REPUBLIC OF KENYA
MINISTRY OF EDUCATION

DIPLOMA IN EDUCATION LEADERSHIP AND MANAGEMENT
MODULE 5: LEADERSHIP AND MANAGEMENT OF ICT INTEGRATION IN EDUCATION

KENYA EDUCATION MANAGEMENT INSTITUTE

ICT LEARNING ENVIRONMENT

UNIT 5



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- Effective integration of ICT in teaching and learning requires education managers to be conversant with requisites of an ICT learning environment.
- Education managers also need to be aware of the adjustments that need to be made in the learning process.
- In this Unit, we will look at ICT competency framework, ICT learning space and the role of the learner and the teacher in ICT integration.
- In addition, we shall look at the role of ICTs in remote learning.



Learning Outcomes

Upon completion of this unit, you will be able to:

a) Demonstrate understanding of ICT Competency Frameworks
b) Create ICT learning space in the school
c) Use ICT to perform tasks in the teaching and learning process
d) Demonstrate understanding of the teaching role of the teaching and the learner in ICT enabled learning environments.
e) Appreciate the use of ICTs in blended learning and remote learning.

ICT Competency Framework

- ICTs have been playing an increasingly significant role in education during the last years.
- There is a set of abilities that learners need to develop in order to succeed in the information age.
- These abilities, defined as 21st century skills, are: critical thinking, problem solving, good communication, collaboration, information and technology literacy, flexibility and adaptability, innovativeness and creativity.
- In order for you to be able to teach these skills to your learners you must possess the appropriate digital competencies. Digital Competence can be broadly defined as the confident and creative use of ICT to achieve goals related to an activity.
- Many frameworks that defined ICT competencies have been developed.

UNESCO ICT Competency framework

- UNESCO developed the ICT Competency Framework for Teachers (ICT CFT) as a tool to guide pre and in service teacher training on the use of ICTs across the education system.
- The ICT CFT is intended to be adapted to support national and institutional goals by providing an up-to-date framework for policy development and capacity building in this dynamic area.
- According to UNESCO (2011) there are three approaches that represent different stages in the use of ICT integration in education, namely, technology literacy approach, Knowledge deepening approach and knowledge creation approach.
- These approaches are discussed below:

Technology literacy approach

- This involves improving basic literacy skills through technology and adding the development of ICT skills into relevant curriculum contexts.
- This will involve setting aside time within the traditional curricula of other subjects for the incorporation of a range of relevant productivity tools and technology resources.
- This involves the use of various ICT tools and digital content as part of whole class, group and individual student activities.
- Changes in teacher practice involve knowing where and when (as well as when not) to use technology for classroom activities and presentations, for management tasks, and for acquisition of additional subject matter and pedagogical knowledge in support of the teachers' own professional learning.

- At this stage there teachers need to obtain competencies in basic digital literacy skills and digital citizenship, along with the ability to select and use appropriate off-the-shelf educational tutorials, games, drill-and-practice software, and web content in computer laboratories or with limited classroom facilities to complement standard curriculum objectives, assessment approaches, unit plans, and didactic teaching methods.
- Teachers must also be able to use ICT to manage classroom data and support their own professional learning.

Knowledge deepening approach

- At this level, ICT integration aims at increasing the ability of students, citizens, and the workforce to add value to society and to the economy by applying the knowledge gained in school subjects to solve complex, high- priority problems encountered in real world situations of work, society and in life generally.
- Such problems might relate to the environment, food security, health, and conflict resolution.
- Knowledge-deepening approach requires the curriculum should emphasize depth of understanding over coverage of content and assessments that emphasize the application of understanding to real-world problems.
- This approach recommends collaborative learning in which students explore a subject deeply and bring their knowledge to bear on complex, every-day questions, issues, and problems.

- Teaching should be student-centred and the teacher's role is to structure tasks, guide student understanding and to support students as they tackle collaborative projects.
- Teachers should help students create, implement and monitor project plans and solutions.
- Lessons and classroom structure are more dynamic, with students working in groups for extended periods of time.
- In guiding students' understanding of key concepts, teachers are required to use open- ended ICT tools that are specific to their subject area, such as visualizations in science, data analysis tools in mathematics and role play simulations in social studies.
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Knowledge creation approach

- The aim of the knowledge creation approach is to increase productivity by creating students, citizens, and a workforce that is continually engaged in, and benefits from, knowledge creation, innovation and life-long learning.
- Teachers, in this approach, should not only be able to design classroom activities that advance these policy goals but also participate in the development of programmes within their school that advance these goals.
- With this approach the curriculum goes beyond a focus on knowledge of school subjects to explicitly include the knowledge society skills that are needed to create new knowledge.
- These are skills such as problem solving, communication, collaboration, experimentation, critical thinking and creative expression.
- Perhaps the most significant aim is for students to be able to create their own learning goals and plans—to establish what they already know, assess their strengths and weaknesses, design a learning plan, stay on-task, track their own progress, build on successes and adjust to failures. These are skills that can be used throughout a lifetime to participate in a learning society

- The role for teachers is to overtly model these processes, structure situations in which students apply these skills, and assist students in their skill acquisition.
- Teachers build a learning community in the classroom in which students are continuously engaged in developing their own and each other's learning skills.
- Indeed, schools are transformed into learning organizations in which all its members are involved in learning.
- Teachers can then be seen as model learners and knowledge producers who are constantly engaged in educational experimentation and innovation in collaboration with their colleagues and outside experts to produce new knowledge about learning and teaching practice.
- A variety of networked devices, digital resources, and electronic environments are used to create and support this community in its production of knowledge and anytime, anywhere collaborative learning.

Blooms Taxonomy and Technology

- Today's learners, regardless of demographics, have shown an interest in digital opportunities to learn, and the range of ICT tools that make collaboration, innovation, and individual exploration possible is incredible.
- Educators have thought of unique ways to connect digital tools with the framework of Bloom's Revised Taxonomy, which has led to the emergence of a Digital Bloom's Taxonomy.
- The purpose of Bloom's Digital Taxonomy is to inform instructors of how to use technology and digital tools to facilitate student learning experiences and outcomes.
- It aims at expanding upon the skills associated with each level as technology becomes a more ingrained essential part of learning.
- Outlined below are the levels featured within Bloom's Revised Taxonomy. Each level is accompanied by a description of its relevance and examples of digital tools that connect with this taxonomy framework:

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- **Remembering:** To recall facts, basic concepts, or retrieval of material. Tools – Bookmarking, copying, googling, bullet-pointing, highlighting, group networking, searching
- **Understanding:** To explain ideas, concepts, or construct meaning from written material or graphics. Tools – Advanced searching, annotating, blog journaling, tweeting, tagging, commenting, subscribing
- **Applying:** To use information in new situations such as models, diagrams, or presentations. Tools – Calculating, Charting, editing, hacking, presenting, uploading, operating, sharing with a group
- **Analyzing:** To draw connections among ideas, concepts, or determining how each part interrelate to an overall structure or purpose. Tools – Mashing, mind mapping, surveying, linking, validating
- **Evaluating:** To justify a stand or decision; to make judgments based on criteria and standards through checking and critiquing. Tools – Grading, networking, rating, testing, reflecting, reviewing, blog commenting, posting, moderating
- **Creating:** To produce new or original work. Tools – Animating, blogging, filming, podcasting, publishing, simulating, wiki building, video blogging, programming, directing

- Bloom's Digital Taxonomy can help teachers navigate through the myriad digital tools and make choices based on the kinds of learning experiences they want learners to engage in.
- Selecting the most appropriate digital activity will depend on the activity's level of difficulty tied to the cognitive levels stated within Bloom's Revised Taxonomy.

Activity

Discuss the relationship between UNESCO's ICT competency framework and Bloom's Digital Taxonomy

ICT Learning Space

- The recent advent of Internet access and mobile communication devices has provided remarkable opportunities for 21st century blended learning models - simultaneous online and face-to-face - and seriously called into question the traditional classroom model of teaching and learning.
- In response to these developments, many innovative learning environments are being implemented.
- Educational institutions therefore need to rethink about their learning environments, and more specifically focus on what physical attributes need to be provided to encourage ICT integration in education.

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The 21st century ICT learning space includes the following components:

Access to technology and media:

- The 21st Century classroom is networked, adequately provided with a rich internet connection to support media streams, personal skype and group/video conferencing communications.
- It is able to upload and download students work and research to suitable structures to support anywhere anytime learning and collaboration.
- Facilities need to be in place to enable media production, whether its video, audio or text/image based.
- Consider using projectors that have the facility to support wireless networking enabling the users (teachers and students) to easily connect and then switch between users. This flexibility is essential for the 21 Century learners.

Classroom design:

- Whereas the traditional classrooms were designed for a teacher centric delivery mode, the 21st Century learning space is designed for collaborative learning.
- So the classroom must be designed to enable group collaboration.
- They must have the flexibility in furnishings and technology to be rearranged with ease and speed. It must allow for switching rapidly between individual and group, presentation, communication and collaborative modes.
- From these grouping learners and educators must be able to connect, collaborate, share and report - projection and video conference, present and report back.
- Classrooms must be able to adapt to different needs of the classroom - space for the students to work quietly and reflectively; space to operate in small groups discussing and debating; space to meet collectively to report, discuss, plan and teach.



Display spaces:

- Students will need access to real and virtual display spaces. Whiteboards, pin boards, collaborative learning spaces online, conferences etc.
- They will need easy and instant access to media systems that they can use to view materials and share their own.
- How many classrooms are currently using whiteboards?
- It is important to note that the world is continuously advancing in technology.
- The 21st Century calls for diverse approaches to meet the requirements of the century.

Note it!!

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Role of Teachers in the ICT learning environment

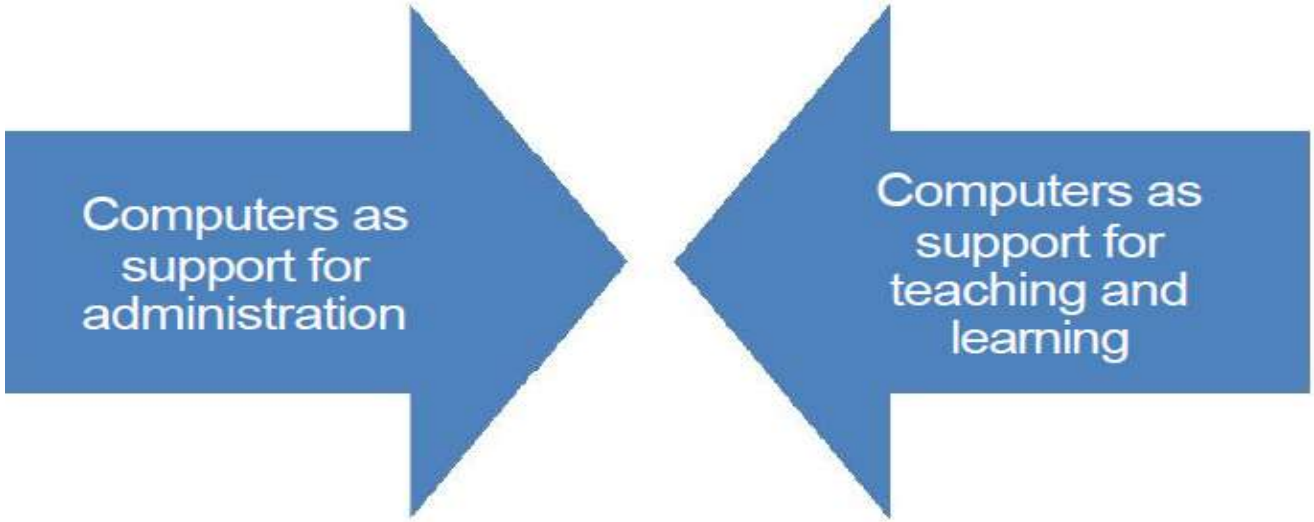
This section looks at the role of the teacher in the ICT learning environment in terms of how they use computers in the learning environment and the characteristics of the 21st century teacher. ICT can be used in various ways where it helps both you and learners to learn about their respective subject areas.

Teachers usage of computers in the learning environment

According to Bialobrzeska and Cohen (2002), there are two major ways that teachers use computers in the learning environment:

i. To support their administrative work; and
ii. to support their teaching and learning activities, including teaching preparation, actual teaching

The figure below illustrates the two uses:



a) Computers as support for administration

Teachers engage in three major administrative tasks in the school, namely:

i. **Planning**: drawing lessons plans and schemes of work.

ii. **Data management**: drawing up class lists, taking registers, keeping a mark book and writing report cards.

iii. **Communication**: drawing up agendas and programmes; booking transport and venues; liaising with colleagues at their own school and elsewhere; compiling, displaying and sending out notices; and collecting and accounting for money.

Teachers can use a range of software packages for these tasks. These software packages include:

- Tailor-made program for needs that are specific to schools.
- Standard programs such as computer program, web and multimedia packages (covered in unit 2 and 3 of this module).

Computers as support for teaching and learning

- The following are the ways in which ICT can support teaching and learning in the institution: -

i. **To prepare printed material for learners:** ICT can be used by you to prepare teaching notes, worksheets and display material. Word processors allow users to edit their work, and to add various effects, such as different font sizes and styles, borders and colours. Tables of data can be neatly presented or converted to graphs of various kinds and placed in the text. Many standard computer packages include clip art a range of images that you can use to illustrate their work. You with access to a scanner can scan a wide range of images into their work, rather than pasting them in on a printed version.

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ii. **To project information for learners:** You can project materials from a computer onto a screen using a data projector. The material can come from various sources such as a document stored in the computer, a piece of text the teacher has written or a table or graph he/she has drawn. It can also be material that the class is working on together. It might even be material from a digital camera, a CD-ROM or the Internet. The material might be in the form of slides, using a program such as Power Point, with integrated text and graphics, or even video material. In schools where learners themselves do not have ready access to computer-based resources, a data projector can assist in giving them access to these, although on a class rather than an individual basis.

iii. **To do research:** You can access a wealth of teaching materials from CD-ROMs and the Internet on the topics they are teaching including ideas for teaching in general, and for teaching certain topics in particular. In order to do this sort of research, you obviously need access to a computer, CD-ROMs and/or access to the Internet to browse the worldwide web.

iv. **To share ideas and information:** With e-mail (covered in Unit 3) you can make contact with people in a various place to ask for information. You can contact other teachers or people not directly involved in teaching to ask for advice or information and also to share ideas with them. For example, you might exchange worksheets and tests which they have prepared; they might ask for and offer help on discipline problems, or how to set up a drugs policy at your school; you might let other teachers know of useful websites for certain sections of the curriculum.

v. **To prepare material for learners to use on a Local Area Network**: If learners have access to computers, and the school computers are networked (in other words, if there is a local area network, or LAN), you can also prepare material for learners to use. There are a number of ways in which you can do this, for instance:

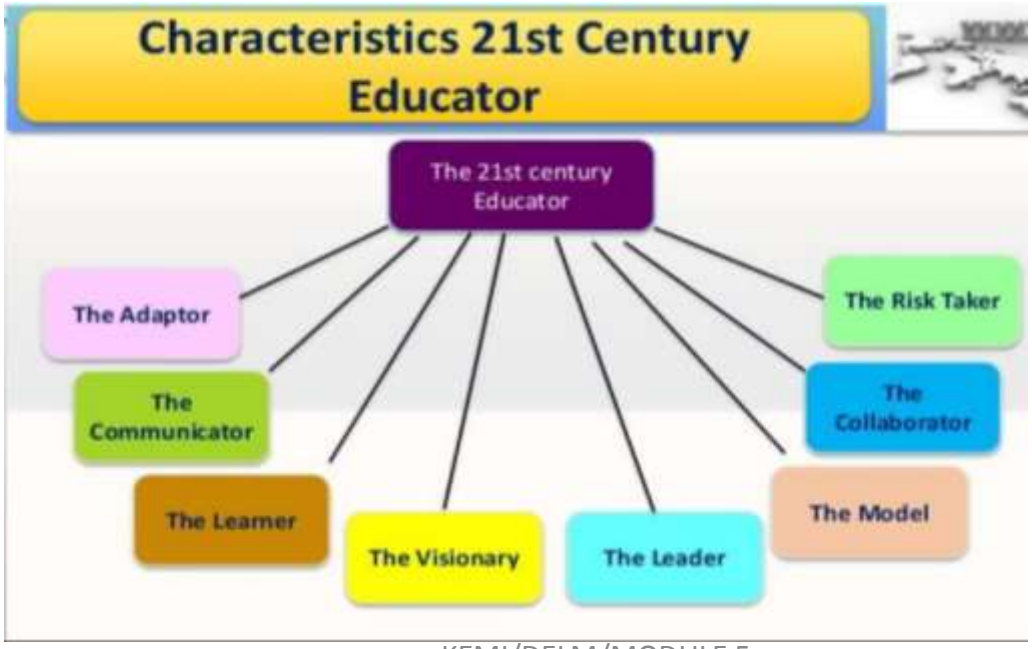
vi. **Downloaded material**: Download material from a website (or even download an entire website) for learners to access to do their own research (this saves costs as learners do not spend time online).

vii. **Create webpage:** Prepare a webpage, with information and tasks, as well as links to websites and other resources which learners' access from the website the teacher has made for them.

viii. **Assessment:** Access databanks of test items, select from these the items most suitable for learners at a particular time, and then ask learners to answer the questions and obtain feedback online. Such services also usually allow you to monitor each learner's work and automatically compile a record of their achievement. In addition, if learners are able to work online, it is possible for you to give feedback electronically to each learner, marking places in their submissions which need improvement, or which have been particularly well done, using comments which can be inserted into work electronically.

Characteristics of the 21st Century Teachers

- The 21st Century teacher must integrate ICT in education.
- The following are the characteristics of the 21st Century teacher:



- **The Adaptor:** The 21st Century teacher is an adaptor. The 21st Century Educator must be able to adapt the curriculum and the requirements to teach it in imaginative ways. They must also be able to adapt software and hardware designed for a business model into tools utilizable by a variety of age groups and abilities. They must also be able to adapt to a dynamic teaching experience.

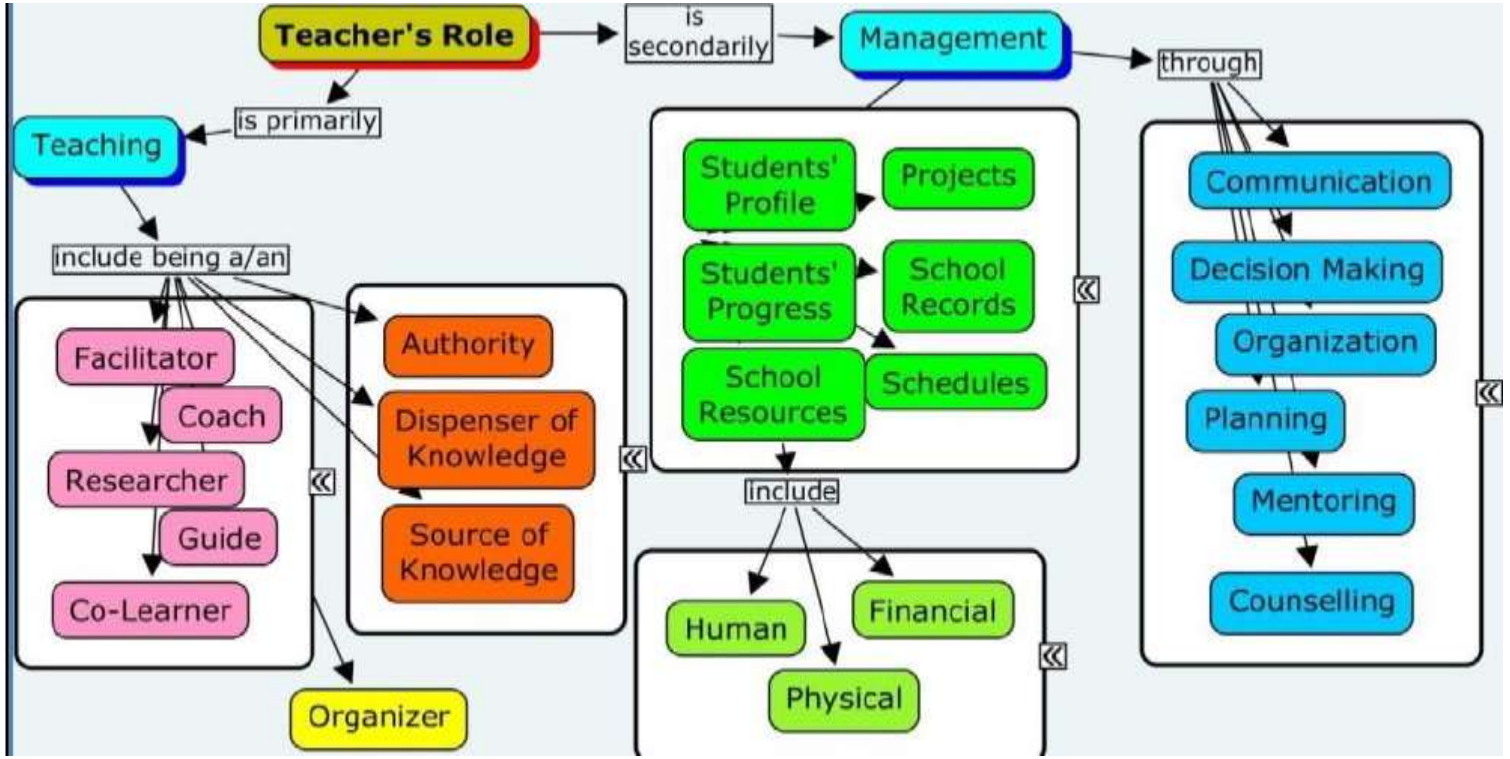
- **The Visionary:** Imagination, a key component of adaptability, is a crucial component of the 21st Century Educator. They must see the potential in the emerging tools and web technologies, grasp these and manipulate them to serve their needs. The visionary teacher can look at others ideas and envisage how they would use these in their class. The visionary also looks across the disciplines and through the curricula. They can make links that reinforce and value learning in other areas, and leverage other fields to reinforce their own teaching and the learning of their students.

- **The Collaborator:** The 21st Century teacher must be able to leverage online collaborative tools to enhance and captivate the learners. They must be collaborators; sharing, contributing, adapting and inventing.
- **The Risk taker:** The 21st Century teachers must take risks. They must have a vision of what you want and what the technology can achieve, identify the goals and facilitate the learning. The Learner: The 21st Century Educator is constantly learning. He/she must learn and adopt. The concept of lifelong learning is relevant here.
- **The Communicator:** Anywhere, anytime learning is a catchphrase we hear often. Usually it's paired with —life learner . To have anywhere anytime learning, the teacher must be anywhere and anytime. The 21st Century teacher is fluent in tools and technologies that enable communication and collaboration. They go beyond learning just how to do it, they also know how to facilitate it, stimulate and control it, moderate and manage it.

- **The Model:** 21st Century teachers must model the behaviours that they expect from our students. They must teach values. Teachers are often the most consistent part of a student's life. The 21st Century educator also models reflective practice, whether it's the quiet, personal inspection of their teaching and learning, or through reflective practice via blogs, twitter and other medium, these educators look both inwards and outwards.

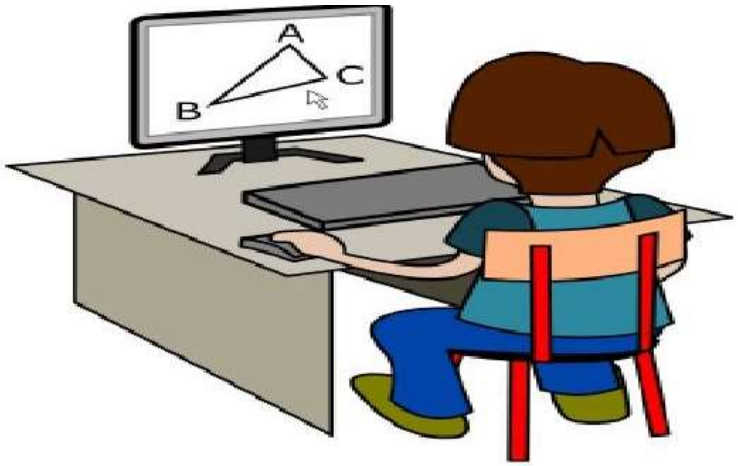
- **The Leader**: Whether they are a champion of the process of ICT integration or the quiet technology coach, the 21st Century teacher should lead by example. The21 Century teacher is a early adopter of ICT integration.

The diagram below illustrates the changing role of the teacher in the 21st Century:



Role of Learners in the ICT Learning Environment

- This section looks at the role of the learner in the ICT learning environment in terms of how the learners use computers in the learning environment and the characteristics of the 21st century learner.



Students use of computers in the learning environment

- In school, learners use computers in different ways depending on the resources available. According to Bialobrzeska and Cohen (2002) some of these purposes include. Developing computer literacy:
- Probably the most widespread use of the computer in schools is to teach computer literacy; that is, use of the common (or generic) applications available on a computer and the software packages that allow users to use the applications.

There are two approaches to the development of computer literacy**:**

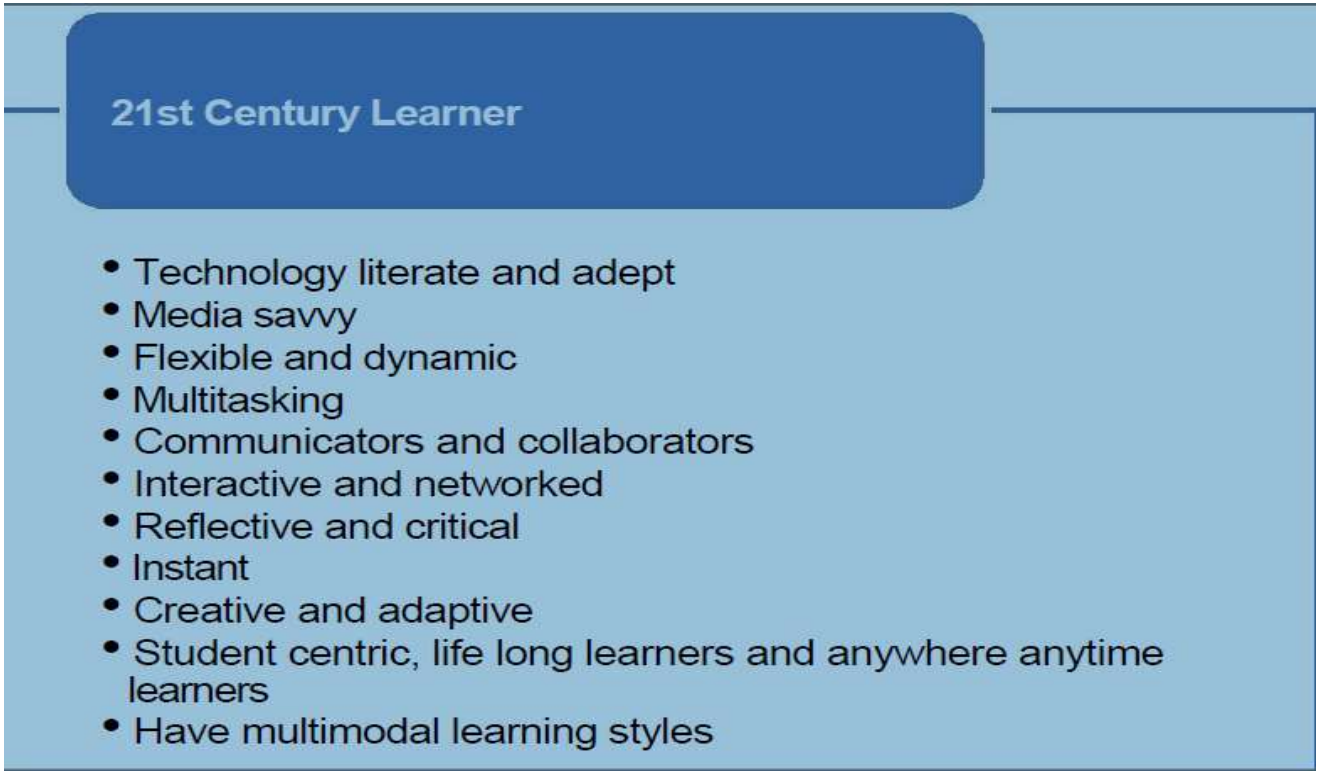
- **ICT is learnt without integration**: Learners learn basic skills in a computer literacy class. They may or may not apply these skills to work they do in other classes, and they may or may not use them in an informal way, such as by choosing to type up an essay in the computer centre in their own time, or to search for information on the web outside class time if the opportunity presents. Teaching ICT skills without integration is regarded as an outdated approach to learning.
- **ICT with integration:** In the second approach, computer literacy is seen as something learners will acquire through using the computer in order to learn a subject. For example, learners use a computer to write an English essay, and in the process they learn what they need to know about using a word processor. This approach is sometimes called _just-in time' learning, as learners acquire the skills they need at the time they need them for an applied purpose.

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Characteristics of the 21st Century learner

- The 21st Century learner is ICT savvy.
- The following are the characteristics of the 21st Century learner:



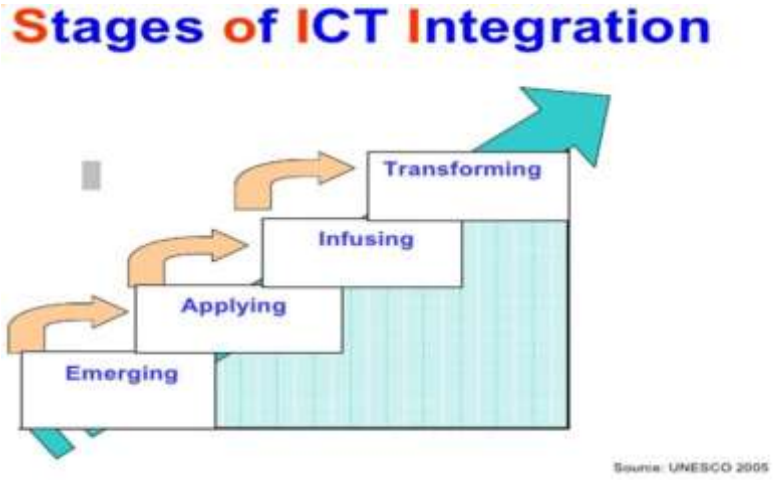
Activity

No longer need we ask whether the use of technology is developmentally appropriate. Very young children have shown comfort and confidence in using computers. They can turn them on, follow pictorial directions, and use situational and visual cues to understand and reason about their activity (Clements and Natasi, 1993).

- ***Discuss this statement in the context of the National education laptop project in Kenya.***

Stages in ICT Development

- Studies of ICT development in both developed and developing countries identify at least four broad approaches through which educational systems and individual institutions typically proceed in their adoption and use of ICT.
- Sometimes, the number of stages identified varies, though there is a general consensus that the introduction and use of ICT in education proceeds in broad stages that may be conceived as a continuum or series of steps.
- These steps, termed Emerging, Applying, Infusing, and Transforming, are elaborated below:



Emerging Stage

- Schools at the beginning stages of ICT development demonstrate the emerging approach. Such schools have just started on their journey in the ICT field with a skeleton computing infrastructure either donated or purchased by the school authority. In this initial phase, administrators and teachers just start to explore the possibilities and consequences of using ICT for school management and adding ICT to the curriculum.

Applying Stage

- Those schools, in which a new understanding of the contribution of ICT to learning has developed, exemplify the applying approach. In this secondary phase, administrators and teachers use ICT for tasks already carried out in school management and in the curriculum. Teachers largely dominate the learning environment. Schools at the applying approach phase adapt the curriculum in order to increase the use of ICT in various subject areas with specific tools and software such as drawing, designing, modelling and application specific tools.
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Infusing Stage

- At the third stage, the infusing approach involves integrating or embedding ICT across the curriculum, and is seen in those schools that now employ a range of computer-based technologies in laboratories, classrooms, and administrative offices. The curriculum begins to merge subject areas to reflect real-world applications. In the infusing approach to ICT development, ICT infuses all aspects of teachers' professional lives in such ways as to improve student learning and the management of learning processes.

Transforming Stage

- Schools that use ICT to rethink and renew school organization in creative ways are at the transforming approach. ICT becomes an integral though invisible part of daily personal productivity and professional practice. The focus of the curriculum is now learner-centred that integrates subject areas in real-world applications.

Corresponding usage of ICT in Teaching and Learning

In the previous section, we have discussed the four stages of ICT development in schools. We will now discuss the corresponding ICT usage in teaching and learning which include: awareness, learning how, understanding how and when, and specializing in the use of ICT tools.

i. Becoming aware of ICT

- In the initial phase, teachers and learners become aware of ICT tools and their general functions and uses. In this stage, there is usually an emphasis on ICT literacy and basic skills. This stage of discovering ICT tools is linked with the emerging stage in ICT development.

ii. Learning how to use ICT

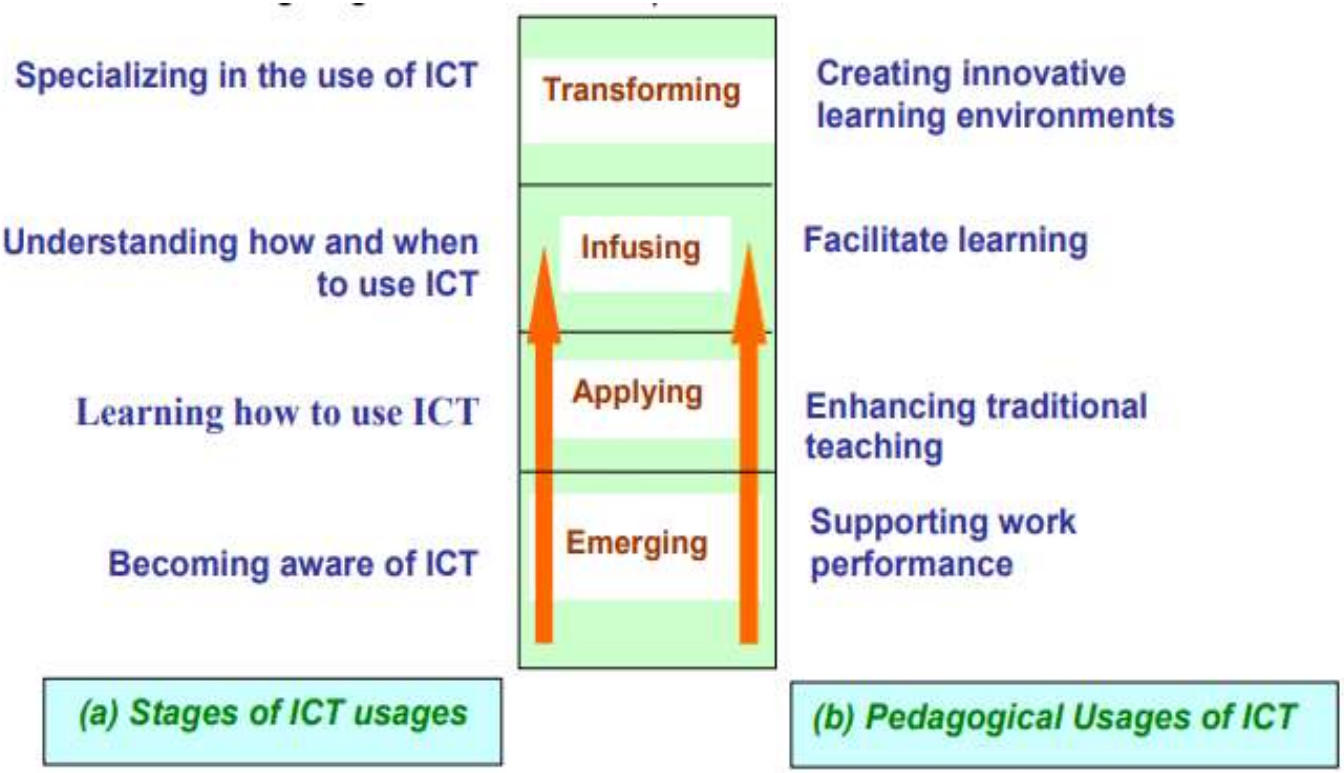
- Following on and from the first stage comes the stage of learning how to use ICT tools, and beginning to make use of them in different disciplines. This stage involves the use of general or particular applications of ICT, and is linked with the applying stage in the ICT development model.

iii. Understanding how and when to use ICT

- The next stage is on understanding how and when to use ICT tools to achieve a particular purpose, such as in completing a given project. This stage implies the ability to recognize situations where ICT will be helpful, choosing the most appropriate tools for a particular task, and using these tools in combination to solve real problems. This stage is linked with the infusing stage in the ICT development model..

iv. Specializing in the use of ICT

- The fourth and the last stage involves specializing in the use of ICT tools which occurs when one enters more deeply into the learning environment that creates and transforms the learning situation with the help of ICT. This is a new way of approaching teaching and learning situation with specialized ICT tools and is linked with the transforming stage in the ICT development model.


Specializing in the use of ICT
Transforming
Creating innovative learning environments
Understanding how and when to use ICT
Infusing
Facilitate learning
Learning how to use ICT
Applying
Enhancing traditional teaching
Becoming aware of ICT
Emerging
Supporting work performance
(a) Stages of ICT usages
(b) Pedagogical Usages of ICT

Pedagogical Usages of ICT

There are four broad ways in which teachers and learners can use ICT to support teaching and learning:

i. Supporting work performance

In the initial phase, teachers use productivity tools such as word processor, visual presentation software, spreadsheet, database, email etc. to support their daily work performance. In this initial stage, there is usually an emphasis on basic operations of electronic office software. This stage of using productivity tools for teaching and learning is linked with the emerging stage in ICT development

ii. Enhancing teaching

Following on and from using productivity software, comes the stage of learning how to use and develop computer assisted learning software and beginning to make use of such software in different disciplines. This stage involves the technique of integrating computer-based learning in the traditional instructional process, and is linked with the applying stage in the ICT development model. Various instructional packages were selected, developed and used to enhance traditional classroom teaching.

iii. Facilitating learning

The next stage involves using various types of instructional software to facilitate student learning. The key point is that the teachers need to learn how to choose the most appropriate tools for a particular task, and using these tools in combination to solve real life problems. This stage implies the ability to recognize situations where various multimedia, simulation and modelling software can be utilized for teaching and learning. This stage is linked with the infusing stage in the ICT development model.

iv. Creating innovative learning environments

The fourth and last stage involves specializing in the use of network based resources to create meaningful environment with rich affordable for innovative learning models so that it occurs when one enters more deeply into the shared learning environment that creates and transforms the learning situation. This is a completely new way of approaching teaching and learning using technology. It helps to develop, deliver and manage open & flexible learning program. This stage is linked with the transforming stage in the ICT continuum model.

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Blended Learning

- Blended learning, also known as hybrid learning, is an approach to education that combines online educational materials and opportunities for interaction online with traditional place-based classroom methods.

Types of blended learning

- **Synchronous learning:** refers to a learning event in which a group of participants is engaged in learning at the same time For that, they should be in the same physical location, such as a classroom, or at the same online environment, such as in a web conference, where they can interact with the teacher and the learners. Benefits of synchronous learning include:
  - Interaction between learners.
  - Exchange of knowledge and experience between learners.
  - Real-time feedback for the teacher.
  - Teaching happens on a fixed schedule.

- **Asynchronous learning:** refers to learning which takes place when the teacher and the learners are not engaged in the learning process at the same time. There is no real-time interaction with other learners or the teacher. An example of this method is creating online content with pre-recorded videos or posting learning resources on a learning management system. The benefits of asynchronous learning include:
  - Learners can learn in their own time and schedule
  - Less work for teachers and HR managers
  - Automated tasks reduce repetitive work such as giving online classes and grading exams
  - Learners spend less time in a classroom

Benefits of Blended Learning

The following are the benefits of blended learning:

i. **Accounting for Everyone:** Blended learning takes every type of learner into account, whether they prefer the familiar traditional classroom, would rather learn online, or try a mixture of both. Without the limitations of a classroom or all-online course, blended learning utilizes a variety of methodologies so the content can be customized to the learner and optimized for the subject matter. While not all face-to-face learning is easily translated to digital content, it's possible to re-engineer existing content for online delivery in a way that complements the existing training.

ii. **Learning Trends and Feedback:** Blended learning uses online and offline technologies in tandem, allowing teachers to quickly adopt the latest learning trends and modalities into the curriculum. Teachers can also use built-in reporting features in most LMS software programs for deeper, data driven insights into learner progress and success. For learners, blended learning also offers the unique opportunity to discuss, model, and practice their new skills in a safe space, so they are not just watching or hearing they are doing. By applying the new knowledge shortly after they have left the physical or virtual classroom, learners retain what they have learned.

iii. **Lower Costs:** In-class learning may seem like a cheaper option when compared to eLearning development, but consider the true cost of face-to-face sessions: Time away from work, paying teachers, and flying in remote employees can eat up a significant amount of the L&D budget. A blended eLearning approach cuts down on travel costs and can be used again and again, which reduces teaching time as well.

iv. **Fun and Engagement:** Blended learning is an interactive experience in every sense of the word. Learners reinforce the offline lessons by practicing online through a variety of different content media, each geared to suit a certain learning style. Learners can choose which type of content they want to interact with, practice what they learn, and communicate with teachers and other learners any time and on any device. The community experience keeps learners engaged and informs you about their progress and areas needing more attention

v. **Flexible and accessible:** Having learning materials available on our virtual learning environment enables you to study at your own pace. Notes from your previous class, need a refresher on anything covered in a subject, , or you are revising for exams, the material on the virtual learning environment will be of great help to the learner. The virtual learning environment can also be accessed anywhere, at any time. This means you can make time to learn whenever suits you, even if you are already on campus. By studying via blended learning, a learner can get the best of both worlds.

Blended Learning Models

- When you are teaching a diverse group, it's almost impossible to tailor the learning experience to suit every learner or is it?
- A blended learning model can help you personalize your subject matter for time considerations, learning techniques and even personal preferences, but implementing a blended learning model it requires big changes to how you think about training.
- Take a look at some of these blended learning methods and see if they might work for you:

i. **Face-to-Face**: Traditional teacher-led learning sessions supplemented with technology to allow learners to control their own learning pace. Benefits are role-play, mentoring, hands-on practice, and feedback.

ii. **Rotation**: Learners go from one learning activity to another learning activity, either in a structured learning session directed by a teacher, or online in a self-directed manner. Examples include learning stations, labs, and the flipped classroom where learners practice the lesson before attending the face-to-face training.

iii. **Flex:** Flex learning is a term that can be used interchangeably with personalized learning. By accessing means of integration of learning in a Learning Management System (LMS.), the learners control their learning path, choosing what they to learn. The teacher is usually present in a mentoring capacity, to answer questions.

iv. **Gamification:** One of the most effective ways to motivate learners is by letting them play! By using game play elements such as points or levels, learners feel a little competition and are more motivated to experience the material on their own time.

v. **Online Lab:** This blended learning model is entirely digital, with little or no teacher interaction, and takes place either before, during or after a training. Learners can access content on mobile phones (m-Learning), laptops or tablets. This modality engages and solidifies learning.

vi. **Self-Blend:** Self-blended learning is supplemental content either in the form of webinars, white papers, industry blogs, or video tutorials that help self-motivated learners delve deeper into a subject. A robust LMS can combine diverse content sources under one system to encourage curiosity and growth.

vii. **Online Driver:** This blended learning model is entirely self-directed and takes place in a digital environment. Learners can engage with teacher through chat, email or message board. It provides a flexible schedule and personalized learning, but lacks the face-to-face interaction of other types of blended learning. An LMS is the best way to encourage users to direct their own learning while still monitoring their process as they enjoy media and eventually, engage in classroom discussion. You can choose from existing learning management systems or opt to have an LMS developed specifically for your purposes.

Remote Learning

- Remote learning refers to learning that occurs when the learner and the instructor, or source of information, are separated physically and hence cannot meet in a traditional classroom setting.
- Information is relayed through technology, such as discussion boards, video conferencing, and online assessments.
- In remote learning, educational activities have a variety of formats and methods, most of which take place online as well as lower-tech remote learning options such as Television, radio and mail.
- It is generally agreed that remote learning is a temporary move from face-to-face teaching in a physical classroom to a digital space accessed ‘remotely.
- For teachers, this means a reconfiguring units and lessons to work with online teaching strategies while developing new learning materials optimized for learning online. For students, it means using new tools to go through the same curriculum.

Tools for remote learning

Tools for remote learning can be categorized into; audio, audio-visual and Learning Management Systems.

i. Audio-Based tools

- **A**udio-based learning aids include: audiotapes, Compact Disks (CDs), flash disks, voice records and radio station channels dedicated to education. Audio outputs can be shared through email, WhatsApp or Bluetooth among others.
- The most common audio-based mode of delivery for remote learning is the radio. For long time radio has been used in Kenyan classroom to supplement the work of teachers. Kenya Institute of Curriculum Development (KICD) has ably developed radio educational broadcasts which have been instrumental instructional media during the COVID-19 pandemic. Even today, the radio remains popular and most preferred mode of delivery for learners in remote and hard-to-reach regions where internet & electricity connectivity and computers are limited. However, the radio broadcasts have mainly been for primary and secondary levels.

ii. Audio-Visual tools

- The audio- visual based learning can be delivered through television, videos, desktop computers and laptops among others. There are several television channels disseminating lessons on regular basis. One such channel is the EDU TV owned by Kenya Institute of Curriculum Development.

iii. Learning Management Systems (LMS)

- A Learning Management System (LMS) is software that is designed specifically to create, distribute, and manage the delivery of educational content. LMS are either proprietary (Google Classroom, Edmodo, Microsoft 365, Microsoft Teams etc.) or open-source (Moodle, Chamulo, Open edX, Canvas etc.). The three commonly used LMS by teachers; - Google Classroom, Microsoft 365 and Microsoft Teams

Google Classroom:

- Google Classroom is a free paper-less service that allows teachers to share content, create and mark assignments and communicate with their learners remotely or while at home.
- Teachers can easily set up a class, invite learners and co-teachers, as well as share information such as assignments, announcements, among others.
- To create Google Classroom, you need to follow the following steps

Step 1: Open your web browser and type www.google.co.ke

Step 2: Sign into your Google/Gmail account. If you do not have Sign Up then Sign-in using your correct credentials (username & password)

Step 3: From the play store select the Google classroom app from google apps option or open a Web browser and key in www.classroom.google.com

Step 4: Click on the "+" button at the top right of the Window to create a new class and then click on "Create class."

Step 5: Add information to the created class.

- Type name for the class
- Type “section” field (to differentiate between different classes)
- Type “subject” field and then click on ‘create

- **Step 6**: Inviting learners
  - Click on [ ] square bracket at the title area to display class code and one can copy the link that can be used to invite learners. Learners can log into Google Classroom, (e.g. click on “+” button and join class once code is entered)
  - Now invite learners to your class by email or share the link and class code with learners using a cell phone.
  - To invite learners, click on “People” tab at the top of the window and then, click on “Invite Students” button. You can invite students individually with email addresses or by groups if all students are in a Google Group.

- **Step 7:** Upload learning materials for learners to access. Resources

Note it!

To learn more about how to navigate Google Classroom visit www.classroom.google.com

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Microsoft Office 365 :

- This is a software that provides access to Microsoft Office applications e.g., Word, Excel, PowerPoint online.
- You can access services, such as email and other collaboration tools from Microsoft's cloud server.
- Microsoft Office 365 provides desktop functionalities that are available by subscription.

Step 1: Creating an account in Office 365

  - Open your web browser and log type www.office.com
  - Sign in with your email account credentials

Step 2: Using online Microsoft Applications

- Access your free online Ms Office tools on the top left-hand panel of your screen.
- Type an assignment in MS word, it is automatically saved in your online storage called the OneDrive .

Step 3: Share the assignment with your learners

- Access the online assignment online
- Select the button on the screen and type the email of the learners in the space provided
- Once you share the documents the learners can access and download the assignment work on it offline (without internet connection)
- Once they have completed it they can connect to the internet and upload the assignment.

Step 4: Use this help icon to help you learn more about the online office 365 tools

Microsoft Teams:

- Microsoft Teams is one of the Microsoft Office 365 tools that you can be used to create classes, add students, share files and teaching materials.
- It also has a platform to allow you share and chat as well as create, distribute and grade quizzes. Teachers and learners can work together anytime, anywhere and on any device as long as they have internet connection.

Step 1: Open your web browser and type MS teams on the URL

Step 2. Select sign in to Log in with your assigned user-name and password.

- Microsoft has provided free online tutorials on the Microsoft Teams Homepage to help you learn how to use it.

Step 3: Click on the help icon and use it to help you train on the following;

- Start a chat and use the chat function
- Create courses for your class using the Teams function
- Create assignments using the assignment tool provided.

Mobile Learning:

Mobile Learning (learning) has soared in popularity and emerged as most preferred mode of remote learning in recent times.

M-Learning refers to the process of learning via the internet or network using personal mobile devices such as smartphones, tablets, laptops, and digital notebooks. In this mode, learning across multiple contexts takes place through social and content interactions using personal electronic devices.

It is a form of distance education that supports continuous access to the learning process.

The learning content in this mode can be passed to learners using; text messages, voice messages, video calls, sharing images, sharing documents etc.

Mobile based model of learning uses platforms such as; WhatsApp, MwalimuPlus, Elimika, Elimu bora among others. WhatsApp is the commonest mobile learning application that instructors can use in remote learning



- In this unit, we have looked at ICT learning environment in relation to the ICT Competency Frameworks and ICT learning space.
- We have also looked at the role of the teachers and learners and various stages of ICT development in a school.
- In addition, we have examined the role of ICTs in blended learning and remote learning.
- It is our hope that you can now start reflective on the best way to create a environment that will facilitate learning through use of different ICT tools.