

**TECHNOLOGY INFRASTRUCTURE AS A KEY
ENABLER FOR SUSTAINING TEACHING AND
LEARNING DURING THE COVID-19 PANDEMIC.**

**ENG. MAINFORD MUTANDAVARI
FADZAYI SIBOTSHIWE**

Introduction

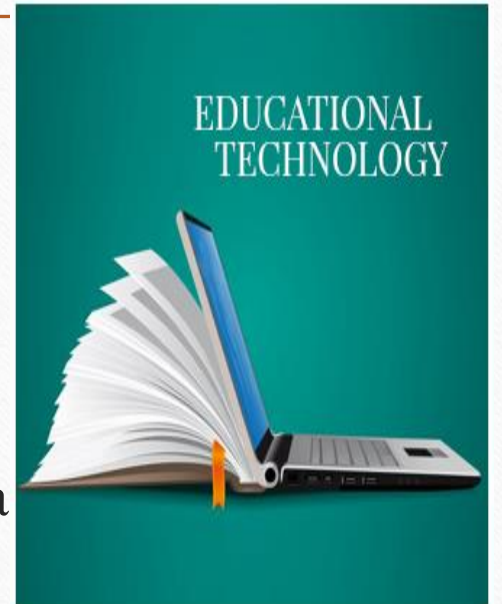
- The corona virus disease (COVID-19) pandemic, as well as the associated lockdown and physical separation measures, not only created unprecedented disruption in the delivery of teaching and learning, but also catalysed innovation in online education.
- Many nations' educational models have developed, with digital infrastructure being viewed as the key enabler for sustaining teaching and learning during and after the COVID 19 epidemic.
- Technology can be a powerful tool for transforming learning.
 - It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners.

Overview of Technology Infrastructure

- It is a component of information management and includes hardware and software components to support the applications and information management requirements of the organisation.
- We must find ways to design, fund, acquire, and maintain the infrastructure that will make connectivity a reality for every teacher and student in every classroom.
- We must leverage technology to provide engaging and powerful learning experiences and content, as well as resources and assessments that measure student achievement in more complete, authentic, and meaningful ways.
- Technological infrastructure is just one element of educational transformation.
- Its use should be guided by clear goals and effective planning, which require that stakeholders in the system act together and plan beyond technology alone.
- Education leaders should set a vision for creating learning experiences that provide the right tools and supports for all learners to thrive.

“We are all now connected with Internet, like neurons in a giant brain.”– Stephen Hawking

- World Wide Web is giving people new expectations
- Paradigm shift in the role of the teacher
- The new age teacher has to be digitally fluent
- An expert in integrating and effectively using the tools of digital age such as internet, mobiles, Facebook, twitter, blogs to create a comprehensive learner centric environment.



Key roles of ET

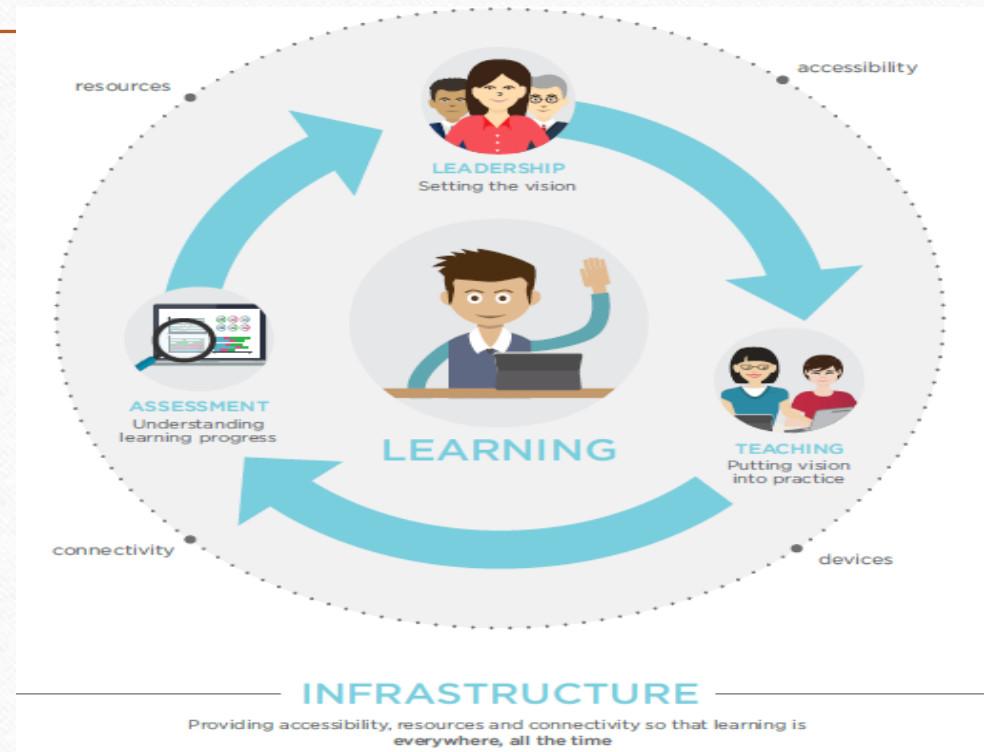
- Research (tools, strategies, latest trends etc.),
- Curriculum development (Latest, international standards, strategies),
- Design and develop content,
- Seamless execution of content (face-to-face, blended, online),
- Develop assessments and evaluations and not the least
- Digitise and standardise the programmes with latest and best in the field of education.

Educational Technology

- **Equity and Accessibility :**

- **Equity** in education means increasing all students' access to educational opportunities with a focus on closing achievement gaps and removing barriers that students face based on their race, ethnicity, or national origin; sex; sexual orientation or gender identity or expression; disability; ability; religion; socioeconomic status; or geographical location.
- **Accessibility** refers to the design of apps, devices, materials, and environments that support and enable access to content and educational activities for all learners.
 - In addition to enabling students with disabilities to use content and participate in activities, the concepts also apply to accommodating the individual learning needs of students, such as students in rural communities, or from economically disadvantaged homes.

Fitting The Pieces Together



Learning

- **Goal:** All learners have engaging and empowering learning experiences in both formal and informal settings that prepare them to be active, creative, knowledgeable, and ethical participants in a globally connected society.

Ways technology can improve and enhance Learning,

- **Technology can enable personalized learning or experiences that are more engaging and relevant.**
- **Technology can help organize learning around real-world challenges using a wide variety of digital learning devices and resources**
- **Technology can help learning move beyond the classroom and take advantage of learning opportunities available in out-of-school settings.**
- **Technology can help learners pursue passions and personal interests.**
- **Technology access when equitable can help close the digital divide and make transformative learning opportunities available to all learners.**

Teaching

- **Goal:** Educators are supported by technology that connects them to people, data, content, resources, expertise, and learning experiences that can empower and inspire them to provide more effective teaching for all learners.

Roles and Practices of Educators in Technology-Supported Learning

- Educators can collaborate far beyond the walls of their schools.
- Educators can design highly engaging and relevant learning experiences through technology.
- Educators can lead the evaluation and implementations of new technologies for learning.
- Educators can be guides, facilitators, and motivators of learners.
- Educators can be co-learners with students and peers.
- Educators can become catalysts to serve the underserved.



Leadership: Creating a Culture and Conditions for Innovation and Change

- **Goal:** Embed an understanding of technology-enabled education within the roles and responsibilities of education leaders at all levels and set state, regional, and local visions for technology in learning

Assessment

- **Goal:** At all levels, education system will leverage the power of technology to measure what matters and use assessment data to improve learning.
- Through embedded assessments, educators can see evidence of students' thinking *during* the learning process and provide near real-time feedback through learning dashboards so they can take action in the moment.
- Technology-enabled tools also can support teacher evaluation, peer reflection, self reflection, coaching and feedback.

Infrastructure Enabling Access and Effective Use

- **Goal:** All students and educators need access to a robust and comprehensive infrastructure when and where they need it for learning.

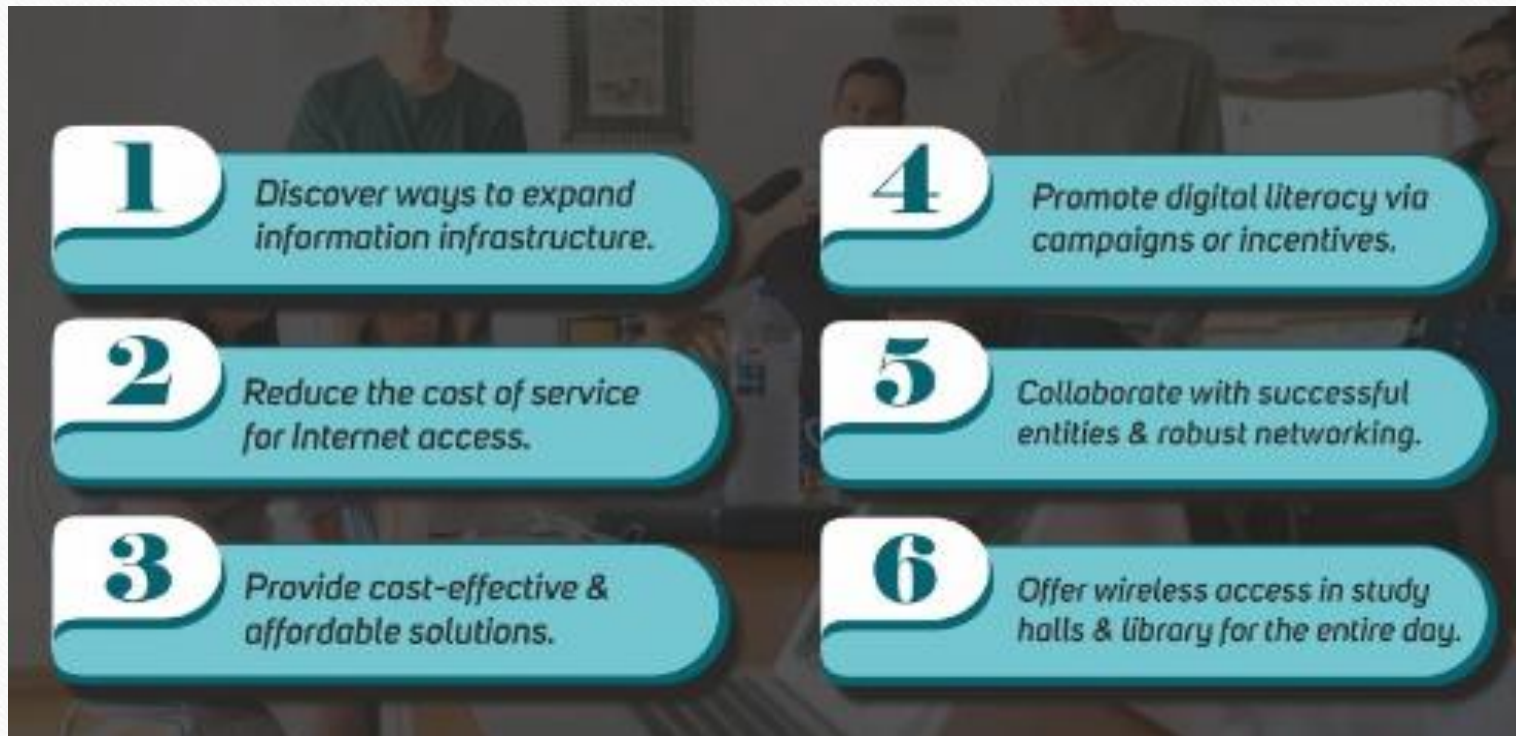
Essential components of an Infrastructure

- The essential components of an infrastructure capable of supporting transformational learning experiences include the following:
 - **Ubiquitous connectivity.** Persistent access to high-speed internet in and out of school
 - **Powerful learning devices.** Access to mobile devices that connect learners and educators to the vast resources of the internet and facilitate communication and collaboration
 - **High-quality digital learning content.** Digital learning content and tools that can be used to design and deliver engaging and relevant learning experiences
 - **Responsible Use Policies (RUPs).** Guidelines to safeguard students and ensure that the infrastructure is used to support learning

Opportunities

- Allow us to adapt assessments and instruction to the needs and abilities of individual learners and provide near real-time results.
- Nationally , significant progress has been made toward ensuring that every school has high-speed classroom connectivity as a foundation for other learning innovations.
- Technology has allowed us to rethink the design of physical learning spaces to accommodate new and expanded relationships among learners, teachers, peers, and mentors.

Bridging the digital divide globally



Recommendations

- Set a vision for the use of technology to enable learning such that leaders bring all stakeholder groups to the table.
- Research and development should be conducted that explores how embedded assessment technologies can be used to engage and motivate learners.
- Ensure that every student and educator has at least one internet access device and appropriate software and resources for research, communication, multimedia content creation, and collaboration for use in and out of school.

Conclusion

- The timing has never been better for using technology to enable and improve learning at all levels, in all places, and for people of all backgrounds.
- Educators, policymakers, administrators, and teacher preparation and professional development programs now should embed these tools and resources into their practices.
- Working in collaboration with families, researchers, cultural institutions, and all other stakeholders, these groups can eliminate inefficiencies, reach beyond the walls of traditional classrooms, and form strong partnerships to support everywhere, all-time learning.