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Using EdTech in Settings of Fragility, Conflict, and Violence: A Curated Resource List

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1. Document purpose

This curated list of resources collates interventions that effectively deploy education technology in settings of fragility, conflict, and violence (FCV). [The World Bank](#) (2020) states that by 2030 FCV settings will be home to up to two thirds of the world's extreme poor; these settings have become increasingly complex over the past decade, with the COVID-19 pandemic threatening to exacerbate existing challenges. This list explores effective uses of EdTech in FCV settings. It particularly emphasises interventions and evidence relevant to the Middle East and North Africa (MENA) region and distance learning during the COVID-19 crisis. These resources were selected with the intention to include practical recommendations on technology-enabled interventions.

2. Background

Estimates suggest there are roughly 535 million children currently living in settings of FCV. Children in these settings are roughly three times more likely to be out of school than children living in stable, low-income countries (Tauson & Stannard, 2018). Within the Middle East and North Africa (MENA) region, Hammud & Jarrar (2017) state that high levels of illiteracy contribute to conflict and violence. This finding reinforces the need for national education strategies to be underpinned by a focus on enhancing literacy. Regarding EdTech specifically, the overwhelming consensus is that technology is a tool which can be used to support, facilitate and enable good teaching and quality learning (Dahya, 2016). However, technology is only one of many inputs needed to lead to sustained improvements in learning outcomes.

This brief explores how EdTech, and education programmes more widely, can be leveraged to support distance and alternative learning opportunities that are urgently needed.

3. Key observations

In the process of developing this list, we have made several observations on initiatives and evidence related to EdTech in FCV contexts. Key findings include the following:

- There are promising tools and learnings to take from the listed interventions. Further research and discussion are required to appropriately adjust these interventions in line with specific country operating environments..
- Many EdTech initiatives do not adapt programme design sufficiently for FCV settings and have limited impact. This list has selected interventions which explicitly target these spaces.
- Various interventions are focused on '[hardware dumping](#)' despite the lack of an evidence base around hardware interventions enhancing learning outcomes. Hardware solutions are particularly problematic when faced with the interconnected lack of access to power and connectivity in FCV contexts.
- Evidence of the use of technology to support out-of-school children in FCV settings within the MENA region is scarce. However, there are some regional

EdTech programmes with linguistically relevant content that have the potential to be adapted for operational delivery in the MENA region.

- Effective EdTech interventions specifically targeting the most marginalised children within FCV settings are lacking. However, interventions that do not necessarily use technology but that do target important aspects of education systems, such as community engagement, and teacher professional development, have an important role to play in FCV settings. We have included several such interventions, which address equity issues.
- A lack of programmatic impact data in FCV settings clouds the picture around successes and learnings from specific projects (Tauson & Stannard, 2018).
- In response to the COVID-19 pandemic, several resources specifically targeting education in FCV contexts have been published. They provide clear and practical frameworks for practitioners and policymakers. It is expected that the literature on distance learning in FCV contexts will continue to grow. These resources, among others, are presented in the 'Further reading' section of this brief.

4. EdTech interventions in FCV contexts

This section lists the various interventions located in FCV settings and is divided into four subsections:

1. Educational content and devices
2. System administration
3. Teacher professional development
4. Resources libraries

4.1. Educational content and devices

This subsection explores interventions utilising educational content and devices to enhance learning outcomes in FCV settings.

4.1.1. Can't Wait to Learn, War Child

The [Can't Wait to Learn initiative](#) uses custom gaming technology to deliver education to conflict-affected children in Sudan, Uganda, Lebanon, Jordan, Chad and Bangladesh. The programme partners closely with ministries of education, and aims to reach millions of children globally by 2023, closing the education gap in both formal and out-of-school settings. Can't Wait to Learn uses a delivery system that operates in low-infrastructure environments and places an emphasis on co-created programme design. The programme was co-designed with Sudanese stakeholders, and initial trialling in Sudan alongside published research has shown promising evidence, (Stubbé et al., 2016; War Child Holland et al., 2016). The programme is available in both Arabic and English with development in French in progress.

Key Considerations: The learning from initial trials offers foundational evidence of positive educational outcomes in an FCV context. Furthermore, the programme has relevance to the MENA region as it is already being deployed within the region and in Arabic.

4.1.2. Rumie

[Rumie](#) aims to remove barriers to learning by using technology to freely share quality educational resources with those who have the most to gain by it. In 2015, Rumie launched [Learn Syria](#), a project which collates learning resources relevant to Syrian children. Working with local partners and thousands of skilled volunteers online, Rumie built a fully digitised Syrian curriculum for children from grades 1–12. This allowed students to autonomously study by loading content onto learning tablets that work fully offline and asynchronously collect impact data.

Key considerations: While there is a lack of readily available impact data regarding the Learn Syria project, the establishment of Learn Syria followed Rumie's successful project [EduOverEbola](#) in Liberia during the Ebola crisis. EduOverEbola reached over 500 children during the Ebola crisis following mass school closures, raising \$25,000 in one month to deliver this rapid response. Rumie has also delivered a project in Afghanistan, [Books to Bytes](#), widening the case for delivery in FCV contexts. Furthermore, the ability to access Rumie materials offline extends access to those children without internet.

4.1.3. Interactive Radio Instruction

From 2005–2011, the Somali Interactive Radio Instruction Program (SIRIP), provided Interactive Radio Instruction (IRI) to 330,000 children in Grades 1–5 attending formal, non-government, Koranic and community schools (Carlson, 2013). Radio programmes were broadcast daily (three hours per day, up to five days per week) or supplied to students and teachers on digital media players. Basic literacy and numeracy skills were covered, along with life skills, health, conflict prevention and mediation with 30-minute programmes addressing a particular learning objective. Readers and teachers' guides were provided, along with teacher training in active learning pedagogy. Results were positive as grade one SIRIP learners scored 15 per cent higher than non-SIRIP learners on standardised literacy tests, and 20 per cent higher in maths. Furthermore, SIRIP helped stabilise fragile communities by providing a consistent, attractive and reliable service.

Key Considerations: IRI can represent a good, short-term investment that enables governments to deliver the core curriculum and facilitate teacher professional development in support of long-term education improvement. It is a low-cost, adaptive and accessible EdTech modality that can be tailored to specific contexts. However, it is important to note that linguistic aspects are vital to the success of IRIs. A similar programme, the Southern Sudan Interactive Radio Instruction (SSIRI), was launched in 2004 and had contrasting results, with teachers' proficiency in English hindering impact of the service. USAID have recently collated a selection of [Interactive Audio Instruction \(IAI\) and IRI materials](#) for free download and use, including content for South Sudan and the DRC. For further reading on the use of IRI to mitigate the impact of COVID-19, please see McBurnie (2020), [here](#).

4.1.4 Curious Learning

[Curious Learning](#) works with partners to curate, localise and distribute free open source apps that empower everyone to have the opportunity to learn to read. Examples of initiatives include creating SMS, email and social media campaigns to drive parent

downloads of apps for children and localising apps such as *Feed the Monster* which has been translated into over 45 languages.

Key Considerations: Given the illiteracy challenges within the MENA region, Curious Learning could support the process of honing in on particular interventions that would improve literacy rates. They cite programmes hosted in Nigeria and other FCV contexts with sufficient impact measurement data to support deeper analysis.

4.1.5. Aliim

[Aliim](#) is a non-profit organisation aiming to leverage technology and mentors to provide refugees and marginalised youth access to safe, quality and relevant education. Aliim focuses on the 400,000 school-aged Syrian children who are out of school. It uses mobile learning via smart phones to address this crisis, aiming to improve equity, learning and minimise costs. Through this approach, Aliim has developed the first curriculum framework for mobile learning in conflict-affected contexts.

Key considerations: With experience targeting refugee children in Jordan and Lebanon, Aliim offers a regionally-appropriate EdTech solution aligned with curricula. However, the need for a smartphone in order to access Aliim content significantly reduces the potential for marginalised communities to benefit from it.

4.1.6. Re:Coded

[Re:Coded](#) prepares conflict-affected youth to enter the digital economy as software developers and tech leaders in their communities. Re:Coded has trained more than 450 children and youth how to code since it was founded in May 2017. The company currently operates in Iraq, Turkey and Yemen.

Key considerations: The three Re:Coded hubs are located in Yemen, Iraq and Turkey ([Global Innovation Exchange](#)). Re:Coded may well have valuable contextual learnings to offer on the successful implementation of an EdTech initiative in-country. Further research on the programme's impact, and a better understanding of the users it reaches, is required.

4.1.7. Nafham

[Nafham](#) is a free, online, K-12 crowdsourced educational platform that receives over 600,000 unique visitors every month. It uses over 23,000 videos to cover Egyptian, Saudi, Algerian, Syrian & Kuwaiti curricula.

Key considerations: The scaled nature of Nafham across the MENA region demonstrates significant reach and potential for further expansion. The platform's expansion to Syria was specifically targeted at conflict-affected, out-of-school children with access to the internet. While Nafham holds promise for children with access to the internet, it is unlikely to reach more marginalised learners who lack access to online resources. Regarding K-12 Education, a further resource of note is [Edraak](#), which offers free online education in Arabic for learners and teachers.

4.2. System administration

This subsection explores interventions which focus on education systems within FCV settings.

4.2.1. Middle East Education, Research and Training Support (MEERS)

[MEERS](#) aims to provide on-going data and research to better understand and address the educational and psychosocial needs of refugee children in the MENA region. MEERS provides teachers with training and resources, conducts rapid assessments for decision-making in fluid situations, provides real-time data collection and analysis, and fills in knowledge gaps on region-specific early grade literacy and numeracy, early childhood education and youth development.

Key considerations: MEERS largely focuses on education access, relevance and quality issues stemming from the conflicts in Iraq, Syria, and Yemen. Outputs of the programme include an [Education Data Snapshot of Yemen](#) – a digitised contextualisation of the education space in Yemen. Building out this initiative through leveraging existing data to develop more targeted programmes could include data collection of community facilities and schools, categorised by accessibility, such as the one in [this school census project in Sierra Leone](#) (Nमित & Mai, 2019).

4.2.2. Room to Learn

The [Room to Learn](#) (RtL) project in South Sudan aimed to increase equitable access to education in crisis and conflict environments for 15 million learners by 2015. RtL used a community-based, learner-centered approach to reach marginalised populations, with a focus on both formal and alternative education systems. The project included parent-teacher association capacity building, school development planning, and teacher professional development with a focus on literacy. Grants and support were provided to help develop safe and inclusive learning spaces.

Key considerations: Though not an EdTech solution, RtL is an example of an education development intervention in an FCV setting with a strong focus on equity, inclusion and community participation to support the most marginalised learners. While the project did not use high-tech solutions, it exemplifies the types of investments that can help complement and make EdTech-enabled interventions more effective. Materials were developed to build capacity and enhance pedagogy, including leveled readers, all aligned to the South Sudanese curriculum.

4.3. Teacher Professional Development

This subsection examines aspects of training to support enhanced pedagogy and subject knowledge in FCV countries.

4.3.1. Blended learning approach to develop the teachers' TPACK

Technological Pedagogical Content Knowledge, or TPACK, is a blended learning approach which integrates technology into existing teaching practice in order to

enhance teaching and learning. A [2016 study](#) conducted by Qasem and Viswanathappa aimed to determine the levels of ICT knowledge on e-course design through a blended learning approach among secondary school science teachers in Yemen. The study found that:

1. TPACK provided a valuable tool to assess teacher knowledge in technology integration.
2. Teachers' ICT knowledge was above average in two groups.
3. There was a significant difference between experimental and control groups on the ICT knowledge scale.

As such, the study found that TPACK's blended learning instructional approach enhanced teacher performance.

Key considerations: The study focuses on pedagogy related to the use of technology in education in Yemen. Its findings are particularly important given the noted lack of empirical data within this space. However, the relatively small sample size (60 teachers), limited the scope of the study (it only focused on science, no other subjects), and lack of focus on conflict and out-of-school children constitute significant limitations in the applicability of the study's findings in relation to the scope of this list. Even so, TPACK offers an illustration of the importance of interventions focused on teachers' digital skills and preparedness to use technology, and the study recommends developing online collaborative tools in line with TPACK as further research.

4.3.2. Accelerating Equitable Access to School, Reading, Student Retention and Accountability

The [Accelerating Equitable Access to School, Reading, Student Retention and Accountability \(ACCELERE!\)](#) project is improving access to education and learning outcomes for more than one million boys and girls in the Democratic Republic of Congo (DRC). The project aims to improve reading outcomes by developing instructional materials, enhancing teacher pedagogy, creating safe learning spaces and working with the government to strengthen accountability systems and education policies. *ACCELERE!* translated evidence-based, early-grade reading curriculum and materials into local languages (Kiswahili, Lingala, and Ciluba) and French.

Key considerations: An ongoing project, ACCELERE! is not an intervention centred on EdTech. However, the objectives, set within an FCV context, alongside the currency of this intervention, make it a relevant programme to include on this list.

4.4. Resource libraries

This subsection highlights interventions centred on resources developed for children in affected areas experiencing fragility, conflict and violence.

4.4.1. Kolibri

[Kolibri](#) is an offline app that works in low-resource communities designed to provide offline access to a curated and openly licensed educational content library. It is hardware-agnostic and provides offline access to its educational content library in 23 countries for over 6 million users. Kolibri is adapted to reach the most remote

communities; when exported onto a device, it can be carried by foot to share installers, updates, and content with other devices over local networks

Key considerations: Kolibri is available in dozens of languages, including Arabic, and has been used in non-formal school systems and refugee camps. The customisable digital curriculum means it can be adapted and tailored where necessary with a content curation system that ensures users have full control over the organisation of educational materials. Co-dependent software components include a targeted tool for curriculum specialists at Ministry-level and a tool for school administrators at classroom-level.

4.4.2. Connect to Learn

Connect to Learn (CtL) is a public-private partnership aiming to increase access to quality education. The initiative, which especially targets girls, aims to build life skills and integrate technology tools and digital learning resources in schools. The International Rescue Committee (IRC) launched CtL in ten schools in the Domiz refugee camp in the Kurdish region of Iraq, targeting 160 Syrian refugee teachers. The IRC partnered with Ericsson and AsiaCall to provide ICT hardware and connectivity via a cloud-based server and the internet. Teachers are provided with access to resources to support pedagogy designed for children affected by conflict, which includes social-emotional skills, literacy and numeracy. Teachers have access to training materials prepared by the IRC, and can use the technology to connect to each other and share experiences.

Key Considerations: Iraq and South Sudan currently host CtL projects within the MENA region. CtL also operates in Burkina Faso, another FCV setting. Internet connectivity is required for CtL to function, which limits accessibility for marginalised groups.

4.4.3. Localising OER in Afghanistan: Developing a multilingual, digital library for Afghan Teachers

This [online library](#) is the first open educational resource (OER) initiative in Afghanistan; it was established to enhance teacher subject knowledge and access and use of learning materials. It also aims to foster more diverse teaching methodologies in order to improve learning outcomes in Afghan classrooms (Oates & Hashimi, 2016). The [intervention](#) shows how OER can be customised for multilingual, resource-scarce contexts.

Key considerations: Lessons can be learned from the attempts to overcome resource constraints through the development of OER tailored to the Afghan context. The openly licensed nature of these resources means they can be retained, revised, remixed, reused and redistributed. Using OER ensures learning materials are available, rapidly, at low-cost. They can also be easily adapted to local contexts to target the needs of specific groups, which is particularly useful in FCV contexts where fast action is necessary. Adapting for use, however, will come with translation challenges given the content is currently in Dari and Pashto.

4.4.4. OER Commons Arabic

The [OER Commons Arabic](#) is free to use and openly licensed and has 435 resources in subjects such as Islamic studies, art, poetry and literature, history and language. As it is an OER, resources on this platform can be created, shared and adapted freely.

Key considerations: There are several hubs and groups within the OER Commons Arabic that users can connect with. The open nature of the platform means that it can evolve and improve over time, with users contributing to the platform's overall provision of quality learning materials. However, there is a lack of evidence on the effectiveness of this platform within an FCV setting.

5. Further reading

[5.1 Technical Note on Education During the COVID-19 Pandemic \(2020\) Inter-agency Network for Education in Emergencies \(INEE\)](#)

This is a live document developed in response to changes in the education space following the COVID-19 pandemic. The paper specifically targets existing FCV contexts pre-COVID-19 to support children of school age with activities designed outside of the formal education space. The framework is for practitioners and policymakers. The document also provides a useful [resource library](#) for further relevant materials.

[5.2 FHI 360 \(2019\) Education in Emergencies fact sheet](#)

This fact sheet details programmes hosted in FCV settings using a context-sensitive, strengths-based approach. The fact sheet references applications of technical expertise in different settings. As well as providing a resource library to explore projects, data and evidence generation on Education in Emergencies in more detail.

[5.3 Tauson & Stannard \(2018\) EdTech for Learning in Emergencies and Displaced Settings: A Rigorous Review and Narrative Synthesis](#)

This report provides an overarching view of Edtech in emergency contexts and identifies gaps within the existing literature, offering a nuanced understanding of what is required to implement effective and ethical EdTech programmes. The report interrogates how the utilisation of EdTech for teaching and learning (at home or at school) can best facilitate the learning process of children in crisis-affected settings.

[5.4 USAID \(2020\) Delivering Distance Learning in Emergencies: A Review of Evidence and Best Practice](#)

This review analyses the effectiveness of four distance learning modalities – radio / audio, video / television, mobile phone programming and online learning – that can be implemented during and beyond emergencies.

[5.5 International Rescue Committee Safe Healing and Learning Spaces Toolkit](#)

This toolkit contributes to the overarching goal that children are safe, well and learning in emergencies. The toolkit provides child protection and education practitioners with all of the content needed to initiate safe healing and learning spaces. Practical resources are provided for those at the coal face of education provision in emergency settings.

6. How this list was developed

The resources listed meet the following criteria:

- Peer-reviewed articles or current policy guidance from established international bodies (e.g., World Bank).
- Interventions were identified in research papers produced by organisations such as Save the Children and USAID. These were supplemented by innovations listed on the Global Innovation Exchange and identified through the Inter-agency Network for Education in Emergencies (INEE).
- Actionable advice rather than abstract and theoretical ideas.
- Published after 2010.
- Reference at least one country classified as experiencing 'high' or 'medium' intensity conflict as defined by the [World Bank's List of Fragile and Conflict-affected Situations \(2020\)](#).

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