

Ghana and Nigeria: TV and online STEM learning challenges

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General description

As schools across Ghana closed their doors from 16 March 2020 in the wake of the COVID-19 crisis, Right for Education (R:Ed), an NGO based in Ghana and Ireland, joined forces with Crystal Television and The Learning Partnership, both private organisations, to help children and their families develop their STEM education from home. They partnered with World Challenge Club, a worldwide, home-centred and media-driven Science, Technology, Engineering and Mathematic (STEM) competition to provide African students in Ghana, Nigeria and beyond, with STEM challenges through television (and online through social networks). The first television episode aired on 13 May 2020, taking only two months from ideation to delivery, and enabling young students to receive quality, practical, achievement-orientated STEM education at home.

World Challenge Club deconstructs STEM curricula into smaller, activity-based challenges that can be taken on by anyone, anywhere and at any time. The aim is to give young learners (from late primary to late secondary) the tools to understand STEM and undertake engaging, stimulating challenges from their homes. All they need are resources that can be found in most homes (e.g. bottles,

The coronavirus crisis led schools and universities to rapidly transition to a distance-learning mode, via the Internet, television or radio. This series documents some country initiatives that ensured education continuity for all using technology and provided support to teachers, students, and their families.



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cardboard, paper) and access to a TV or smart device. The Internet penetration stands at 38% in Ghana in 2019 and 61% in Nigeria in 2019. Each challenge is supported by a 25-minute TV programme, called the World Challenge Club, hosted by a real-life presenter called the “Virtual Teacher”, who sets up the daily challenge and delivers the learning content to participants.

World Challenge Club can be found in Anglophone West Africa on Crystal TV and Galaxy TV networks every Wednesday, Thursday and Friday afternoons, or can be streamed at any time on the World Challenge Club streaming service www.dendrite.me, [Facebook](#) and [YouTube](#). Participants can ask questions and submit results on a WhatsApp channel or in the forum area. Using a multi-media approach is one way the programme attempts to ensure that no student is left behind.

A commitment to equitable outcomes also informs Right for Education’s primary objective, which is to bridge the media-disenfranchisement felt by African adults whose academic and knowledge-seeking needs are not being met. Thus, aside from the World Challenge Club, R:Ed’s audience is predominantly African adults ranging from 18 to 25 years, recently employed or self-employed and living in urban localities. They reach their audience through Facebook primarily, as well as through their website. The aim is not to teach adults to read, but rather to give them content that meets their social and academic needs and, where necessary, helps them upskill and improve literacy skills gradually.

R:Ed’s content changes with the times. They started their online work in response to the Ebola Crisis of 2014. Their online platform allows them to share free educational material quickly and efficiently to millions of people across Africa and beyond. Right for Education (R:Ed) was therefore uniquely positioned to provide information as COVID-19 spread. With a very short turn around, a team of authors, supervised by a doctor on the COVID-19 ward at a London hospital, released a series of articles on the medical realities of COVID-19, prevention methods and [articles countering common myths](#) around the pandemic.

Main problems addressed

Allowing children with no access to Internet to continue to learn about STEM during lockdown. World Challenge Club partners were concerned by the dwindling educational opportunities for children during lockdown, particularly for half the world’s population who are dealing with COVID-19 without free access to the Internet, meaning that Internet-based learning is often inaccessible to them. This is why a solution based on TV and social networks was proposed. World Challenge Club aims to develop life skills alongside educational attainment ensuring progress for the individual learner that is contextual and relevant. World Challenge Club leverages knowledge of a wide range of individual learning preferences in the design of each learning challenge with the aim that both girls and boys from any background and economic environment have equal opportunity to learn and succeed.

Combatting misinformation about COVID-19. R:Ed also continued to support their primary audience of young adults during the COVID-19 pandemic. They concentrated efforts on countering misinformation and providing young adults with fact-checked content to make informed decisions. Articles included tips and tricks for social distancing (e.g. how to social distance in a heavily populated living environment), highlighted successful efforts by African governments to stop the spread, outlined the science behind viruses and vaccines, and dispelled dangerous ‘miracle cures’. R:Ed also launched a mailing list to give a quick overview of all the content posted that week, which went out to 17 thousand subscribers, including a ‘Question and Answer’ structure where young adults were able to have their questions and confusions clarified. Right for Education simultaneously created an [infographic accredited by AUDA-NEPAD](#) and gave an online platform to Crystal TV’s Telenurse (who is beloved in Ghana for her “no-nonsense” medical TV show).

Mobilising and developing resources

Mobilising existing challenge ideas. World Challenge Club was created by combining existing resources. The Learning Partnership has run the largest and most successful STEM challenges in the UK in recent years, and has around 250 STEM competition ideas, with thousands of supporting e-learning resources in science, technology, engineering and mathematics to extend the learning inspired by World Challenge Club programmes.

Developing new TV programmes. The World Challenge Club developed an entire new set of [12 TV programmes](#) delivering mini STEM learning challenges through TV and Web. The [platform](#) was configured to support individual learners registering from home, connecting to their school to enable a school leaderboard feature to sit alongside the global leader board feature.

Developing new partnerships. Several partners got together. Crystal Television is a major Television production and broadcast company in West Africa, headquartered in Ghana, who provided the tools and technical know-how to bring the competitions to television. Right for Education is the largest e-learning platform in Africa with 6.8 million learners across Africa. Thanks to swift sponsorship from Amazon Web Services, Rolls Royce and The Ove Arup Foundation, they were able to bring The Virtual Teacher to life in 12 episodes in series 1 during May and early June 2020.

Sharing resources and expertise. By sharing resources and expertise, each partner brought different elements to the table. The Learning Partnership contributed its background in STEM education, script writing. The Dendrite Connect platform, which facilitates distance learning for teachers and students, was reconfigured for the World Challenge Club target audience. Crystal Television used its production and broadcasting capabilities and considerable network in West Africa to bring the World Challenge Club on air. Right for Education repurposed its e-learning platform on Facebook to share episodes with millions on social media as they aired on television. R:Ed are one of the largest independent pages in Africa (not owned or run by large institutions such as the church or football clubs) and in many countries are followed by up to 25% of the population on Facebook.

Developing new information resources. R:Ed has developed new resources, fostering a strong relationship with Oxford University, whose staff and students have greatly aided their content creation through a variety of internship and student societies. This allows for a quick turn around when required, such as the establishment of a COVID-19 workforce that scoured the internet for new myths appearing on African social media sites and debunked them.

Fostering effective use and learning

Integration. Integrating television and social media was a way to provide this education with certain effectiveness. Series 1 of World Challenge Club comprised of 12 episodes, and was well received.

Variety. Challenges varied day to day: one challenge explained [aerodynamics](#) by making and racing paper gliders, while another taught young learners about [suspension](#) by making bridges out of cardboard. Science, Technology, Engineering and Mathematics lessons are comprised of theoretical and practical elements to support high level comprehension.

Incentives. Participants are encouraged to record their scores and submit them to the online Dendrite Connect platform to compare their scores to other children and classmates around the world. High scorers receive prizes and work placements (once they come of age). All students that complete each challenge receive a certificate of completion from the World Challenge Club.

Everyday life learning. World Challenge Club aims to make effective use of at-home materials. Everyday objects (bottles, rubber bands, cardboard) form the basis of race cars, bridges, and paper gliders to teach students key STEM concepts. Sustainability and environmental awareness are at the core of all learning,

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with learners encouraged to recycle and re-use resources they are likely to have in the home from plastic bottles to product packaging.

Collaboration. Online, at-home learning can also expand into the community with teachers and students working together to try to be the highest scoring class in their school, community, country, or the world. Teachers that register have a feature to enable them to invite all their learners into the challenge and create mini-competition areas around the school group. Learners are encouraged to invite their teacher when registering, so momentum is built from both user groups.

Teacher involvement. All content is accessible to all users, and teachers can easily add their own content to the school community they are awarded upon registration, share this content with learners, and communicate with their students in chat rooms and forums linked to the school community. Extension learning resources are provided in e-learning channels linked to the World Challenge Club to enable students to engage in more in-depth research.

Connection to career and social benefits of STEM. The free television shows help students learn about the theoretical and practical benefits of STEM education and encourage them to pursue careers in STEM. Creativity, problem-solving and entrepreneurship are emphasised throughout.

Implementation challenges:

Creating tailor-made content at short notice and at a distance. New, tailor-made content had to be created at short notice and within the constraints of social distancing measures. This brought particular difficulties where studios and studio teams would normally be used for TV productions. Remote working practices and procedures were created and implemented so that both animated and live action content could be delivered safely and on time.

Securing funding. A more fundamental implementation challenge has been in the acquisition of funding. World Challenge Club was created at short notice to meet an immediate and pressing need. Publicising, producing, distributing and managing the challenge results is being done efficiently but not without significant costs. The production of the three television shows every week again is a significant cost. These costs have been borne by partners in the World Challenge Club and supported by the founding sponsors: Amazon Web Services, Rolls-Royce and the Ove Arup foundation. These seed funds have been used to produce Season 1 of the programme and to deliver evidence of impact and engagement.

Scaling the initiative. The ambition of the World Challenge partners is to bring high quality education to the world's population that currently cannot access online education. This requires the support of organisations with a similar mindset to global education delivery. To that end, World Challenge Club is always on the lookout for new partnerships that can help them scale this initiative within their current markets and across the world, especially in ways that can help cater to students with poor or no access to the internet.

Monitoring success

World Challenge Club viewership numbers have been encouraging. Series 1 had a TV audience of over 100 million across Nigeria, Ghana, and West Africa and these numbers are still expanding. The Facebook channel saw over 9.5 million views, with high levels of engagement throughout (likes, clicks, shares, comments). The Dendrite World Challenge Club web page received 25 000 visitors. 2,200 teams have registered for the challenge area itself in 4 weeks and this number is growing by between 30 and 50 per day.

Plans to develop a linked mobile application for the World Challenge Club competition management system will increase access to the leaderboard and challenge sharing environment currently supported by the World Challenge Club website and WhatsApp group. The WhatsApp group has seen engagement with over 3 000 people.

These World Challenge Club numbers are monitored daily and weekly and there has been a strong upward trend for all Key Performance Indicators (KPIs).

In addition, in May 2020, R:Ed reached 19 million people, had over a million clicks from Facebook to their website, and had nearly 6 million page engagements. These data are assessed month by month to help R:Ed reach more people with their educational content.

Adaptability to new contexts

This solution is workable in all contexts. The STEM challenges themselves have been initially developed to be relevant, engaging and useful within the context of an advanced educational system (UK schools) but prove just as valuable in countries with less well-supported public education systems.

The solution is designed to be scalable globally and, with sufficient resources, the World Challenge Club can provide value and opportunity in all continents. Language translation tools are ready to be deployed in the World Challenge Club Web environment so that all content, learning materials, videos and chat rooms can be viewed in the language of the user.

All TV programme content has been designed so that it can be easily and simply translated into local languages, with presenter elements delivered through green screen technologies allowing local presenters to deliver each episode to local audiences.

Requests from Mexico's education channel for the show to be translated into Spanish for immediate deployment on the national education channel as a government backed national STEAM challenge that will go live the week of the 21 September 2020 demonstrate the global appetite for the World Challenge Club. Having created Spanish versions of series 1 content, discussions are now underway in Columbia, the Caribbean, and Spanish speaking TV networks in the USA.

In Caribbean countries, advanced discussions with the telecom operator, Digicel, are taking place about the pan-Caribbean distribution of the programme and a zero rating of the World Challenge Club website for Digicel customers. These discussions demonstrate the potential of a wider engagement between TV, mobile network providers and educational resources developed by the World Challenge Club. The ambition is to find solutions for distance learners across the world, even those with poor or no access to the internet.

The initiative thus looks to a future in which distance learning may play a more critical role in education, and in which STEM subjects and the practical application of academic knowledge are widely valued.

Key points to keep in mind for a successful adaptation

1. **Localisation.** Understand the limitations of your audience. For World Challenge Club, this involved surveying locals and education experts on what could be expected to be available in the households of their target audience.
2. **Distribution.** Leverage the expertise of existing television partnerships with a wide coverage as World Challenge Club did with Crystal TV. This has helped for related discussions with other broadcast partners.
3. **Accessibility.** Leverage the reach and expertise of an existing education partner as World Challenge Club did with Right for Education (R:Ed). R:Ed is a frontrunner in accessing hard-to-reach audiences in Africa while World Challenge Club could mobilise a ready made idea and had learning experiences to adapt and distribute.

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