DIGITAL CONTENT FOR TEACHER SUPPORT

Module 7	ICT Integration
Session 1	The Role of ICT in Enhancing Teaching and Learning Experiences
Session Code	TS 7.1
Video Title	ICT Integration
Online Video Link	https://ele.ncdc.go.ug/course/section.php?id=57
Assessment Available	Yes
Time Commitment	60 Minutes
Other Resources	PDFs, Videos, Simulations, Games, Website Links, Images Quizzes, Discussion Forum
Full Access	www.ncdc.go.ug
Key Words	ICT, ICT Integration, ICT Tools, ICT Devices

1) Session Overview

This Session emphasises the integration of Information and Communication Technologies (ICTs) into teaching and learning within a Competency-Based Curriculum (CBC). It explores the importance, benefits, and practical strategies for incorporating ICT in lesson planning, delivery, and assessment to create interactive, reflective, and inclusive learning experiences.

You will learn when, why, and how to effectively use ICT tools to simplify abstract concepts, engage learners, and develop essential 21st century digital skills. The Session aligns with national education frameworks promoting digital transformation and supports the broader goal of nurturing critical thinkers, problem solvers, and lifelong learners. The guidance in this Session is supported by the following three main models of ICT integration in education; TPACK, SAMR and ASSURE.

You can access the full interactive session via the Learning Management System (LMS) on the NCDC website.

Enjoy your learning experience!

2) Session Outcomes

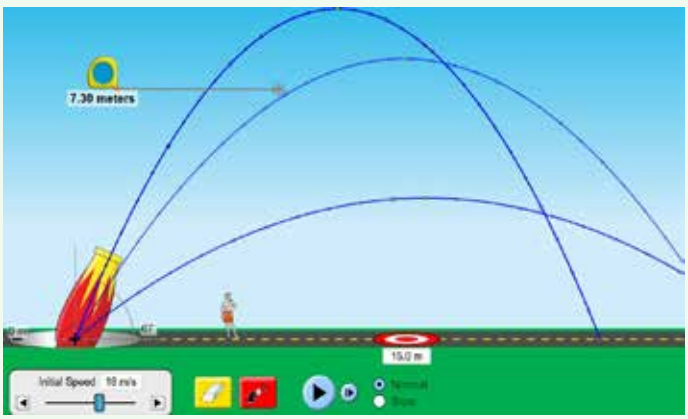
By the end of this Session, you will be able to:

i) understand the benefits of ICT integration in teaching and learning.
ii) explore ICT tools that can enhance the teaching and learning experience in CBC.
iii) use ICT tools in lesson planning, delivery and assessment.

3) Benefits of ICT Integration

In the context of competency-based teaching and learning, ICT is not merely a tool for content dissemination but a transformative force that supports the development of competencies such as critical thinking, collaboration, digital literacy, creativity, and lifelong learning.

The integration of ICT enables you to transition from teacher-centered methods to more personalised and learner-centred approaches, thereby creating flexible and inclusive learning environments.



The benefits of ICT integration in teaching and learning can be articulated in the following key areas:

ICT Application	Key Benefits	Key Tools
Enhancing Lesson Preparation ICT supports you in designing well-structured, data-informed, and engaging lessons that align with learning outcomes and meet the needs of learners.	**Access to rich resources:** A wide range of open educational resources, digital libraries, and online repositories (OERs, MOOCs), for up-to-date content and teaching strategies. **Efficiency and planning:** Lesson-planning software and digital templates help streamline preparation, enabling you to create interactive content more efficiently. **Collaborative planning:** Cloud-based platforms (e.g., Google Drive, Microsoft OneDrive) facilitate team teaching, peer feedback, and sharing of lesson materials.	Google Docs, Trello, Microsoft Word, presentation software, Canva, Padlet (for brainstorming), among others.
Improving Lesson Delivery ICT allows for differentiated instruction, multimodal content delivery, and real-time learner engagement.	**Interactive pedagogy:** Multimedia elements (audio, video, animations, and simulations) foster learner engagement and promote a deeper understanding of abstract concepts. **Learner participation:** Tools such as polls, digital whiteboards, and virtual classrooms encourage active involvement and collaboration. **Differentiated learning:** ICT supports tailoring of content to meet diverse learning styles, paces, and abilities.	PowerPoint with embedded media, Zoom/Google Meet, interactive whiteboards, PhET simulations, YouTube, Jamboard, ClassPoint
Transforming Assessment Practices ICT enables ongoing, authentic, and formative assessment practices aligned with CBC principles.	**Immediate feedback:** Digital assessment tools provide instant feedback, supporting self-regulation and mastery learning. **Data-driven decisions:** You can analyse performance data to inform instruction and targeted support. **Creative and authentic assessment**: Learners can demonstrate competencies through digital storytelling, video presentations, e-portfolios, and online quizzes.	Kahoot, Socrative, Google Forms, Quizizz, Edmodo, Seesaw, ePortfolio platforms

Supporting Self-Regulated Learning ICT empowers learners to take ownership of their learning through personalised tools and flexible access to content.	**Learner autonomy**: Platforms support goal setting, progress tracking, and reflection, which are central to CBC. **Anytime, anywhere learning:** ICT extends learning beyond the classroom, accommodating learners with diverse schedules or constraints. **Inclusive learning:** Assistive technologies support learners with special needs, enabling them to participate equitably.	Moodle, Edmodo, Notion, Google Classroom, Duolingo, Khan Academy, assistive apps (e.g., text-to-speech)

4) Some Factors to Consider When Selecting ICT Tools for use in teaching

i) **Alignment with Learning Outcomes**: Ensure the ICT tool supports the achievement of specific syllabus learning outcomes.

ii) **Availability and Accessibility:** Consider the availability of the ICT tools and devices in the school context and learners' ability to access them both in and out of school.

iii) **Usability and User-Friendliness:** Select tools that are intuitive and easy to use for both you and the learners. This will reduce the time spent on navigation and allow for more focused learning.

iv) **Learner-Centeredness and Engagement Potential:** Choose tools that promote active learning, creativity, collaboration, and personalisation.

v) **Inclusivity and Support for Diverse Needs:** Consider whether the tool accommodates learners with disabilities or special educational needs, such as using screen readers, captioning, or adaptive interfaces.

vi) **Technical Requirements and Compatibility:** Assess hardware and software requirements, internet connectivity needs, and compatibility with existing infrastructure.

vii) **Cost and Sustainability:** Consider the cost of acquisition, licensing, and maintenance, as well as whether the tool is open-source, free, or comes with ongoing financial obligations.

viii) **Data Privacy and Security:** Ensure the tool adheres to ethical standards, protects learner data, and complies with national or institutional data protection guidelines.

ix) **Support for Assessment and Feedback:** In competency-based settings, tools that facilitate formative (especially triangulation) and summative assessment and real-time feedback should be prioritised.

x) **Teacher Digital Literacy and Support:** Assess the level of ICT competence required to use the tool and the availability of training or technical support for teachers.

xi) **Cultural and Contextual Relevance:** Ensure the tool's content, language, and design are appropriate for the learners' cultural and socio-educational backgrounds.

5) Conclusion

Integrating ICT into the teaching and learning process is no longer optional—it is essential. It enhances learner engagement, supports the mastery of complex concepts, and equips learners with the digital skills needed for the 21st century. When thoughtfully applied, ICT transforms classrooms into interactive, learner-centred environments that promote critical thinking, creativity, and lifelong learning.

FURTHER READING

a) Theories Guiding ICT Integration in CBC

The integration of ICT in a CBC is best supported by theoretical models and instructional design frameworks that align pedagogy, technology, and subject matter. The following models provide a structured foundation for you to thoughtfully and effectively integrate digital tools into the teaching and learning process.

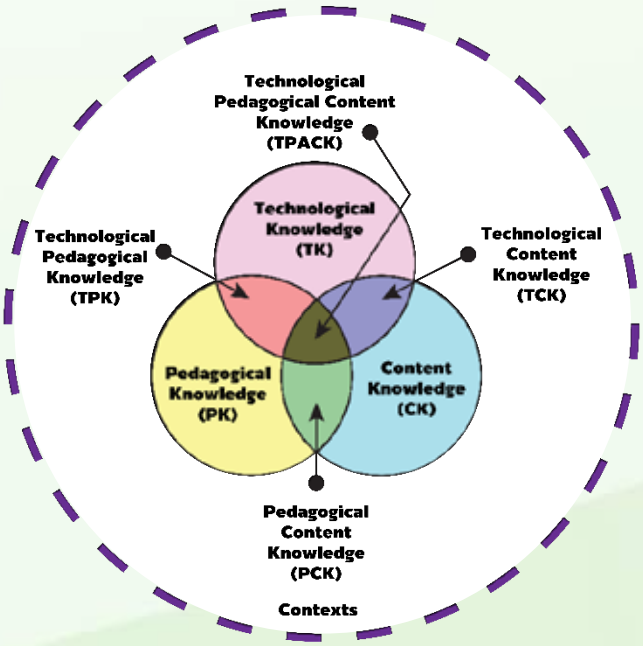
TPACK Model by Mishra & Koehler (2006)

The Technological Pedagogical Content Knowledge (TPACK) framework emphasises the interplay between three critical domains of teacher knowledge:

i) Content Knowledge (CK): Mastery of the subject matter on the side of a teacher is key.

ii) Pedagogical Knowledge (PK): Understanding of teaching methodologies.

iii) Technological Knowledge (TK): Knowledge of digital tools and their practical use.



The model underscores that effective ICT integration occurs at the intersection of all three domains. For example, a teacher using a dynamic geometry tool not only understands the mathematics (CK) but also the best strategies to teach it (PK) and how to apply the software effectively (TK).

TPACK aligns closely with the demands of CBC, where teachers must create learner-centred, technology-enhanced environments that develop competencies such as critical thinking, collaboration, and creativity.

SAMR Model by Ruben Puentedura (2006)

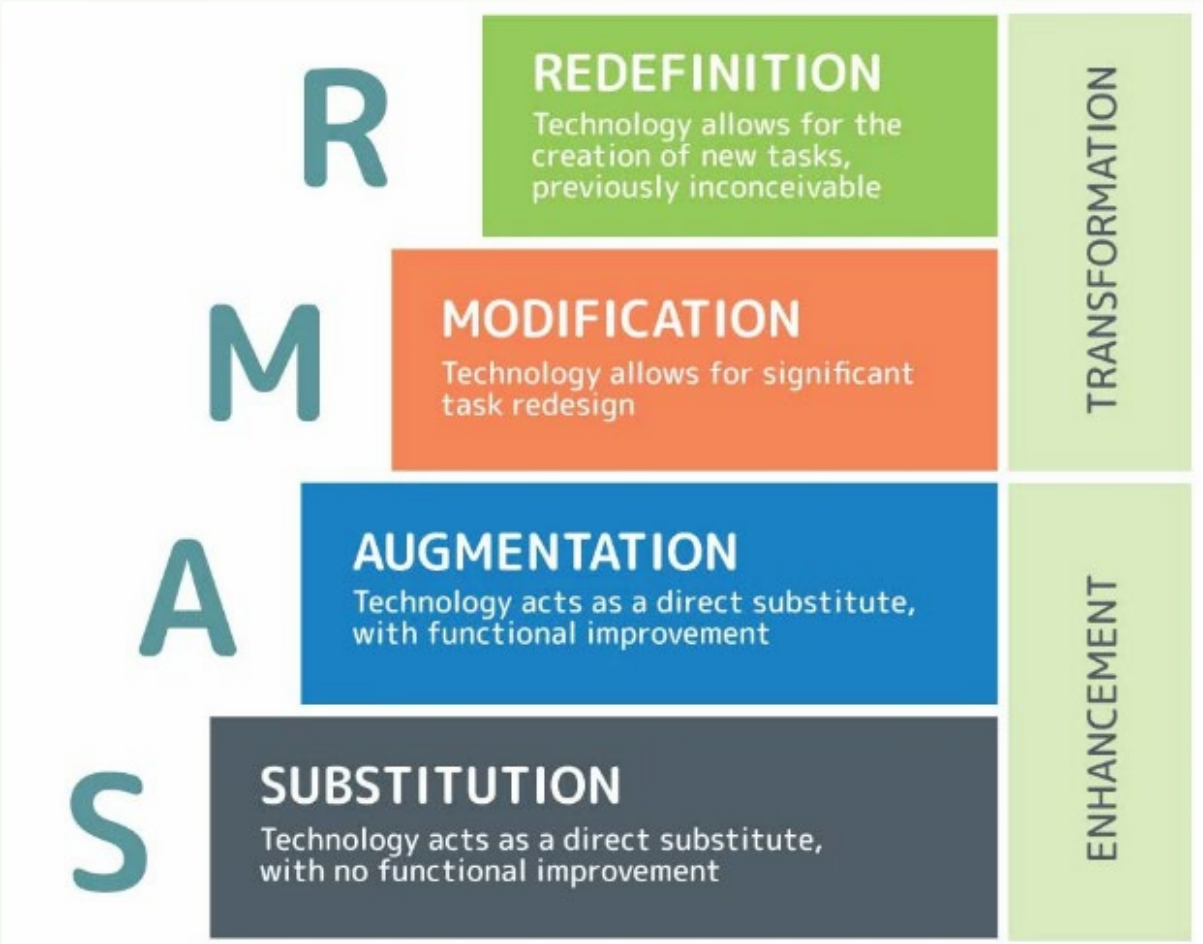
The Substitution, Augmentation, Modification, and Redefinition (SAMR) model provides a continuum for evaluating the degree to which technology is integrated into teaching. It helps teachers assess whether their use of technology merely enhances existing practices or transforms them.

i) **Substitution:** Technology acts as a direct substitute with no functional change. *E.g., typing a worksheet instead of handwriting it.*

ii) **Augmentation:** Technology functions as a substitute with some functional improvements. *E.g., using a word processor with spell check and templates.*

iii) **Modification:** Technology allows for significant task redesign. *E.g., learners collaboratively writing in Google Docs with real-time feedback.*

iv) **Redefinition:** Technology allows for creating new tasks that were previously inconceivable. *E.g., learners producing podcasts or interactive simulations to explain concepts.*

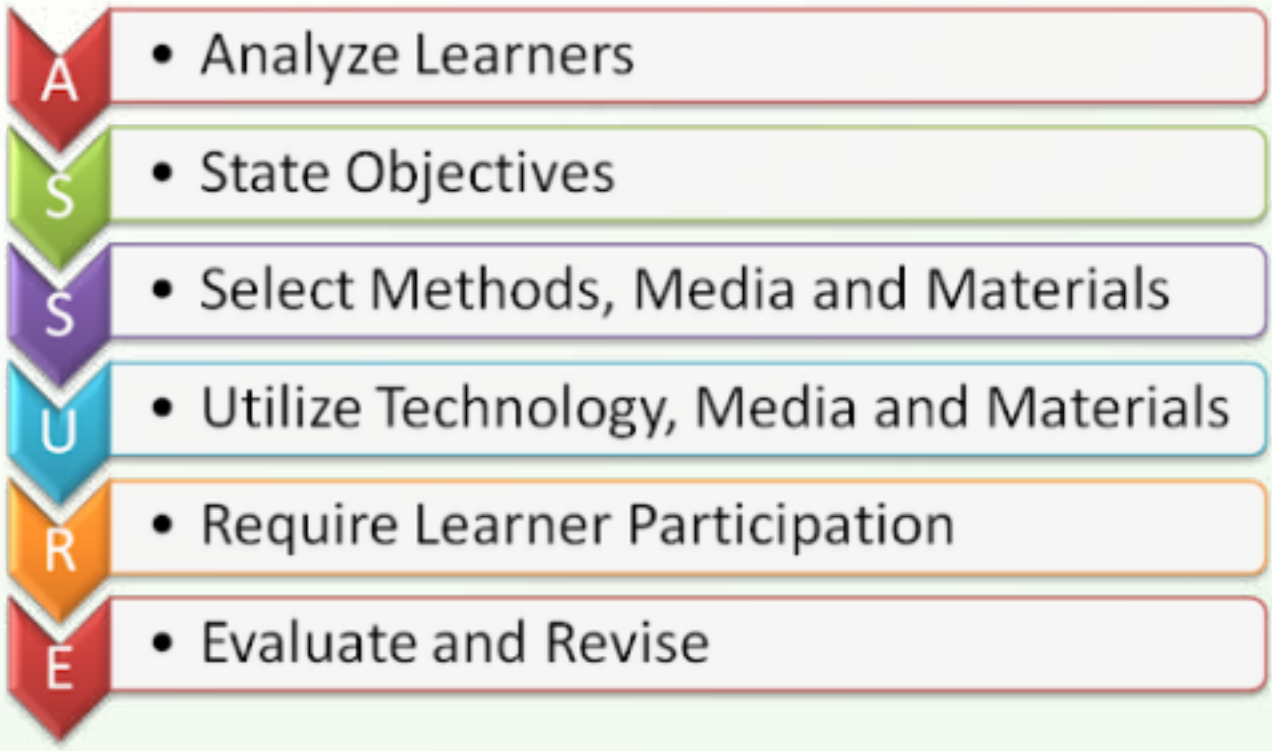


Teachers should aim to move from enhancement (Substitution, Augmentation) to transformation (Modification, Redefinition) to foster competencies such as creativity, communication, and digital fluency.

ASSURE Model

This model focuses mainly on integrating media and technology in instruction. It eencourages active learner participation and continuous improvement.

Stages of ASSURE Model:



ASSURE model is especially suitable for lesson planning in CBC, where technology must be purposefully chosen to support specific learning competencies and assessment strategies. It builds on Constructivism theory in Technology-Mediated Learning where learners actively construct knowledge through experience and reflection with aid of the available tools.

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