEF, 2018).

2.4. Safeguarding and support

2.4.1. Challenges

While e-learning offers educational opportunities to children who may otherwise be deprived of their right to education, e-learning also presents increased risks of online abuse (↑Hallgarten, 2020, as cited in ↑Allier-Gagneur & Moss Coflan, 2020). Because of these increased risks, it is imperative that decision-makers take measures to safeguard and support girls enrolled in remote learning.

2.4.2. Good practices and examples

Table 5. *Safeguarding and support: good practices and examples.*

Good practices	Examples
Safe spaces	
Provide girls with access to virtual and/or physical safe spaces where they can learn with other girls. Depending on the availability of devices (mobile phones, for example), this can be accomplished either through the use of social media or through providing a physical meeting place (⬆Allier-Gagneur & Moss Coflan, 2020; ⬆Naylor & Gorgen, 2020). Leverage technological tools to allow girls to report abuse and send messages to other girls explaining available channels of support (⬆Allier-Gagneur & Moss Coflan, 2020).	In the Democratic Republic of the Congo, War Child Canada has been implementing its project 'Making Waves: Radio-Based Learning' since 2014. The project focuses on out-of-school children, girls in particular, and aims to offer them an education in a community-based environment that is safe and collaborative. The programme allows girls to interact with other girls and provides them with a safe space by basing itself in the community (⬆Minetti, 2020; ⬆War Child Canada, 2017). In Senegal, the Jokko Initiative developed a hybrid literacy course that utilises in-person and mobile-phone learning. The initiative also includes an SMS Community Forum which is operative in 15 villages and allows girls to send free SMS messages to each other, providing them with a virtual space where they can practice their literacy skills. According to the results of follow-up surveys, the participants achieved significant literacy score improvements (⬆Beltramo & Levine, 2012, as cited in ⬆Allier-Gagneur et al., 2020).

2.5. Multimodal approaches and connectivity

2.5.1. Challenges

Like in many other LMICs, one of the most fundamental obstacles to accessing EdTech results from socio-economic variables which render access to EdTech prohibitively expensive to the poorest and most marginalised households.

Access to EdTech is also dependent on the availability and cost of infrastructure.

2.5.2. Good practices and examples

Table 6. *Multimodal approaches and connectivity: good practices and examples.*

Good practice	Example
Explore a number of different ICT options as ways that may provide girls with access to education (↑Allier-Gagneur & Moss Coflan, 2020). Consider supplying girls with devices or data plans, but only as part of a broader education package. Research has demonstrated that giving out devices on its own does not lead to improved learning (↑Allier-Gagneur & Moss Coflan, 2020).	Eighty-six countries have established hybrid systems of learning where digital and non-digital content are offered, using television and radio as well as non-digital take-home materials. In Malawi, and as part of the UNICEF Malawi Covid-19 Youth Challenge, 'Inspire', an offline mobile learning application was developed in an effort to allow for remote learning even though the country's internet infrastructure is not highly developed. One key feature of this application is that it can be used with low-cost devices such as KaiOS, which is a mobile operating system for feature phones, and can be used alongside radio (↑UNICEF, 2020, as cited in ↑Crompton et al., 2021). The governments in Somaliland and Burkina Faso provided radios to remote communities, and the government of Kyrgyzstan distributed free / low-cost SIM cards to its citizens (↑Dreesen et al., 2020).

3. Recommendations

According to the Learning Directors Training Manual, the Phase I and Phase II trials of the E-learning Sudan initiative demonstrated that girls and boys benefited equally from the programme (↑UNICEF Sudan, 2017a). Decision-makers should consider how the e-learning initiative can be carefully scaled up to maintain success factors from the pilot. This may include questions such as:

- How can the training be efficiently and effectively cascaded down to other community-based facilitators?

- When scaling the initiative nationally, will there be sufficient tablets for all children (girls and boys) to use?

- Are girls able to travel safely to the learning sites?

Below is a summary of recommendations, grouped according to the five organising themes of this document which are likely to support an effective e-learning programme that addresses the digital gender divide:

1. Socio-economic norms and community campaigns

   – Work through existing and embedded systems of support to provide children with educational opportunities and with the support that they may need. Leverage existing connections with community organisers and volunteers to deliver educational content and support to girls at the home and local community level (↑Naylor & Gorgen, 2020).

2. Teacher training

   – Provide teachers with professional development opportunities, especially concerning the pedagogical skills needed to combat gender discrimination in the classroom and to implement a gender-responsive pedagogical style of teaching (↑Dreesen et al., 2020). For example, an additional session on gender can be included after session 3.5 on cultural competency listed in the Learning Directors Training Manual (↑UNICEF Sudan, 2017a).

   – Provide educational opportunities in ICT skills and digital literacy for teachers and learners (↑Allier-Gagneur et al., 2020; ↑Crompton et al., 2021).

3. Education design and pedagogy

   – Use EdTech as a supplement to face-to-face teaching and interactions, not as a replacement for them (↑Amenya et al., 2021; ↑Dreesen et al., 2020; ↑Webb et al., 2020).

   – Develop educational content which combats gender stereotypes and the internalisation of harmful gender assumptions (↑Allier-Gagneur & Moss Coflan, 2020; ↑Crompton et al., 2021).

   – As mentioned in the Learning Directors Toolbox, both children and adults presented instruction videos on mathematics and literacy for the E-learning Sudan initiative (↑UNICEF Sudan, 2017b). Ensure that there is equal representation of females and males that are producing and presenting educational content (↑Naylor & Gorgen, 2020).

   – In some cases, girls may be less familiar with how to use EdTech than boys. While equal academic expectations are important, educators may need to account for additional and / or dedicated classroom time to support girls participating in the E-learning Sudan initiative with tablet use (↑Crompton et al., 2021).

   – Use EdTech to collect timely and disaggregated data which can be used to identify the most vulnerable girls, monitor their progress, and respond to their needs and concerns (↑Allier-Gagneur & Moss Coflan, 2020; ↑Dreesen et al., 2020).

4. Virtual safety

   – Create safe spaces for girls (physical and / or virtual) where they can learn together and support each other. This might look like setting up girls-only small groups when rolling out an e-learning initiative. Encourage communication among girls and establish channels for collaborative learning (e.g., via mobile devices that girls already have access to) (↑Naylor & Gorgen, 2020).

5. Multimodal approaches and connectivity

   – Consider low-technology solutions when operating in communities with low levels of access to EdTech and / or with low levels of digital literacy (↑Allier-Gagneur et al., 2020; ↑Allier-Gagneur & Moss Coflan, 2020).

   – Address the economic barriers preventing girls from having equal access to EdTech. Consider implementing, increasing, and / or extending cash transfers to mitigate the impact of the economic shocks which emergencies tend to cause (↑Naylor & Gorgen, 2020).

4. References

This bibliography is available digitally in our evidence library at
https://docs.edtechhub.org/lib/PXUQJZTH

Allier-Gagneur, Z., & Moss Coflan, C. (2020). *Your Questions Answered: Using Technology to Support Gender Equity, Social Inclusion and Out-Of-School Learning* (Helpdesk Response No. 14). EdTech Hub. https://doi.org/10.53832/edtechhub.0025. Available from https://docs.edtechhub.org/lib/VX7UW757. (details)

Allier-Gagneur, Z., Chuang, R., McBurnie, C., & Haßler, B. (2020). *Using Blended Learning to Support Marginalised Adolescent Girls' Education: A Review of the Evidence* (Helpdesk Response No. 25). EdTech Hub. https://doi.org/10.53832/edtechhub.0009. Available from https://docs.edtechhub.org/lib/H3AI5F3C. Available under Creative Commons Attribution 4.0 International. (details)

Amenya, D., Fitzpatrick, R., Njeri M., E., Naylor, R., Page, E., & Riggall, A. (2021). *The Power of Girls' Reading Camps: Exploring the impact of radio lessons, peer learning and targeted paper-based resources on girls' remote learning in Kenya* (Working Paper No. 32). EdTech Hub. https://doi.org/10.5281/zenodo.5651935. Available from https://docs.edtechhub.org/lib/P8IAN448. Available under Creative Commons Attribution 4.0 International. (details)

Ashii, H. A. (2021). *A better Environment for Education in Sudan*. https://www.unicef.org/sudan/stories/better-environment-education-sudan. (details)

Belfield, S., Mathur, M., & Caine, E. (2021, October 5). *FCDO – GEC*. https://girlseducationchallenge.org/blogs/blog-article/getting-girls-back-into-school-strategies-for-successfully-re-enrolling-girls-in-ghana-and-sierra-leone/. (details)

Beltramo, T., & Levine, D. (2012). *Do SMS Text Messaging and SMS Community Forums Improve Outcomes of Adult and Adolescent Literacy Programs? https://escholarship.org/uc/item/1c31c2m4. (details)*

Beteille, T., Ding, E., Molina, E., Pushparatnam, A., & Wilichowski, T. (2020). *Three Principles to Support Teacher Effectiveness During COVID-19*. World Bank. https://doi.org/10.1596/33775. Available from http://elibrary.worldbank.org/doi/book/10.1596/33775. (details)

Bukhari, E. G. (2016). Blended learning implementation in secondary education for girls: case study Tatweer project Saudi Arabia. *International Journal of Academic Research and Reflection*, *4*(7), 15. https://www.idpublications.org/wp-content/uploads/2016/09/Full-Paper-BLENDED-LEARNING-IMPLEMENTATION-IN-SECONDARY-EDUCATION-FOR-GIRLS-CASE-STUDY-TATWEER-PROJECT.pdf. (details)

Bullard, K., & Sonnenberg, K. (2020). *Releasing the potential of teachers in the COVID response in low-income countries*. Global Partnership for Education. https://www.globalpartnership.org/blog/releasing-potential-teachers-covid-response-low-income-countries. (details)

Crompton, H., Chigona, A., Jordan, K., Myers, C., & Myers, C. (2021). *Inequalities in girls' learning opportunities via EdTech: addressing the challenge of Covid-19*. EdTech Hub. https://docs.edtechhub.org/lib/D6PWMC4I/download/LNDBFWHV/Crompton%20et%20al.%20-%202021%20-%20Inequalities%20in%20Girls_%20Learning%20Opportunities%20via%20.pdf. (details)

Dean, L., Obasi, A., Sony, A. E., Fadul, S., Hassan, H. E., Thomson, R., & Tolhurst, R. (2019). "He is suitable for her, of course he is our relative": a qualitative exploration of the drivers and implications of child marriage in Gezira State, Sudan. *BMJ Global Health*, *4*(3), e001264. https://doi.org/10.1136/bmjgh-2018-001264. Available from https://gh.bmj.com/content/4/3/e001264. (details)

Dreesen, T., Akseer, S., Brossard, M., Dewan, P., Giraldo, J.-P., Kamei, A., Mizunoya, S., & Ortiz, J. S. (2020). *Promising practices for equitable remote learning: Emerging lessons from COVID-19 education responses in 127 countries* (Innocenti Research Brief). UNICEF. (details)

Hallgarten, J. (2020). *Evidence on efforts to mitigate the negative educational impact of past disease outbreaks*. https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/15202. (details)

ITU. (2017). *2017 Global ICT Development Index*. https://www.itu.int/net4/itu-d/idi/2017/index.html#idi2017economycard-tab&LBN. (details)

Jordan, K. (2020). Covid-19 school closures in low- and middle-income countries: Emergent perspectives on the role of educational technology. *Journal of Learning for Development*, *7*(3), 399–415. https://jl4d.org/index.php/ejl4d/article/view/433. (details)

Malala Fund. (2020). *Girls education and Covid-19 in Nigeria*. Malala Fund. https://assets.ctfassets.net/0oan5gk9rgbh/4SoYwXYgLMiIWPqvdikb0W/4d2ebc3b8289b2beaae33867d79af698/Nigeria_Report_22.pdf. (details)

McMahon, W. W., & Oketch, M. (2013). Education's Effects on Individual Life Chances and On Development: An Overview. *British Journal of Educational Studies*, *61*(1), 79–107. https://doi.org/10.1080/00071005.2012.756170. (details)

Minetti, E. (2020, March 23). *Radio Education: Physical Distance but Social Solidarity | INEE*. https://inee.org/blog/radio-education-physical-distance-social-solidarity. (details)

Naylor, R., & Gorgen, K. (2020). *Overview of emerging country-level response to providing educational continuity under COVID-19 What are the lessons learned from supporting education for marginalised girls that could be relevant for EdTech responses to COVID-19 in lower- and middle-income countries?* (p. 22). EdTech Hub. https://doi.org/10.5281/zenodo.4706059. Available from https://edtechhub.org/wp-content/uploads/2020/05/marginalised-girls.pdf (details)

UNESCO. (2020). *COVID-19 Impact on Education*. UNESCO. https://en.unesco.org/covid19/educationresponse. (details)

UNICEF. (2015, November 1). *The State of the World's Children 2015*. The State of the World's Children 2015: Reimagine the Future. https://sowc2015.unicef.org/. (details)

UNICEF. (2018, October 17). *GirlForce: Skills, education and training for girls now*. UNICEF DATA. https://data.unicef.org/resources/girlforce-brochure/. (details)

UNICEF. (2020). *Malawian youths offer solutions to COVID-19 challenges in their communities*. UNICEF. https://www.unicef.org/malawi/press-releases/malawian-youths-offer-solutions-covid-19-challenges-their-communities. (details)

UNICEF Sudan. (2017a). *Learning Director's Training Manual*. (details)

UNICEF Sudan. (2017b). *Learning directors toolbox*. (details)

UNICEF Sudan. (2021a). *E-learning Strategy*.

UNICEF Sudan. (2021b). *Education: Annual Report 2020*.
https://www.unicef.org/sudan/reports/education. (details)

USAID. (2020). *USAID digital strategy*. USAID.
https://www.usaid.gov/sites/default/files/documents/15396/COVID-19_and_
Gender_Digital_Divide.pdf. (details)

Vilakati, N. (2014). The implementation of ICT educational policy in selected
schools in Swaziland. *UNISWA Research Journal*, *27*(4), 86–99. (details)

War Child Canada. (2017). *Interactive Radio Instruction Brings Learning Back
to Eastern Democratic Republic of the Congo*. (details)

Webb, D., Barringer, K., Torrance, R., & Mitchell, J. (2020). *Girls' Education and
EdTech: A Rapid Evidence Review* (Rapid Evidence Review No. 2; EdTech
Hub Rapid Evidence Review). EdTech Hub.
https://doi.org/10.5281/zenodo.4737460. Available from
https://docs.edtechhub.org/lib/CZBRW85R. Available under Creative
Commons Attribution 4.0 International, Open Access. (details)

Wenham, C., Smith, J., & Morgan, R. (2020). COVID-19: the gendered impacts of
the outbreak. *The Lancet*, *395*(10227), 846–848.
https://doi.org/10.1016/S0140-6736(20)30526-2. Available from
https://linkinghub.elsevier.com/retrieve/pii/S0140673620305262. (details)

World Bank. (2020). *Remote Learning, Distance Education and Online
Learning During the COVID19 Pandemic: A Resource List by the World
Bank's Edtech Team*. http://elibrary.worldbank.org/doi/book/10.1596/33499.
(details)

World Bank. (2020). *Sudan | Data*. The World Bank.
https://data.worldbank.org/country/sudan?view=chart. (details)

World Bank. (2021). *Girls education*.
https://www.worldbank.org/en/topic/girlseducation. (details)

Yeba, J. S. M. M. (2012). Gender bias in attitude towards girls in the use of
computers in selected schools in central Africa. *Journal of Continuing,
Open and Distance Education*, *2*(1), 1–22.
http://erepository.uonbi.ac.ke/handle/11295/38205. (details)