



Adapting online approaches to context: an example from Sierra Leone's higher education

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Contents

Executive summary	3
Introduction	3
Understanding the problem	4
Understanding the context	5
Adapting to an unforeseen online-only environment	6
Innovation from the user community	7
Critical thinking snippets delivered through WhatsApp groups	7
Zoom health classes	8
The way forward	9
Conclusions	9

Adapting online approaches to context: an example from Sierra Leone’s higher education

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Cover image by V Schaeffler, showing members of the AQHEd-SL Critical Thinking Taskforce assembling a Moodlebox.

Acknowledgements:

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INASP’s work with the CTTF is part of the Assuring Quality Higher Education in Sierra Leone (AQHEd-SL) partnership. AQHEd-SL is funded by the UK’s Foreign, Commonwealth and Development Office (FCDO) as part of its SPHEIR (Strategic Partnerships for Higher Education Innovation and Reform) programme.

Executive summary

Over the past decade, INASP has developed significant expertise in using technology-enhanced approaches to support the development of skills for producing, sharing and using research and knowledge in the Global South. We firmly believe that people and pedagogy should always come before technology and, to do this, it is important to understand the users' situation and needs.

Assuring Quality Higher Education in Sierra Leone ([AQHEd-SL](#)) is a four-year project bringing together higher education institutions (HEIs) across Sierra Leone to improve quality management in higher education and support the introduction and implementation of outcome-based education. INASP's role, alongside a Critical Thinking Taskforce from HEIs across the country, is to support the training of lecturers in critical thinking skills and the implementation of technology-enhanced teaching and learning approaches.

Working with our partners across Sierra Leone has revealed some major challenges in the country, particularly related to insufficient and expensive internet access and diverse levels of digital literacy skills amongst both students and teaching staff. As a result, the approach to delivering critical thinking training has been adapted significantly, firstly in response to initial identification of challenges and again as a result of COVID-19 lockdowns.

Through this work, we have developed the following key learning:

- **Recognise that every context is different** – Although a critical thinking course piloted with students in Tanzania formed a good starting point, what worked for Tanzania did not necessarily work for Sierra Leone.
- **Ensure ongoing engagement** – The Critical Thinking Taskforce was key to ensuring initial contextual alignment and ongoing development of appropriate critical thinking skills development in Sierra Leone.
- **Be ready to adapt** – Even though a solution was devised that was appropriate to the context and embraced by stakeholders, it needed to be changed when COVID-19 came along.
- **Make space for innovation** – Approaches developed by teaching staff in implementing the critical thinking course in the face of new challenges have resulted in new ways of delivering the course material, creating solutions not only for Sierra Leone but that can be built on and adapted in future development of critical thinking skills and in other online teaching and learning.

Introduction

INASP has been involved in technology-enhanced learning for the past decade in supporting the development of skills for producing, sharing and using research and knowledge in the Global South. Approaches for online teaching and learning range from large-scale, online-only courses to tailored online components of blended learning. Other technology-enhanced learning approaches include online community building and a variety of facilitated discussions with a range of stakeholders.

Over this time, we have built up learning about the different considerations that need to be made and how different approaches work, as we shared last year.¹ Through our involvement in capacity development initiatives in the Global South, we have learned about how best to serve learners in less accessible situations and, as a result of our experiences in this area, we are often asked for recommendations when planning technology-enhanced learning initiatives. We think one of the most important recommendations is that people and pedagogy should always come before technology; the first step should always be understanding the users' situation and needs.

Our online courses need to work well with low bandwidth and be flexible in terms of time. The right choice of media, colours and fonts is important. For example, when we build in videos or live sessions, these are not a compulsory element for course completion; they serve as an enrichment of the learning experience but learners can complete the course and have a good learning experience without them. We design mostly for asynchronous communication and flexible due dates, we make online lessons

¹ Wild, J., Nobes, A., Schaeffler, V. & Murugesan, R. (2020) Going digital – What we have learnt about online learning approaches, INASP blog. blog.inasp.info/digital-learnt-online-learning-approaches

downloadable, and the learning resources can be accessed through mobile phones. And we design for accessibility and readability, recognising that materials should not exclude, for example, people with visual or hearing impairments or people who are not native English speakers.

But the technology side is just one factor that needs to be taken into account when planning technology-enhanced learning initiatives. Over the years of delivering online learning, we have learned that we need to build in a scoping activity at the beginning of any digital project. We need a quick and efficient way of getting to know the audience. The questions we explore include aspects such as learning habits, existing communication channels, and digital literacy skills, as well as technology aspects such as bandwidth limits. The answers to such questions enable us to make informed decisions about the mode of delivery, the type of technology we use and how we use it. And we need to keep looking at these issues as the learning experience progresses and context may change.

The importance of this approach is illustrated in the following case study about a capacity development initiative in Sierra Leone to introduce innovative teaching and learning approaches for strengthening higher education students' critical thinking skills. We learned that the initial scoping is essential but not enough. During the course of a project, it is important to monitor whether the project is achieving what is intended and adapt plans if circumstances change. This was experienced in this case particularly due to the COVID-19 pandemic.

Understanding the problem

With so much information and misinformation available today, it is very important for people to be able to evaluate the trustworthiness of what they hear and read and to ask questions to dig more deeply.

Critical thinking teaching has been recognised as an important part of development of higher education in many African countries.² In the 'Assuring Quality Higher Education in Sierra Leone' (AQHEd-SL) partnership, led by the University of Sierra Leone, stakeholders have identified critical thinking as a very important skill that employers look for in university graduates.

INASP's main role in AQHEd-SL is to help lecturers in Sierra Leone identify new teaching and learning approaches around critical thinking, enabling faculty to deliver a high-quality, outcome-based, student-centred learning experience in support of critical thinking and evidence handling.

The initial idea was to use a critical thinking online course that INASP had developed in collaboration with lecturers in Tanzania and piloted with some students in that country. We intended to draw on our experience of pedagogic approaches blending online and face-to-face training. By using a variety of interactive adult learning methods, we wanted to keep students engaged while they learn. The design of a blended mode of learning was guided by the goal of ensuring that students' online learning was enhanced through engaging face-to-face activities.

There were plans to pilot a Learning Management System to build high-quality IT and internet services for higher education institutions (HEIs) in Sierra Leone. This portal was intended to be integrated within

² See, for example:

McCowan, T., Walker, M., Fongwa, S., Oanda, I., Sifuna, D., Adedeji, S., Oyebade, S., Ananga, E. & Adzah, V., (2016). Universities, Employability and inclusive development: repositioning higher education in Ghana, Kenya, Nigeria and South Africa, British Council.

www.britishcouncil.org.gh/sites/default/files/universities_employability_and_inclusive_development.pdf

Schendel, R., (2015). Critical thinking at Rwanda's public universities: Emerging evidence of a crucial development priority, *International Journal of Educational Development*.

doi.org/10.1016/j.ijedudev.2015.04.003

Mutonyi, H. (2018). University courses should support critical thinking skills to help address national needs, INASP blog. blog.inasp.info/university-courses-support-critical-thinking-skills-address-national

Muchungi, K. (2018). For effective change, all stakeholders need to recognize the importance of critical thinking, INASP blog. blog.inasp.info/for-effective-change-all-stakeholders-need-to-recognize-the-importance-of-critical-thinking

Schaeffler, V. (2020). Context matters: Human factors are important when designing technology enhanced learning (TEL) - lessons from working with partners in Uganda and Ethiopia, INASP report. www.inasp.info/sites/default/files/2020-06/2020-06-TEL%20context%20matters_0.pdf

the existing infrastructure at the HEIs. The initial project plan included installing and configuring a version of the open-source e-learning platform Moodle for the seven HEIs to use.

To enable this work, with the other project partners, we agreed to:

- **Establish a Critical Thinking Taskforce (CTTF)** with representatives of the partner HEIs to support changes in the institutions. INASP would work with this local taskforce of lecturers to combine expertise in higher education and local context knowledge with INASP's experience with technology-enhanced learning approaches.
- **Hold workshops with lecturers from all Sierra Leone's HEIs.** These would sensitise the lecturers about the importance of changes in their teaching and learning approaches to strengthen students' critical thinking skills. They would also scope the situation in the institutions in order to tailor the next steps towards the implementation of innovative teaching and learning approaches.

Understanding the context

The workshops and discussions with the CTTF revealed some obstacles to the approach originally proposed:

- The infrastructure at the HEIs is still basic and in different stages of development; the project partners had doubts whether installing and piloting a Learning Management System across the involved HEIs within the project timeframe would be realistic.
- The internet access of lecturers and students is limited and they face frequent internet and electricity disruptions.
- There is a lack of equipment; some students and even lecturers do not possess mobile phones that can be used for internet access.
- There is a diverse level of digital literacy skills among lecturers and students. For example, not all students are familiar with using internet browsers.
- Lecturers want to build their own confidence first to ensure they have sufficient skills – in terms of the content around critical thinking and evidence handling, innovative pedagogic approaches, and the use of technology – before adopting innovative teaching and learning methods.
- The situation at the HEIs across the partnership is quite diverse. That makes it difficult to find an approach that fits for all institutions.
- Capacity building towards teaching of critical thinking skills is only a minor part of an ambitious project to enhance the overall quality of higher education service delivery across all HEIs in Sierra Leone, leading to improved management and implementation of outcome-based education, and the establishment of a National Qualifications Framework. Efficient use of resources and time on the critical thinking component is therefore essential.

ASSURING QUALITY HIGHER EDUCATION IN SIERRA LEONE

Assuring Quality Higher Education in Sierra Leone (AQHEd-SL) is bringing together higher education institutions across Sierra Leone to improve quality management in higher education and support the introduction and implementation of outcome-based education. It aims to bring about a student-centred focus within higher education across the country, leading to a more responsive and capable national workforce.

The partnership is led by the University of Sierra Leone, working with Njala University, the University of Makeni, Tertiary Education Commission, Sierra Leone Institution of Engineers, the 50/50 Group, Milton Margai College of Education and Technology, Freetown Teachers' College, Ernest Bai Koroma University of Science and Technology, Eastern Polytechnic (all in Sierra Leone), and King's College London (UK), INASP (UK), and the University of Illinois Urbana-Champaign (US).

AQHEd-SL is funded by the UK's Foreign, Commonwealth & Development Office (FCDO) as part of its SPHEIR (Strategic Partnerships for Higher Education Innovation and Reform) programme to support higher education transformation in focus countries in Sub-Saharan Africa, Asia and the Middle East.

Overcoming limited internet access To overcome the barrier of limited internet access, we explored the approach of institutions using standalone mobile devices preloaded with the course so that they could serve a classroom with a local internet-independent network. For Moodle-based online courses, a so-called MoodleBox can be used. With a MoodleBox, the Moodle learning management system (LMS) is installed on a Raspberry Pi that provides a wireless network for nearby smartphones, tablets and computers. This approach means that the students can access the online course in the classroom through this local network instead of via the internet.

The CTF members learned to build and use such MoodleBoxes. We also purchased portable power banks because we realised that the frequent electricity disruptions could cause damage to the SD cards that store the Moodle LMS.

At the 2019 critical thinking workshop, lecturers were introduced to innovative methods of teaching and learning to strengthen critical thinking skills, including the use of the online course on MoodleBox. At the end of the workshop, the lecturers worked in groups with the help of guiding questions to develop tailored action plans for their institution. Some institutions wanted to integrate the online course, for example, in foundation courses for first year students. Other institutions intended to train lecturers across disciplines in teaching and learning methods for critical thinking.

To support the institutional plans, the CTF planned several activities for 2020:

- Piloting the use of the critical thinking online course with MoodleBoxes
- Including sessions around critical thinking in the project's pedagogy training for lecturers
- Provision and exchange of material that can be used to integrate critical thinking into subject lectures.

These measures helped address the context that HEIs in Sierra Leone faced at the start of the project, and progress was starting to be made. Then COVID-19 struck in 2020, universities across Sierra Leone closed and the AQHed-SL partnership was faced with the challenge of continuing to work in another way.³

Adapting to an unforeseen online-only environment

The pandemic and university closures created a totally different situation for the critical thinking training. The MoodleBox approach would no longer work as this was intended for blended learning, within the classroom where students could learn with an online course together with face-to-face lessons. And the MoodleBox only acts as a server to students in the region of the device, not if they are trying to work from home. With the universities closed, the lecturers were confronted with the need to use an online-only teaching approach within a context where internet access remained a challenge.

Key again was to understand the context for users. We spent some time in the Critical Thinking Taskforce drawing from the members' local context knowledge and finding out what was possible. The CTF officers shared their experience that WhatsApp usually works and some lecturers had already set up WhatsApp groups with their students. Some also pointed to the university portals that some universities had set up for students and lecturers to share material with each other. Others noted that Zoom-based classes could work with some of their students.

Drawing on this contextual insight, we thought about how we could use the content of INASP's online critical thinking course most effectively to complement lecturers' approaches and support university students in Sierra Leone. We came up with three ideas: firstly, to extract snippets from the online course that could be sent out by the lecturers to the students via WhatsApp; secondly, to put the materials on university portals where already available; and thirdly, to use elements of the course within Zoom-based classes.

To support this approach, we provided materials from the online critical thinking course as Word documents so that lecturers could adjust them if they wanted to for their classes before putting on

³ Weekes, S., (2020). How a nation-wide higher-education reform partnership in Sierra Leone is adapting to COVID-19 restrictions, AQHed-SL blog. aqhedsl.medium.com/how-a-nation-wide-higher-education-reform-partnership-in-sierra-leone-is-adapting-to-covid-19-ea69b4c9880

university portals and sharing with students. However, we also provided elements in pdf and jpeg formats in recognition that some lecturers needed something that they could easily pass straight on to the students through WhatsApp.

Interaction is key in supporting critical thinking development so we were keen to retain this even in a situation where students were not in a classroom and could not discuss materials in the usual discussion forum of an online course. The materials therefore continued to ask students questions and encouraged them to discuss the learning contents in their WhatsApp groups with the aim to practise their critical thinking skills.

Innovation from the user community

Key to successful adjustment to the changed situation was ongoing support and ownership of the teaching staff in Sierra Leone. We share here some of the experiences of piloted two technology-enhanced teaching and learning approaches that reused the online course material, critical thinking snippets delivered through WhatsApp groups and Zoom health classes.

Critical thinking snippets delivered through WhatsApp groups

Mr Francis Peacock-Cole, lecturer at Fourah Bay College in Freetown and member of the AQHEd-SL Critical Thinking Taskforce, used the snippets with one class as described in this blog post.⁴



We observed the following benefits of combining students' reading of the snippets with WhatsApp group discussions:

The discussions help the **students relate the learning subject to their own experience**. For example, one student related what they learned about the concepts of cause-effect, correlation and coincidence with this experience:

“Yes, there was a situation where the drivers in one company accused one of their colleague that he always suffer breakdown even when given the newest vehicle in the fleet. They attributed it to the driver having being cursed which was very strange. Back then I tried to convince them that it just a coincidence looking at the rugged terrain the vehicles travel but they could not accept any other opinion.”

⁴ Schaeffler, V. (2020). Helping Sierra Leone's students develop their critical thinking skills during a pandemic, INASP blog. blog.inasp.info/sierra-leones-students-develop-critical-thinking-skills

The **students immediately apply their learning**. For example, they practice their questioning skills, reply to others' questions and express arguments in discussions:

First student's questions :“In the case of money, why are there poor nations, when money is something printable. Why is that enough cash is not printed and distributed to poorer nations? By so doing things like Robbery/ stealing, Criminal act, Envy because of material things will be minimized drastically or even abolish. If every one is having plenty of money at hand then what? What will be the value of money? I keep thinking....” Second student's answer: “Printing more money increase it's circulation and does not increase output and it leads to inflation [...] Countries have tried to revive their economies using that method and it always ends up badly”

The WhatsApp group **helps the lecturer with assessing the students' learning**. For example, the lecturer can see that students are able to comprehend and reflect on texts that they have read in the snippets when they express their own perspective on a matter. One student expressed their opinion after reading what Kofi Annan, the former Secretary-General of the United Nations, had said in an interview.

“Yes, he's [Kofi Annan] perfectly right. Young people today, because of the internet are exposed to so much information that they need to have the maturity and judgement to be able to make unbiased decision as pointed out by Dr. Kofi Anan himself in the same interview. [...] It is really really important. We always say young people are the succeeding leaders. Therefore if they are not trained in making logical decisions based on critical thinking they may err in making that may have dangerous consequence for society. It will also help leaders to not get manipulated by advisers or any other person for their selfish aim.”

Besides the lecturer motivating them, **students encourage each other** to keep going:

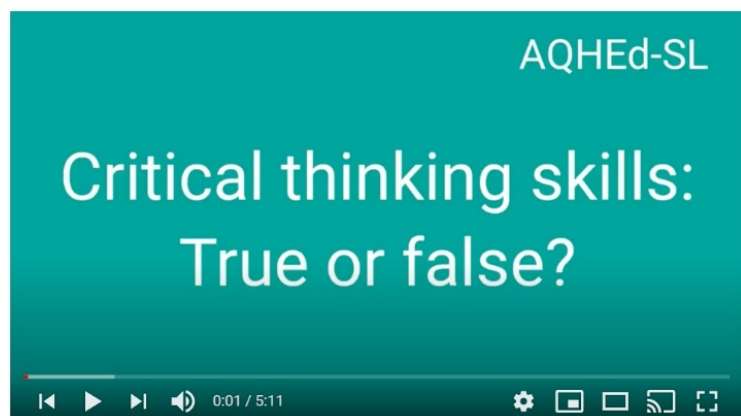
“If a rose smells better than tomatoes, It doesn't mean the rose can make a better stew. Don't try to compare yourself to others. You also have your own strength, look for it and build on it. All animals that exist, were in Noah's ark. A snail is one of those animals. If God could wait long enough for snails to enter Noah's ark; His door of grace won't close till you reach your expected position in life. Never look down on yourself, keep looking up. Remember that Broken crayons still color_. Keep on pushing, you never can tell how close you are to your goal.”

Zoom health classes

Dr Michael Lahai, another CTF member and lecturer at the College of Medicine and Allied Health Sciences, discussed with his students the best ways of keeping in contact during the upcoming shutdown. Some students expected to have good internet access and were keen to learn through Zoom classes.

Together with Dr Lahai, we adjusted the course content to tailor it for their pharmacy students, especially to relate it to the current COVID-19 situation. As described in a recent blog post,⁵

feedback was very positive from students. Dr Lahai reported that the lecture session was very interactive and went on for one and a half hours although he had planned it only for one hour, with many students requesting copies of the presentation afterwards. Again, this was what we had intended, a more interactive way for lecturers and students to experience that class.



⁵ Schaeffler, V. (2020). Helping Sierra Leone's students develop their critical thinking skills during a pandemic, INASP blog. blog.inasp.info/sierra-leones-students-develop-critical-thinking-skills

We observed that the Zoom classes helped the students to develop diverse skills:

- **Digital skills:** The lecturer helped them to use the Zoom features and the students supported each other while learning how to communicate via an online tool.
- **Taking over responsibility for their learning:** The lecturer explained the learning outcomes and encouraged students' own research about given topics.
- **Learning and immediate application of critical thinking skills:** For example, the lecturer encouraged the students to practise their questioning skills, giving immediate feedback on how they expressed their questions and what could be improved.

The way forward

From the experiences with supporting critical thinking teaching and learning in Sierra Leone, we could see pros and cons for a technology-enhanced mode of delivery:

Pros

- The lecturer and students were able to work from home, which was essential during COVID-19 lockdown.
- Communication between lecturer and students, including formative learning assessment and feedback, continued, even during these adverse circumstances.
- Peer learning was encouraged.
- The lecturers could choose between synchronous (Zoom class) or asynchronous (snippets with WhatsApp group) modes of delivery.

Cons

- Not all students were able to join; equitable learning experience was prevented.
- In particular, the Zoom classes were time-consuming. In addition to the adaptation of learning content and activities, the lecturer had to factor in extra time for the students to be able to join the online space and loss of connection led sometimes to disruptions.

We have also identified some areas for improvement. In particular, there would be benefit of having enhanced induction in how to use technology. In addition, promoting more equitable access to equipment and internet would help in the longer term to ensure that such courses are equitable and sustainable.

In the meantime, the universities are open again in Sierra Leone and the CTTF is in the process of rolling out further institutional training. We have begun editing recordings of the Zoom classes into videoclips that the CTTF hopes to incorporate into training other teaching staff. Further lecturers will be introduced to the innovative teaching and learning approaches that had been piloted during the lockdown but they will also be introduced to the use of the critical thinking online course through Moodlebox and internet. We hope that in this way the lecturers can learn from Dr Lahai's and Mr Peacock-Cole's experiences in how to facilitate engaging classes that strengthen students' critical thinking skills. The trainings will also support them to identify adequate teaching and learning approaches tailored to their environment and students.

Conclusions

COVID-19 has no doubt caused disruption to learning worldwide and it has particularly impacted countries like Sierra Leone where the infrastructure for enabling online access is more fragile. However, this situation has also opened up a new space and lecturers have shown a real readiness to try new things. What was very important in delivering the critical thinking course in new ways in the AQHEd-SL project was taking the time to listen to the lecturers in Sierra Leone, to find out what their situations were, what they could still do in the absence of face-to-face engagement with students, and what tools could be used. This step was so important for INASP and all members of the Critical Thinking Taskforce in finding the right solutions.

Understanding context is an important part of adaption throughout INASP's work, and has especially been so over the past year with the pandemic. All the countries and groups of people we work with have

different situations and the adaptations have emphasised the importance of putting people and pedagogy before technology. Therefore, we developed a scoping and design decision tool to help with asking the right questions and reaching the best decisions based on the answers. We have been using this tool when supporting the lecturers to adapt their teaching and learning approach to their context in Sierra Leone, as discussed here, as well as when embedding online learning with partners in Uganda and Ethiopia in the GPEKE project⁶ and when adapting to COVID-19 changes with partners in Tanzania and Uganda in the TESCEA partnership.⁷

Reuse of material can help to react to changes quickly. Lecturers in Sierra Leone were able to adapt activity ideas and extract contents from INASP's critical thinking course to continue with meaningful teaching when suddenly facing a totally different learning environment caused by the pandemic.

The project in Sierra Leone shows that technology can support students' learning, even in adverse circumstances. However, we could also observe a digital divide that needs more attention in future to make learning a more equitable experience for all students.

Lessons learnt

- **Recognise that every context is different** – Although a critical thinking course piloted with students in Tanzania formed a good starting point, what worked for Tanzania did not necessarily work for Sierra Leone.
- **Ensure ongoing engagement** – The Critical Thinking Taskforce was key to ensuring initial contextual alignment and ongoing development of appropriate critical thinking skills development in Sierra Leone.
- **Be ready to adapt** – Even though a solution was devised that was appropriate to the context and embraced by stakeholders, it needed to be changed when COVID-19 came along.
- **Make space for innovation** – Approaches developed by teaching staff in implementing the critical thinking course in the face of new challenges have resulted in new ways of delivering the course material, creating solutions not only for Sierra Leone but that can be built on and adapted in future development of critical thinking skills and in other online teaching and learning.

⁶ Global Platforms for Equitable Knowledge Ecosystems (GPEKE). www.inasp.info/GPEKE

⁷ Transforming Employability for Social Change in East Africa (TESCEA). www.inasp.info/TESCEA