ICT IN EDUCATION

PRESENTED BY GOUNI ICT

Introduction –

As part of the ICT unit Digital literacy and Digital transformation project, today we are going to discuss about ICT In education but before then let me give the definition of digital literacy and digital Transformation.

Digital literacy:

Every teacher is familiar with the concept of literacy—the ability to read and write. A person who is an illiterate, who cannot read or write, will inevitably struggle to get along in society. It is impossible to purse a higher education course or get a high-paying job without the ability to read and write. Even regular norms like reading the sign posts or filling out job application forms are difficult for an illiterate person.

In today's world, literacy goes beyond just the basic ability to read and write. Present generation students will also need to master a new skill called 'DIGITAL LITERACY'. According to Cornell University, digital literacy is "the ability to find, evaluate, utilize, share and create content, using information technologies and the internet".

Educators who lack digital literacy skills may soon find themselves at much disadvantage as those who cannot read or write. Considering that digital literacy is so important, educators are increasingly required to teach students digital literacy in the classroom. In many ways, this is similar to what educators have always done in teaching students how to read and write. However, it is to be pointed out that digital literacy is a brand new skill of professional career.

Digital transformation: Digital transformation involves using digital technologies to remake a process to become more efficient or effective. The idea is to use technology not just to replicate an existing service in a digital form, but to use technology to transform that service into something significantly better.

Our focus today is on ICT in Education.

ICT ICT ICT

You know there is this phobia associated with ICT, when ever ICT is mentioned you will hear some people saying ndi abiakwa ozoo, they have come again, if you are not uploading, you are downloading or offloading.....but what we are doing is for the common good of all, because everything is now technology. There is nothing you can do now without using technology, from using your smartphones, booking flights and traveling round the world everything is now technology. You can't run away from it. We are in Technology age.....

Learning Outcomes

At the end of this presentation you will know:

The Overview of ICT in Education and how to successfully and effectively integrate ICT into teaching practice to improve students' learning outcomes.

Benefits of ICT in Education for teachers, learners, and assessment

PEDAGOGY AND ICT

ICT AND TEACHING/LEARNING STRATEGIES

The 10 Digital skills for lecturers

How to acquire digital skills

As ICT evolves at a fast rate and becomes more and more integrated into every aspect of daily life, teaching and learning professionals are challenged with the task of successfully integrating ICT into education. Due to the proliferation of ICT available and the very nature of teaching and learning, this can sometimes seem like a daunting and complex task.

However, by developing your ICT skills and combining them with your existing pedagogical skills you will be able to use ICT in countless ways to support you in your teaching practice - from sharing knowledge and experiences with your peers to enhancing and improving the learning experience and assessment process for your students. As you build your competences in this area, you will find more and more ways to integrate technology effectively and successfully into your work thereby helping your students to achieve their learning goals.

So what do we mean by ICT? Why should you integrate ICT into education? What are the benefits? And most importantly for you and your students, how do you start to successfully and effectively integrate ICT into your teaching practice to improve learning outcomes?

What do we mean by ICT?

ICT (Information and Communication Technology) covers a broad range of technologies. It can be defined as the technological tools and resources used for transmitting, storing, creating, sharing or exchanging data or information.

Broadly, ICT in education can consist of computers and devices, networks

(Including the Internet and social networks), applications/tools, and digital content.

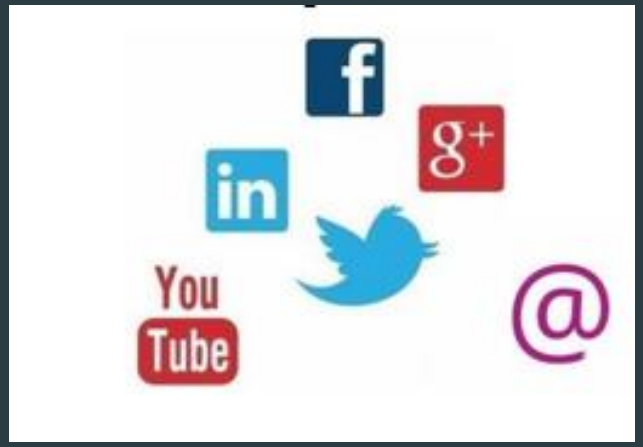
Computers can include traditional desktop computers and mobile computers such as laptops, netbooks and tablets

Devices can include: Mobile devices such as smartphones, media players. Digital and video cameras, and e-readers.

Peripheral devices such as printers, scanners, speakers, webcams, microphones, and gaming devices. Note: speakers, cameras and microphones are often integrated into computers and smartphones.

Network can include external network infrastructures such as the internet and internal network such as intranets.

Social media network where teachers can share experiences, information, lesson ideas. In a learning context, social networks are sometime referred to as learning networks.



Applications/tools can include **generic applications/tools**, such as productivity tools, communication tools, collaboration tools, media authoring tools and assistive technology tools: tools that are used in the workplace, education, and everyday life.

Other types of tools can be broadly classified as **applications/tools that are created specifically for educational purposes**. These tools include subject specific applications/tools, exploratory/game-based tools and learning platforms. Note: Learning platforms are also known as learning management systems (LMS), content management systems (CMS) and virtual learning environments (VLEs).

The breadth of ICT that can be used in education and the diverse nature of the topic is highlighted by the many different terms used to describe the use of ICT in education. Some other terms include:

1. ICT-enhanced teaching, ▫ Educational Technology learning and assessment
2. Edtech
3. Technology-enhanced learning
4. E-learning
5. Learning technologies
6. Computer based learning
7. Online learning
8. CBT

BENEFITS FOR TEACHERS

Supports for a variety of teaching strategies - You will decide which teaching strategy or combination of strategies are appropriate in your teaching context, but you can use ICT to support your choices. ICT can support a variety of traditional and new teaching strategies in many engaging and innovative ways, including:

1. **Learner-centered or personalized learning** where the teaching is tailored to the student's learning needs. For example, you might select resources such as simulations or online quizzes that can be used to enhance the student's abilities.
2. **Collaborative learning** where learning takes place with two or more learners learning together. For example, you might create learning activities where students complete online searches together, or record each other reading, storytelling, or speaking in foreign languages, or complete simulations or games together.
3. **Inquiry-based learning** where learning takes place through problem solving and investigation rather than through presentation of facts. For example, you might create learning activities where students use online searches to discover answers, or use video calls to speak with experts, or document their findings electronically
4. **Project-based teaching or learning** where learning takes place through completing a project over an extended period of time to answer a complex or challenging question or problem. For example, you might create learning activities where students use online searching, or use recording tools to document an experiment, or use multimedia or presentation tools to document their project.

5. Flipped classrooms where the traditional teaching model is flipped. In this strategy the transfer of facts and information, which traditionally takes place in the classroom takes place at home, typically using lecture style videos. And the completion of projects and exercises, traditionally completed as homework, takes place in the classroom.

2. Improving access to resources – You can use ICT to easily find and share resources. For example with the use of Internet and mobile technologies you can access and share resources quickly and easily from wherever you are, whenever you want. And the proliferation of social networks and other education-based websites and portals allows you to easily access a wide range of resources. Many resources are curated and free but you should always use your pedagogical and critical evaluation skills when selecting resources online.

3. Providing a variety of resource formats – You can use a wide variety of digital resource formats including text, images, audio, video, and animation to make your lessons more innovative, interactive and engaging for your students. You can incorporate different formats into your teaching practice, your learning and assessment resources and learning activities.

4. Enhancing and extending learning environments – You can use technologies such as display technologies in the classroom to enhance a traditional learning environment. You can also extend the learning environment to an online environment through the use of Internet connections and technologies such as learning platforms. You can also extend the learning environment to a mobile environment through the use of mobile technologies.

5. Enabling more efficient administration – as well as teaching your lessons, you will have many administrative tasks to complete on a regular basis. You can use ICT tools to complete your administrative tasks more effectively and efficiently. Using tools like spreadsheets, databases, learning platforms and communication technologies to manage tasks like record keeping can give you more time to concentrate on student learning.

6. Supporting continuous professional development - You can use ICT for continuous professional development for example, you can access online courses such as MOOCs (massive open online courses) and webinars (also known as web-based seminars). And you can use collaboration and communication technologies to engage with global and regional online communities and create your own learning networks.

BENEFITS FOR LEARNERS

Many of the benefits that teachers experience from integrating ICT into their teaching practice can also apply to students. But it can be worthwhile to look specifically at the benefits of using ICT for learners, including

1. Supporting a variety of learning strategies – As outlined in the benefits for teachers you can use ICT to support a variety of traditional and new learning strategies including, among others, personalized learning, collaborative learning, and project-based learning. You can also use ICT to support other strategies including:

- **Active learning** where the students participate in the learning process rather than being passive recipients of information. For example, students might find information and resources online or they might complete learning activities designed by you that use ICT tools to complete experiments and document results.

- **Independent learning** where students, who are typically older, take responsibility for their own learning and can set and pursue their own learning goals with minimum direction. For example, older students might search online for information and resources using search engines or social networks or they might create their own learning resources using multimedia tools or productivity tools.

- **Informal learning** where students follow their own learning paths rather than passively receiving information from the teacher as is usually the case in a more formal or traditional teaching model. For example, students might source and take online courses or they might join groups on social networks to share resources and ideas. As well as subjects covered by the curriculum, they might learn about other topics that interest them.

2. **Improving access to learning** – Students can use Internet and mobile technologies to access learning at any time and from any location. For example, older students might use the Internet to find reference materials, take an online tutorial, or communicate with their peers or experts at any time, from any location. And younger students might access ageappropriate learning at home or on a journey - for example they might practice their numeracy and literacy skills at home using online games

3. **Enabling choice of pace of learning** – Students can use ICT to set the pace at which they learn. For example, students can use e-learning courses or simulations to learn at the pace that suits them.

4. Accommodating different learning styles – You can use ICT to support different learning styles by using a variety of digital resource formats. Different formats such as text, image, audio, video, simulations, games, quizzes, and demonstrations can appeal to different learners.

5. Improving motivation and engagement – You can use ICT to improve student motivation and engagement by using a variety of active and engaging electronic resource formats such as videos, games and simulations. Students can also be motivated and engaged by using tools for learning that they typically use in their free time, such as social media tools.

6. Supporting the development of 21st century skills - There are many definitions of 21st century skills defined by different bodies but they can broadly be described in this context as the skills that students need to live and work in the ever-changing digital world of the 21st century. These skills include creativity, critical thinking, problem solving, communication and collaboration skills, the ability to learn, social and civic responsibility, entrepreneurship and cultural skills, and ICT and information literacy skills.

- As well as developing ICT skills by learning how to use technology effectively, students can develop other 21st century skills while using technology in the learning process. For example, you can use technologies like search, collaboration, communication and content creation tools to support collaborative, problem-based and project-based learning strategies. In using these tools as part of the learning process, students can develop a wide range of 21st century skills.

BENEFITS FOR ASSESSMENTS

There are many benefits for teachers and learners from using ICT to support and enhance assessment process, including:

1. Supporting a variety of assessment strategies – You can use ICT to support and enhance a wide range of assessment strategies and types, including diagnostic assessment, formative assessment, summative assessment, formal assessment, informal assessment, self-assessment, peer assessment, and collaborative assessment. For example, you might:

- Use an online survey for diagnostic assessment to determine a student's current abilities or progress.
- Use an electronic portfolio or an onscreen test to demonstrate a student's skill in a summative assessment.
- Use an online quiz, simulation or game for practice and self-assessment

2. Assessing a wider range of skills – You can use ICT to assess a wider range of student skills than can typically be assessed in the classroom. You can use different assessment types such as electronic portfolios, simulations, games, and virtual worlds to allow students to demonstrate skills that go beyond the physical walls of the classroom

3. Enabling improved management – You can use ICT to improve how you manage assessment. For example, you can use tools such as spreadsheets, databases, learning platforms, plagiarism detection software, and communication tools to manage submissions, marking, storage and communication of results.

POTENTIAL CHALLENGES

Despite the many benefits of using ICT in education, it may not always be possible to integrate ICT effectively into your teaching practice. You should be aware of the potential challenges you might face when planning to use ICT in education so that you can plan ways to overcome them. Some potential challenges include:

1. Lack of network infrastructure
2. Lack of computers and devices
3. Lack of technical support
4. Lack of awareness of the benefits of ICT
5. Lack of teachers training and support
6. Lack of appropriate resources

PEDAGOGY AND ICT

Using ICT to support learning styles - You can use ICT to support learning styles in many ways. You can appeal to individual learning styles across teaching, learning and assessment activities by using resource formats that suit the learning style. And when teaching a whole class you can appeal to a range of learning styles in the class by using a variety of formats.

You can support auditory learners using audio-enabled digital content. For example, audio books, podcasts, video, television, radio, and audio enabled e-learning courses. You can also incorporate the use of audio when designing learning activities. For example, you might design a learning activity where students use audio recording devices and editing software to create an audio recording about a subject in the curriculum.

- You can support visual learners using image and video formats. For example, you might use video and graphic rich e-learning, presentations, and online demonstrations, video calls with outside experts or other classes when designing learning activities. For example, you might design a learning activity where students use digital video cameras and video creation software to create a digital story.

- You can use interactive formats such as simulations, interactive games and quizzes to support Kinaesthetic learners. You can also incorporate the use of interactive formats when designing learning activities. For example, you might design a learning activity where students use internet search tools to complete a search for information on a particular topic. Or you might ask students to use a simulation to practice a concept or skills they are learning about in class.

ICT AND TEACHING/LEARNING STRATEGIES

As mentioned when discussing the benefits of using ICT in education there are many approaches to using ICT to support and enhance traditional and new teaching and learning strategies. You will decide which teaching and learning strategy or combination of strategies are appropriate in your teaching context and which type of ICT is appropriate to support your choices. Some examples include:

1. Learner- **centered** learning
2. Collaborative learning
3. Informal learning

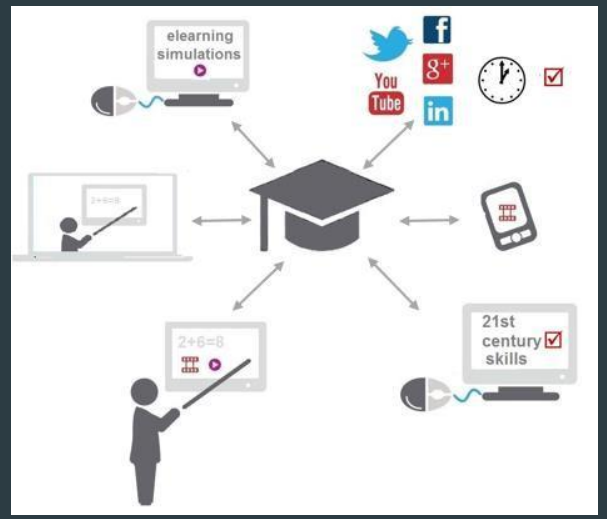
- **Learner-Centered Learning**

In a learner-centered learning approach, sometimes known as a personalized or differentiated learning approach, the teacher's focus is on tailoring learning to suit the individual student and their needs, their background knowledge, abilities, interests, and learning style. In this model the student is an active participant, constructing their own learning, at their own pace. This is in contrast to traditional teacher-**centered** learning approaches, where the teacher is a knowledge expert, transferring information to a passive student, at a pace set by the teacher.

Examples of how you can use ICT to support learner-centred learning include:

- Using tools like simulations and online quizzes to assess learning progress.
- Using tools like online surveys to identify individual learning styles.
- Designing strategies to suit individual learning styles by using different resource formats.
- Students using tools like e-learning courses to learn at their own pace.

Students using tools like Internet search tools to become active participants in constructing their own learning

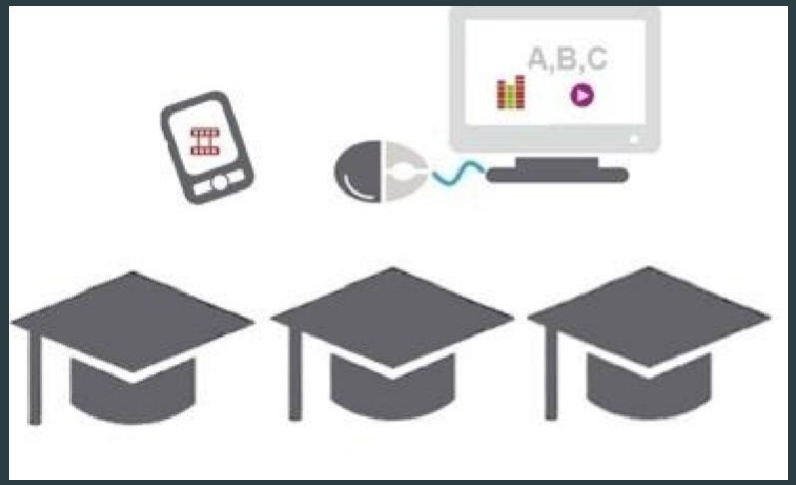


Collaborative Learning

In collaborative learning approaches, the teachers focus is on facilitating two or more students or a whole group to work together to learn something. This can take the form of finding information, solving problems, discussing topics and creating information together. Teachers are facilitators in this type of learning and students are active participants in their own learning.

You can use ICT in learning activities that supports collaboration between students including:

1. Activities where students use the internet to find information together
2. Activities where students use collaboration tools to crate content collaboratively
3. Activities where students use communication tools to discuss topics and solve problems together.



- **INFORMAL LEARNING**

In informal learning, students learn in an informal context that is not directed by their teachers. In this type of learning, students are active participants in their own learning, they use their own approaches to learning and set their own learning goals. This is generally more relevant for older students.

- ICT provides tools that can support informal learning. Using Internet and mobile technologies, students can access information when and how they want and at a pace they set themselves. Some examples include:

1. Searching for information using search engines.
2. Communicating using online chat tools or social media.
3. Collaborating to complete projects using tools like online storage tools.
4. Creating content using blogs.
5. Participating in courses using online learning websites.

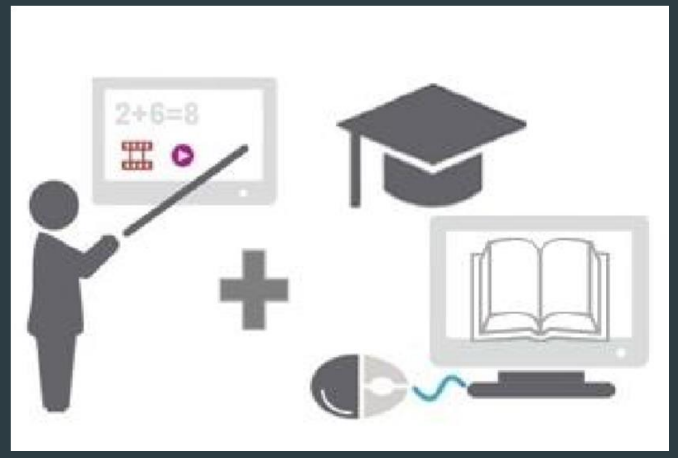
ICT AND THE LEARNING ENVIRONMENT

You can use ICT to support a variety of learning environments from traditional teaching environments to blended learning environment to online learning environments.

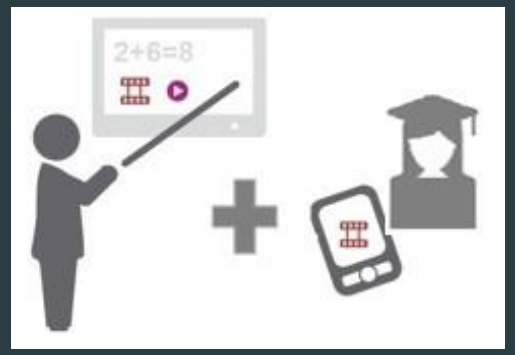
Traditional teaching environments

In traditional teaching environments the teacher's focus is on transferring knowledge to students and enabling learning within a classroom environment. In a traditional teaching environment you can use ICT to enhance your teaching, engage your students and improve their motivation.

For example, you might use presentational technologies such as interactive whiteboards, digital projectors, and screen sharing software. Or you might use digital educational resources on devices like tablets instead of traditional books.



Blended learning



For example, you might introduce a topic in a class and follow up with a simulation in class or an online discussion after class. Or you may use a flipped classroom approach where you ask older students to read instructional materials or watch video lectures for homework. Then you can use the time in class for problem solving and project work to reinforce the learning.

Online learning

- In online learning all of the teaching and learning takes place online using internet connected computers and devices, including mobile devices. There are many approaches to online learning for example, in an online course you might use email for sending instructions, learning materials and assessment to students. Or you might attend or hold tutorial online using ‘webinar’. Or you might take part in an online course delivered and managed completely online over several weeks or months delivered using a learning platform or other form of online delivery.

In blended learning the teacher combines the traditional classroom environment with online learning practices. This approach can be a good way to facilitate active and independent learning among students

10 Digital literacy skills for lecturers -

1. Ability to use smartphones, tablets and computers
2. Proficiency in key applications such as Microsoft Word, Excel, and PowerPoint and specialized applications and use of email
3. Record and edit audio clips
4. Create interactive and engaging video content
5. Create visually engaging content - using Google draw
6. Ability to use the internet for academic purposes
7. Use social networking websites to connect , discover new content, collaborate and grow professionally
8. Ability to share information online
9. Ability to use learning management systems
10. Ability to teach students using different classroom technologies and applications

How to acquire Digital skills

Online

GCCP ICT in Education Training

Conclusion

Integrating ICT in Education is key to encouraging learning from nursery through adulthood. It is essential to student's success and lifelong improvement. To increase a student's chances of success, administrators must place a growing emphasis on digital skills, not just on teaching how technology works but how to successfully and effectively integrate ICT into teaching practice to improve students' learning outcomes.

"If we don't teach our students technology we deny them of their future"