1st Edition

EFFECTIVE DIGITAL PEDAGOGY SKILLS

21st Century Learning Facilitation

A GUIDE FOR TEACHERS, LECTURERS, TUTORS AND TRAINERS TO FACILITATE MEANINGFUL DIGITAL LEARNING EXPERIENCES

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This is a book format of the course available online at https://tinyurl.com/3y8t872f

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INTRODUCTION

Effective Digital Pedagogy is aimed at offering practical digital skills & knowledge to teachers, lecturers, teaching professionals and trainers in facilitating beneficial digital learning. It is aimed at helping teachers and all educators in the purposeful application of new technologies to enhance teaching and learning using Information and Communication Technologies (ICTs).

New 'Digital' Pedagogies have emerged which have shifted the focus of education away from teaching to learning, content delivery to interaction, face-to-face towards an online, interactive, constructionist pedagogy, which can be led by the student, as much as the teacher.

As an educator, you need to transform how you approach and think about teaching using available ICT for education tools in order to amplify learning and develop your own digital learning materials, improve your content access & interactivity while keeping your value in the education processes at the top level in this digital era.

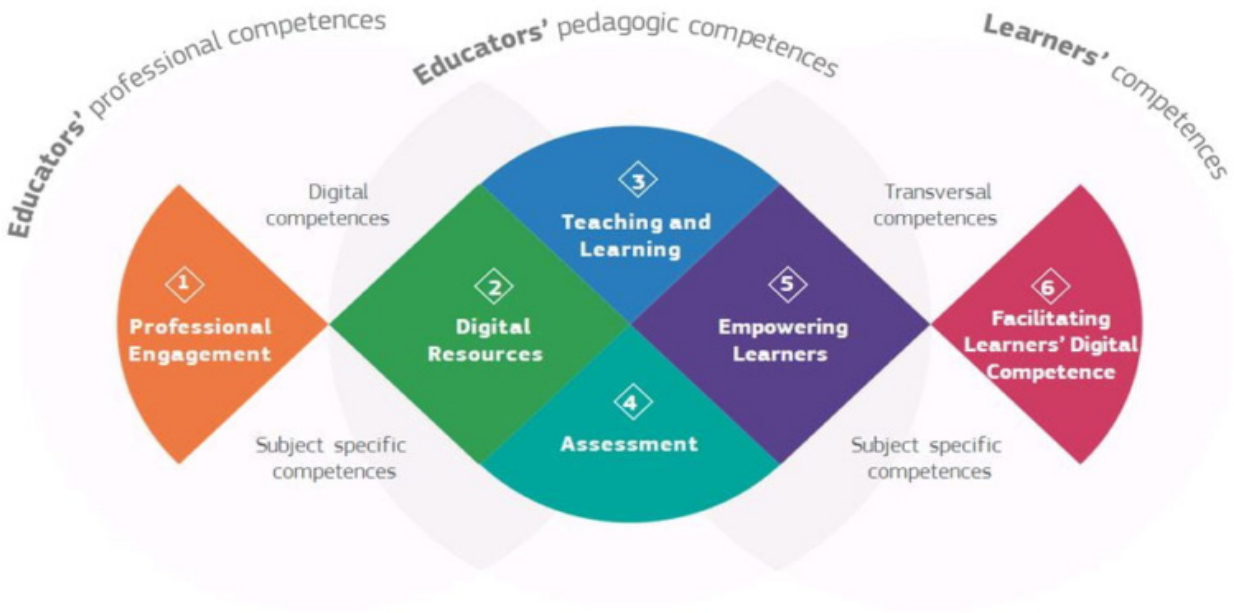
This Effective Digital Pedagogy publication is intended to inspire you as a teacher to develop the mind-set, skills and knowledge to create digital hybrid courses rich with digital content for subjects you are already qualified in, as well as student engagement and mentoring suitable for the 21st century learner- with good pedagogical considerations.

It is based on a self-paced learning course (https://tinyurl.com/yc2etaa8) that Ultimate Multimedia Consult/Yaaka Digital network offers with Makerere University Department of Journalism and Communication) to equip teachers/instructors for better provision of relevant content in text, images, video, audio, graphics, animations and or relevant virtual reality that will make teaching and learning of intended content interactive and interesting among the learners.

We hope you get convinced on the need for adoption of education technologies and new ways of teaching for better learning experiences and outcomes.

Digital technologies can greatly help in providing quality accessible and affordable education. The UN SDG 4.7 calls for quality and inclusive education to develop peaceful and sustainable societies. Teachers play a critical role in the learning path of their students or pupils. Teachers need to be equipped with the right skills set to use the digital medium effectively in order to make learning fun, interactive and immersive, which will in turn help learners to best comprehend and maximize their individual potential.

Key stakeholders from the African Union's Commission for Education, Science, Technology, and Innovation, have emphasized that "the pandemic had reinforced the importance to transform education systems across the continent through digital education." and the institution further explained the aim of the Africa Union's digital technology strategy takes a holistic approach towards spanning access, quality, learning contents, pedagogy, connectivity, and devices.



It is well established that teacher quality has a direct positive impact on student achievement. Teachers are increasingly expected to employ integrated technology practices in their classrooms to help students learn better. Furthermore, teachers act as planners, initiators, climate builders, facilitators and guides, and are central to interpreting and implementing any curriculum. It is thus imperative to invest in teacher training and professional development that ensures proper understanding of digital pedagogy so teachers are ready to provide relevant and impactful learning experiences to those they teach.

It is highly recommended you undertake the following courses as well at your convenience if you are to become the best in teaching and education improvement for today and tomorrow.

COURSE NAME	Link to Website (URL)	QR SCAN CODE
EDUCATIONAL TECHNOLOGY	https://tinyurl.com/y5u28spk	
TEACHING METHODS	https://tinyurl.com/3emzekcj	
EDUCATIONAL CURRICULUM DESIGNS	https://tinyurl.com/3wzwmz3v	
SPECIAL EDUCATION	https://tinyurl.com/y9kr9522	

It is advisable to also do

COURSE NAME	Link to Website (URL)	QR SCAN CODE
MEDIA AND INFORMATION LITERACY FOR TEACHERS, POLICY MAKERS & PROFESSIONALS	https://tinyurl.com/2axxfh2n	

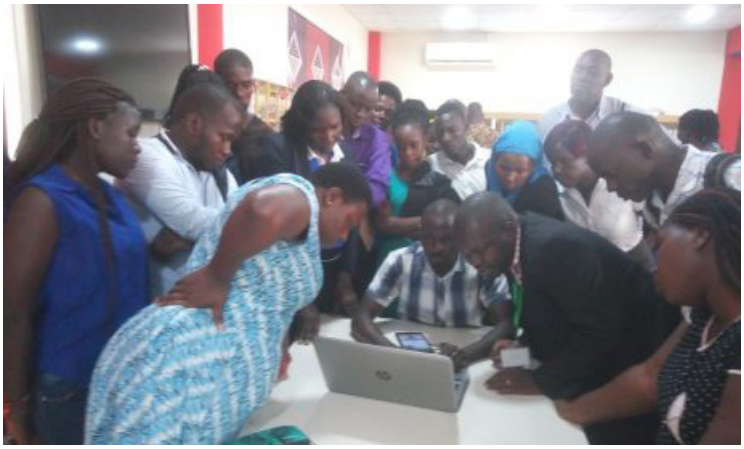
Note that we have provided links to cited concepts, works, tools and tutorials. We encourage you to watch the videos off links provided to get more insights on the concepts. The citation of academic content format followed in this compilation is online oriented, not for traditional books.

THE URGENCY OF DIGITAL PEDAGOGY

As a professional teacher, tutor, lecturer or trainer, you might be familiar with the two key words: pedagogy and digital. While pedagogy can be defined as the method and practice of teaching, digital pedagogy refers to the use of technologies in teaching and learning. You can watch this video https://tinyurl.com/3s7rhjh6 summarizing a digital pedagogy training for teachers.

You can scan the QR Code below

More than just the technology



Digital pedagogy isn't just about the digital tools that are now available for educators to use in the classroom or to teach and facilitate learning virtually. It is an ethos that educators embrace in all of their teaching and learning practices while using different technologies to aid teaching and learning. The tools may change, but the practices stay the same.

What you need most as an educator is the skill to evaluate emerging digital tools and how to integrate them into your teaching, while maintaining a consistent pedagogical vision for your classes and or learners.

This publication is aimed at exploring with you how technology can show us new ways to think and learn what technology to use when and how— as well as when we should not consider any technology. It is about exploring how to bring new approaches and tools into your teaching, while also allowing your students to make

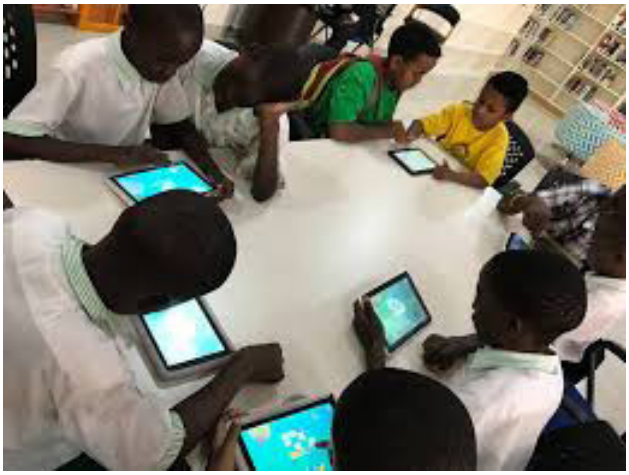
critical choices about how they learn, develop themselves and share their knowledge and experiences.

Are you tapping the education technology opportunities?

It is no secret that changes in education supporting technology are creating opportunities for schools, teachers and individuals; including greater access to rich, multimedia content especially on the internet, the increasing use of online course taking platforms and learning materials-but how much of this are you as a teacher contributing to or influencing. How much digital content are you using to teach (facilitate learning of your targets), or better have you created?

Despite the fact that in most countries digital devices and applications are widely employed for teaching and learning purposes, education fails to respond to the emerging needs and foster 21st century skills due to domination of traditional pedagogical approaches and methods. To address these challenges, UNESCO recommends (https://tinyurl.com/ayj84m4r) reform of the educational paradigm and the revision of traditional pedagogy and curriculum are needed.

Don't let this widespread availability of mobile computing devices that can access the Internet (phones, tablets, iPods, watches, smart TVs) go untapped. Or the expanding role of social networking tools for learning and professional development, and the growing interest in the power of digital games for more personalized learning pass you by.



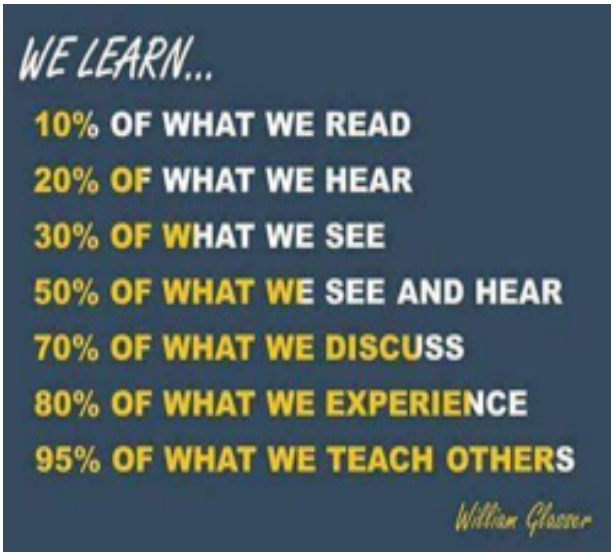
It is not just about being aware or witnessing the uptake of technologies but having the right strategy to ensure the best education outcomes while using technologies.

The government of Uganda had by 2014 for example set up more than 1,450 computer laboratories (https://tinyurl.com/jczx7akt) in both government and private schools across the country, while many private schools are using presence of computer laboratories as an indicator of offering good quality digital enabled education. Most tertiary institutions including universities have computer labs and emphasize computer skills as a key learning achievement. The horizon has been further enchanted with increased development of education supporting digital tools and apps that can help teachers and learners improve teaching and learning. In all this we continue to see limited if any active participation of teachers, tutors and lecturers, with some only eager to share digital content developed by others from more developed countries or non-profits.

While education technologies have over the years ushered in fundamental structural changes that can be integral to achieving significant improvements in education in many countries, there are limited professional development (PD) processes and support

given to teachers, lecturers and trainers of teachers to adopt and adapt to education technologies and new ways of teaching for better learning outcomes. This has resulted in limited or half-hearted adoption of digital teaching and digital learning. A report by USAID Supported ICT Works noted that there are many professional development (PD) processes (https://tinyurl.com/pbfh9cuf) that are:

1. Ignoring PD Needs: Teachers are handed technology and expected to know how to integrate it into the classroom with no professional development or training.
2. Poor PD Practices: Teachers are provided with basic orientation on a technology with very little practical application. Imagine PowerPoint's and lots of talking, no doing.
3. Limited PD Interventions: Teachers are provided with one PD session which involves practical application before an intervention begins, with no concrete practical utilisation.
4. Tech-focused PD: Teachers are trained to use a specific technology which might or might not accompany content/curriculum. This is often very structured and teachers are provided a play by play of what should happen in the classroom, which sometimes is not relevant.



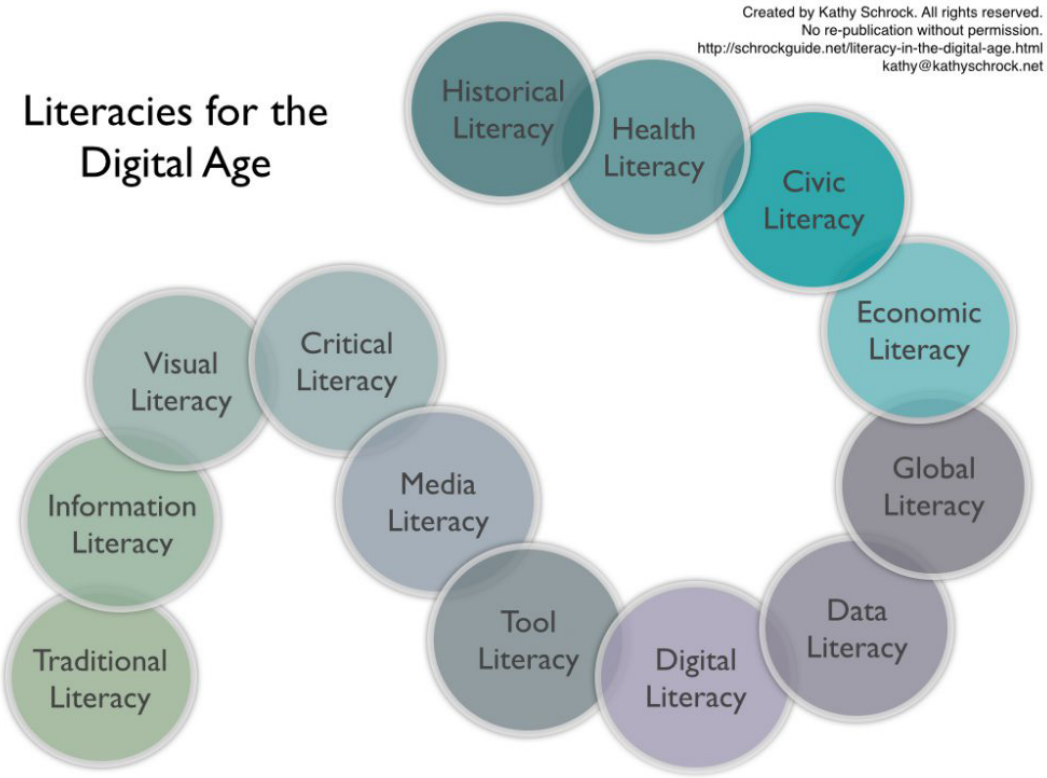
Teachers need to be enabled to use the good technology tools available to create and facilitate successful learning experiences. The next topics are aimed at helping you in the purposeful application of new technologies to enhance teaching and learning. This Digital Pedagogy publication is focused on:

Teachers change We help teachers to show not tell. We help teachers understand what good facilitation with technology looks like - (I DO/WE DO/YOU DO).

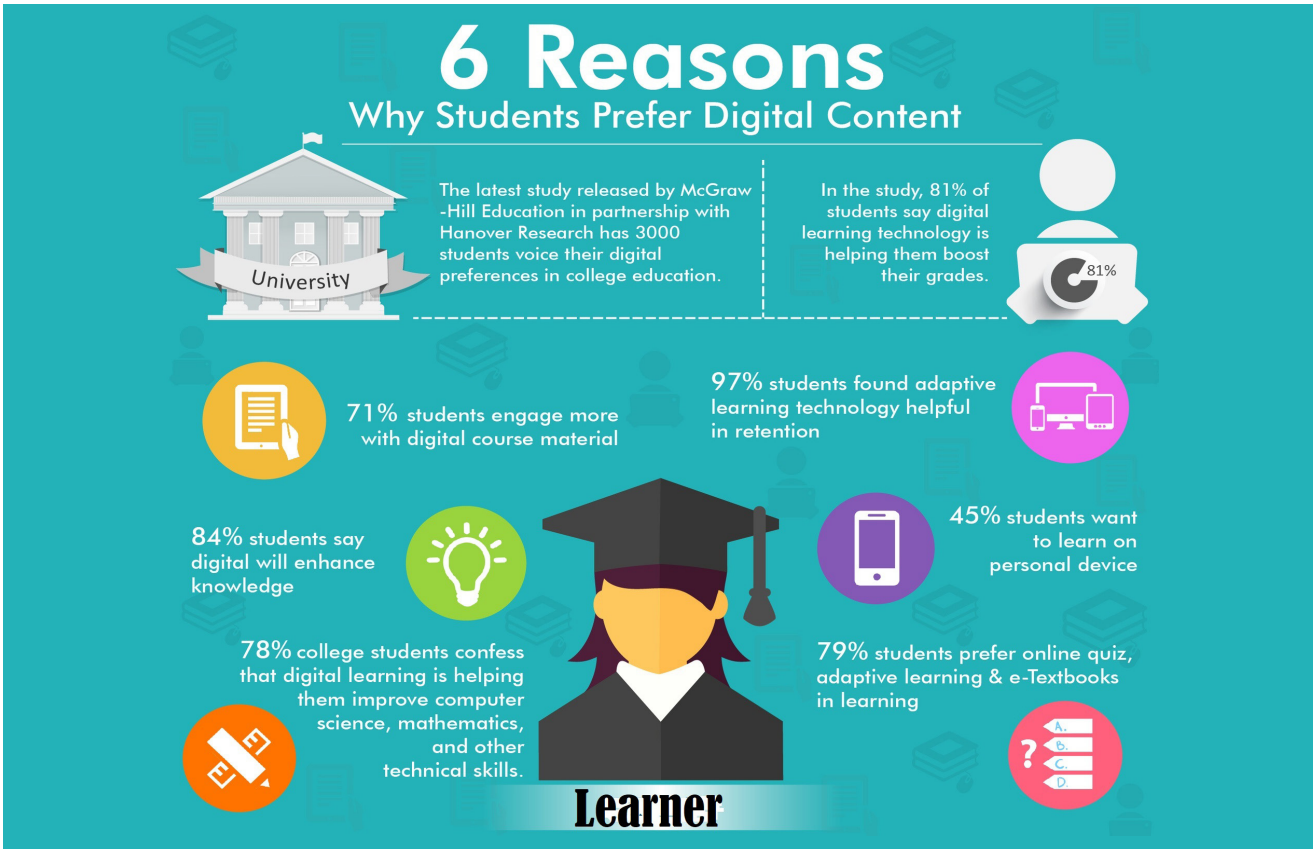
Teachers are designers, not just deliverers. For technology to be an amplifier in the classroom, teachers need the skills to design the learning experience.

Not one Tool, Any: Good professional development takes a learning-first approach. This means that teachers know how to adapt any tool or a digital activity into an analog activity.

Need for continuous experimentation and learning towards better digital teaching -should be incremental, iterative, continuously building on new skills & responsive to teachers' needs.



But the big question is do students like learning using digital tools? It is a question you can answer best if you ask it in your own class or ask your own children. Different studies have shown that many young learners have a high preference for learning digitally.



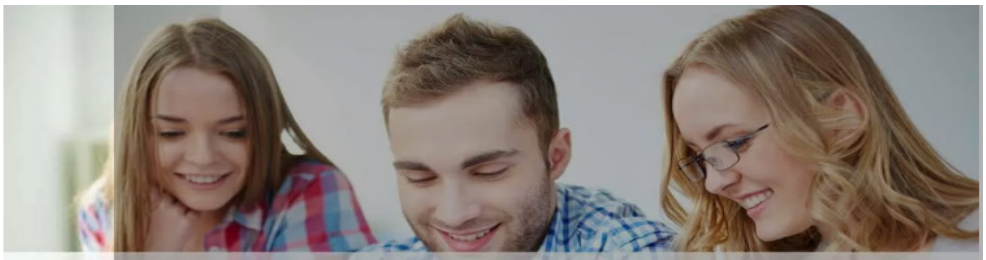
But beyond the technology, there is real urgency for all teachers, tutors, lecturers and trainers to advance to the highly acclaimed practice of learner centered education approaches. Digital technologies and a digital pedagogy mindset give us the best opportunity to focus on learning and not on teaching/ lecturing, as well as to best tap the growth mindset of learners.

Learner-Centered Teaching Techniques are defined by a shift from a teacher or lecturer focused classroom environment to one that is focused on the needs of the students. Learning is an active search for meaning by the learner and constructed rather than passively received.

Thinking critically about this and implementing it will drive us towards that ideal of what makes teachers good or even great. Not the way you as a teacher, lecturer, tutor or trainer think, but as the learners think. You will also get to understand the whys and how of offering recommended education including competence-based training, individual learning paths, multimedia content for learning, gamification, blended learning, functional education, flipping the classroom and other such concepts that we are going to explore in detail in the coming topics.

We hope you are inspired to do more than you have been doing, to change and adapt what you can, to learn and unlearn as well as to keep your teaching/ learning facilitation interesting and focused on the future.

More important, that you have mastered the truth that it is the student that learns and all education should be focused on the learner.



instructional methods

learner- centered

Cooperative
Cooperative learning involves small groups working together to accomplish a learning task.

Presentations
Presentations are learner presented assignments. Students can do these in groups or individually.

Panel/Expert
Panels are a way to include many voices on a subject. Students can write & ask the questions in a Q & A session.

KWL
Put it on the poster. What do you know? Want to know? Learn? How about the enhanced version- KWHLAQ?

Brainstorming
Brainstorming puts the thinker to work. Present a situation. Ask learners to creatively think.

Create Media
Present an issue and have the students create a public service video.

Discussion
Present an issue and have the students talk about it. If they need add info, have them go find it.

Small Group
What can a group of people accomplish? Draw out the best characteristics of the group. Assign roles.

Case Study
Use case studies in the classroom to learn about complex issues, apply critical thinking, and explore scenarios.

Jigsaw
Break students into groups, giving each member a different task. Bring group back together and share.

Learning Center
Break up the classroom into different activities. After a set time ask students to rotate to new activity.

Experiments
Design experiments and have students engage. Or, ask students to design the experiment.

Role Play
Role playing allows the learner to try out the experience. It can be instructor created or learner created.

Simulation
Computer simulation has grown. Use technology to simulate a real event. Practice without fear of failure.

Lab
Setting up the class in a lab style enables students free movement and hands-on activities.

Workshop
Students can create the workshop and conduct it with her peers. The peers can then give feedback.

Demonstration
Demonstrations are a fun way to get students involved. Try cooking demonstrations or science demonstrations.

Index Card
There are 101 ways to use an index card. Give the students the index card and ask them to create the activity. Set the guidelines together.

Inquiry based
Inquiry based learning starts with a question. It comes in many forms. Try guided inquiry for more structure. Try open inquiry for less.

Mental Models
Build mental models that can withstand new information. Draw out your mental model. Test it. Challenge it. Build it.

Project
A project simulates what a learner could do at the workplace. It could also be a service project where students create positive change.

Problem
Problem based learning seeks to solve problems. It might be a part of a problem. Learner finds solutions, while instructor facilitates.

Discovery
Discovery can be broad or narrow in scope. Some discovery learning allows the learner to choose a topic and explore.

Q & A
A Q & A session allows learners and facilitators to learn more from each other.

Social Media
Use social media to effectively share a message. Get feedback. Keep it short and to the point. Did you convey effectively the message?

Games
Games can be used to teach concepts, to give a learner a break to think, or to challenge one's ideas.

Competitions
Students can engage in competitions locally or internationally. This allows the learner to engage with others around the world.

Debate
During a debate students challenge each other. The debate can take a break at intervals for additional research.

By: Mia MacMeekin
https://anethicalisland.wordpress.com

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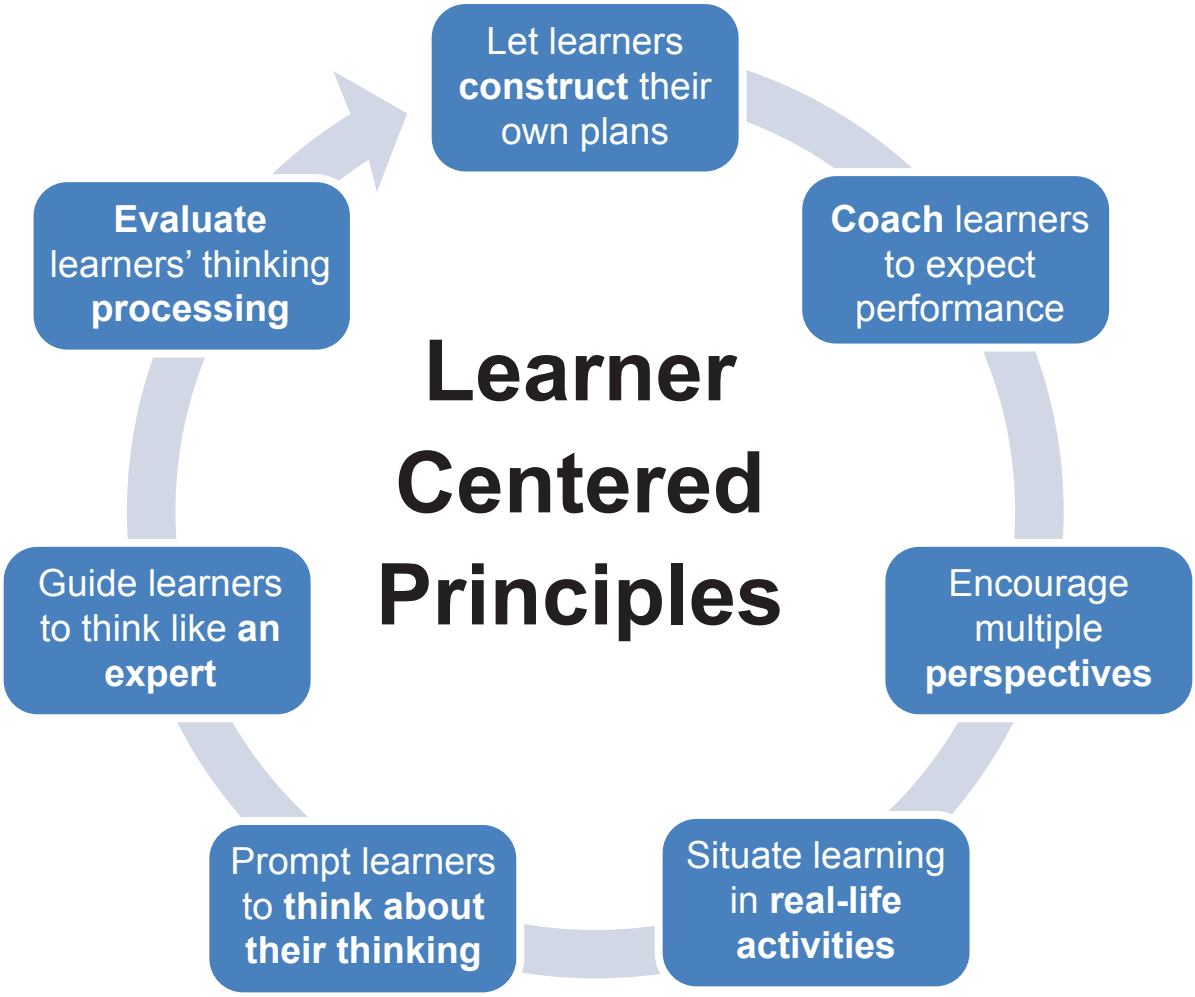
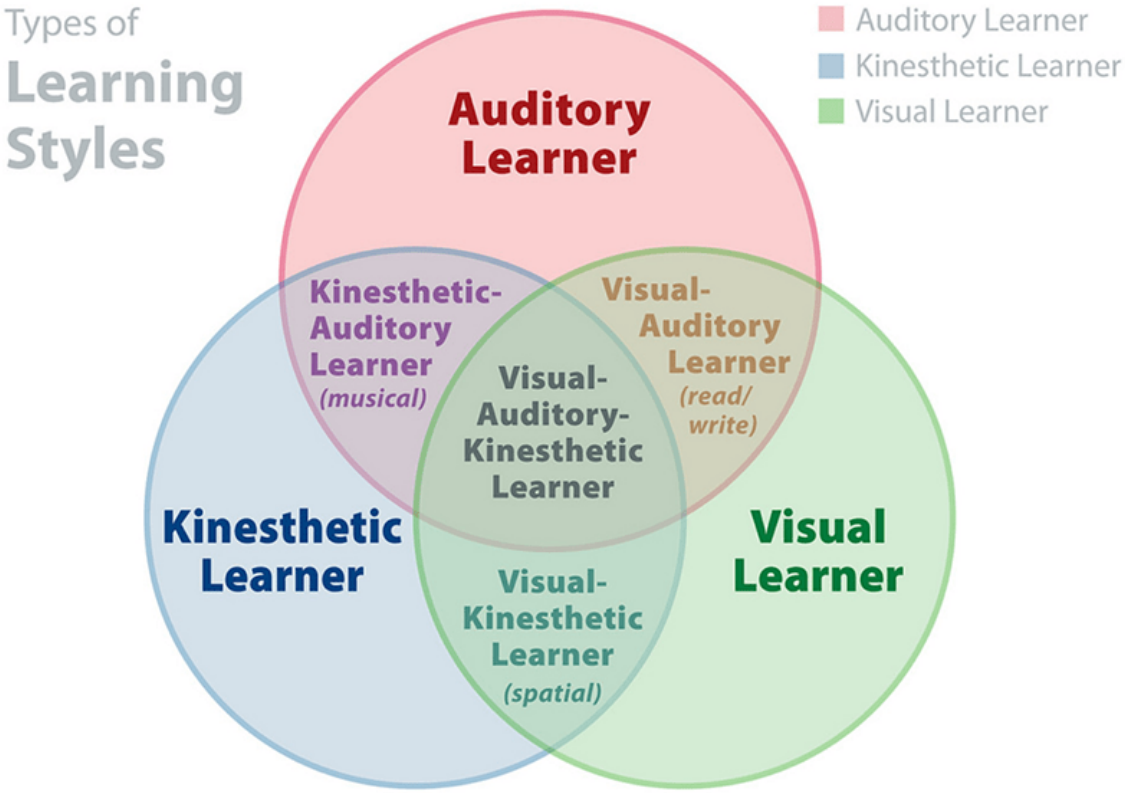
http://teaching.uncc.edu/learning-resources/articles-books/best-practice/instructional-methods/150-teaching-methods
https://www.csn.edu/pages/2359.asp
http://www1.appstate.edu/~wertsmg/teachmeth.htm



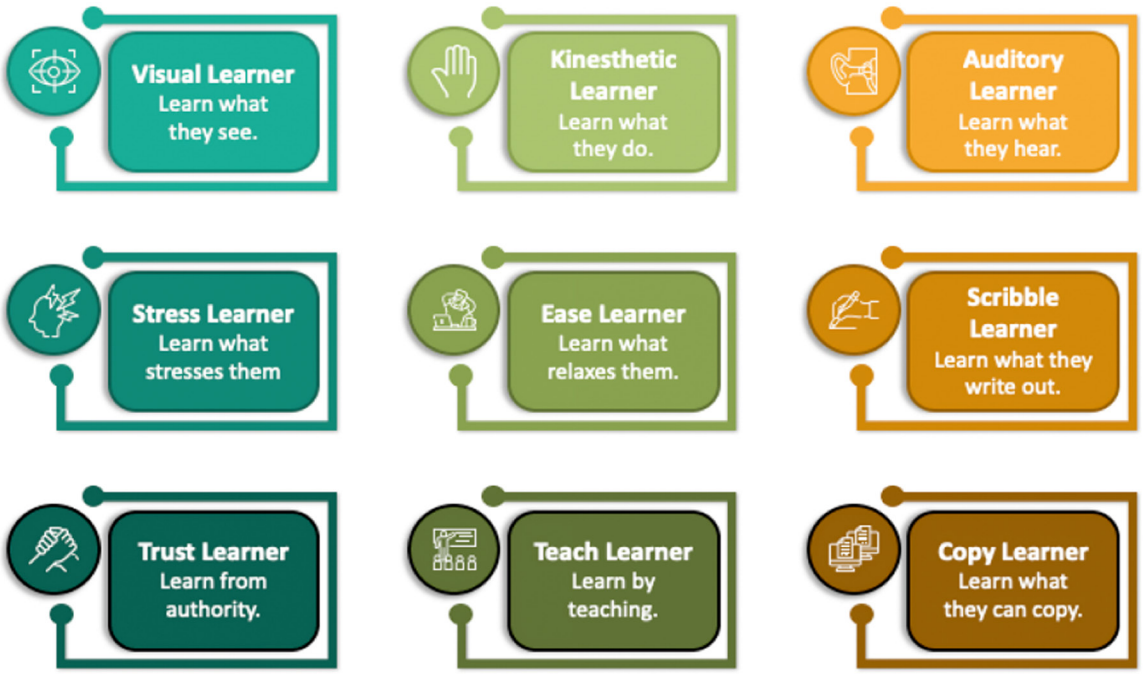
Key in being a good teacher, lecturer or trainer is appreciating that not all people learn the same way. There are different types of learners as explained in this video https://www.youtube.com/embed/FVg9n0I0Gf0 and we need to prepare appropriately for the different types of learners.

scan the QR Code Below



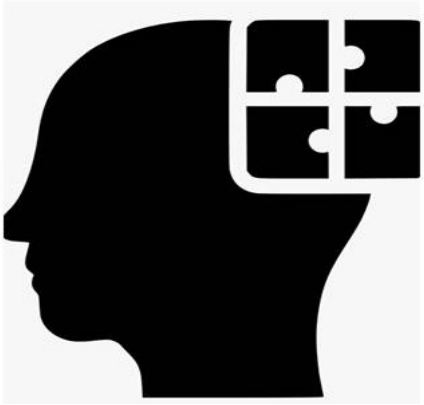
It helps to understand the different types of learners in your class and strive to provide for all of them instead of using one method or similar sets of methods as explained in this video https://tinyurl.com/236tytmc

You can watch the video using the QR Code below



KEY DIGITAL PEDAGOGY PRACTICES

HAVING THE RIGHT MINDSET TO EMBRACE AND INTEGRATE TECHNOLOGY IN YOUR TEACHING AND LEARNING METHODS



EXPLORING AND CHOOSING THE RIGHT TECHNOLOGY AND TOOLS TO INTEGRATE INTO YOUR TEACHING METHODS

CREATING A LEARNER CENTERED TEACHING ENVIRONMENT TO FOSTER CREATIVITY, EXPRESSION AND INNOVATION FROM LEARNERS

NOTE that Digital Pedagogy is similar to but slightly different from Digital learning. The latter refers to learning that is facilitated by technology and gives learners some control over time, place, path and/or pace. It involves ICTs to support the learner interaction with digital materials designed to help learners reach specific learning outcomes (more in the next topic).

As we conclude this introduction, we invite you to watch this video below on what learners think makes a great teacher. As explained in this video https://tinyurl.com/xjc9k4vn

use the QR Code below

Here are more resources you can explore

Tips for Humanizing digital Pedagogy- https://tinyurl.com/3pd6kewr

Digitally Enhanced Teaching and Learning- https://tinyurl.com/4c8rvedz

Japanese E-learning model - https://tinyurl.com/4p9x9au7

Qualities of a great teacher - https://tinyurl.com/a68kwsyk

HOW IS DIGITAL PEDAGOGY DIFFERENT?

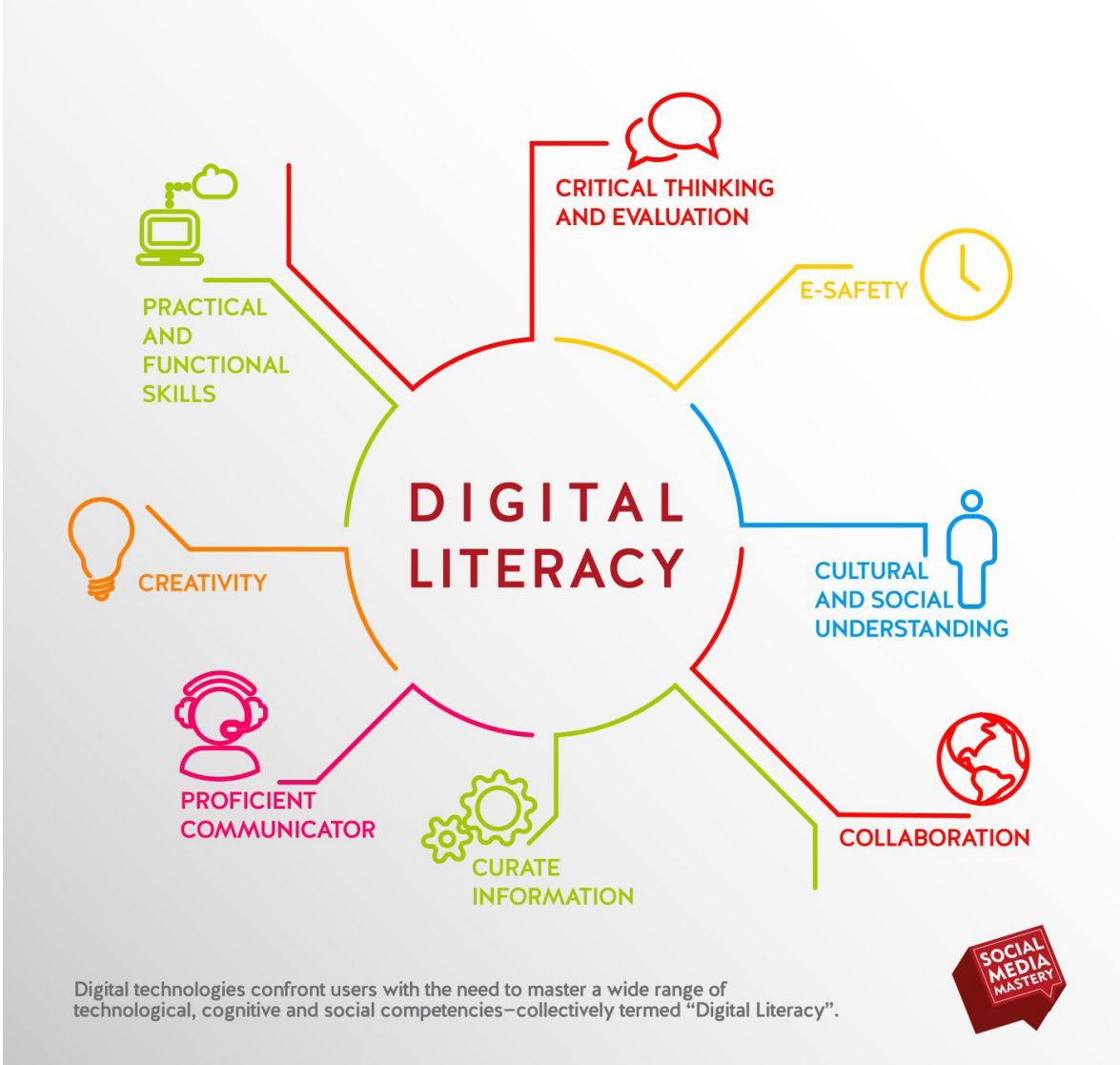
Before we dive deep, it is import to understand the difference between digital pedagogy and what digital pedagogy isn't. Many teachers, lecturers, tutors and trainers think online learning or even digital pedagogy is just about setting up a WordPress website and upload your content there, do tutorials on YouTube, or ensure all your learning materials are digitized and put on your school LMS or an industry one like Yaaka Digital Network www.yaaka.cc . This is far from the truth as digital pedagogy and online learning facilitation call for a different approach. It is this different mindset and thinking that will set you apart as a digital teacher or learning facilitator.

Watch this short video on teacher talk about digital pedagogy https://tinyurl.com/rzezej3b

The QR Code Below can also work for you. Simply Scan

How does Digital Pedagogy Differs from Traditional Methods of Teaching?

- Digital Pedagogy enables learners create their own content rather than consume everything provided by the teacher.
- Digital Pedagogy involves the use of technology and digital tools to aid teaching and learning.
- Digital Pedagogy involves more space for conversation and discussion rather than a controlled classroom.
- With Digital Pedagogy, learners and trainers can interact with the study material to suggest changes/ corrections and additional information.
- Digital Pedagogy provides access to learning and study material outside the classroom.
- Digital Pedagogy involves more collaborative learning than individual learning
- It is linked to the need to equip learners with digital literacy skills, beyond subject content.



The use of a wide range of pedagogies enables children's learning including teacher-centred and student-centred approaches, depending on the stage of the lesson and the lesson goals.

Role of Teacher in Digital Pedagogy

- Facilitate and Guide Learning
- Encourage and Foster Creativity In The Learners
- Prepare interactive learning material
- Create learner centered environment for students to create and innovate.

How using digital technologies can change teaching practices

- Using incorporated, production and evaluation of games; drawing on multimodal and real-world situations for literacy learning. This example

demonstrates some of the practices associated with literacies, particularly text production and learning to write using digital technologies.

- The pedagogies described show that there is a great flexibility associated with the teaching and learning of writing literacies. Learning can be collaborative or co-constructed in one instance and an individual undertaking the next. Children can learn through teacher-centred approaches, but also through student-centred opportunities that encourage greater independence and incorporate student choice about their learning.
- When student-centred pedagogies are used, students enact elements of their own learning and the classroom can take on a less defined form. Movement should not be restricted and students should have a greater degree of control over their learning.
- The teacher can be able to balance whole class activities with individual tasks, and student-centred and teacher-centred pedagogic experiences thereby incorporate digital literacies and technologies that engage children in broader literacy learning outcomes.

This understanding should be focused on the future of education than current practices. Watch the video below to understand more about the future of education https://tinyurl.com/2zv8s76a

Use the QR Code below to watch the video as well

BECOMING A MASTER OF DIGITAL PEDAGOGY AND ONLINE LEARNING

You can listen to the topic **audio by clicking on the link** https://tinyurl.com/4pewua32 or scan the QR Code to listen

We have already noted that Digital Pedagogy isn't just about the digital tools that are now available for educators to use in the classroom. It is an ethos that educators embrace in all of their teaching and learning practices. The tools may change, but the practices stay the same. In this topic, we explore how to evaluate emerging digital tools and how to integrate them into your teaching, while maintaining a consistent pedagogical vision for your classes.

USING DIFFERENT TECHNOLOGIES IN TEACHING AND LEARNING

Pedagogy is essentially a critical thinking exercise directed at learning and teaching. Pedagogy asks us to never teach by rote: never assume the use of a podium, or an overhead projector, or desks situated in rows, or a chalkboard.

What about when we teach online? Where are our walls and chairs and podium in digital space? For some, the coded boundaries of the LMS (Learning Management System) replace the solid borders of the classroom, and discussion fora become the arrangement of chairs. Video lectures have been used to replicate an instructor's presence on the screen, and quizzes with algorithmically automated teacherly responses offer feedback in lieu of written notes and gold stars. But it's important to think bigger about where the walls are, where our teaching territory lies.

And here's why: because when we teach digitally—whether online, or in hybrid environments (and all learning today is necessarily hybrid https://tinyurl.com/4seywptk)—walls become arbitrary. All walls. And all seats and all podiums and all chalkboards, too. LMSs have more than snack-sized shortcomings, but the biggest dilemma they pose is that they create the illusion of digital learning without really ever encountering the Internet. Like all illusions, this is misleading, because digital learning (and by necessity, digital pedagogy) takes place all over the web.

The digital adds another not-at-all-discrete meta-level layer as Jesse Stommel wrote in Decoding Digital Pedagogy, pt. 2: (Un)Mapping the Terrain."The tools we use for learning, the ones that have become so ubiquitous, each influence what, where, and how we learn—and, even more, how we think about learning. Books. Pixels. Track pads. Keyboards. E-books. Databases. Digital archives. Learning management systems. New platforms and interfaces are developed every week, popping up like daisies (or wildfires). None of these tools have what we value most about education coded into them in advance" Jesse said.

It is not that the technologies are bad. They actually can improve teaching and learning. But we need a digital pedagogy mindset to make the best use of all these technologies in order to achieve better learning outcomes.

Digital Learning isn't about the platform or tool

Individual digital tools have been largely created in order to connect people and to facilitate knowledge exchange. They are like stalls at a public market. In one, you can buy fresh produce, in another jewelry, in another tie-dye shirts and aprons. Each is meant to give you a specific interaction with part of the whole. This is also true of traditional classrooms. You go to room 202 in the Humanities building to learn English, but you go to room 556 in the Science building to take your math class. The LMS, the market stall, the classroom all have this in common: they make particular and small that which is widespread.

Digital learning and indeed digital pedagogy is much bigger than Online learning, as there are offline opportunities to offer digital learning, including use of projectors in the classroom, pre-recorded audio or video shared to learners digital gadgets offline or even Local Area Networks (LAN) or Wireless Local Area Network (WLAN) we might create at our campuses.

Remember there are no true walls on the Internet, LANs or WLANs. There are only the walls we choose. We may teach part of our class on-ground and part of it within an LMS, or we may put our syllabus online and conduct backchannel discussions on Twitter between classes. But as trainers, we can never be certain that our students will choose the same walls we choose for them. While they are in our on-ground classroom, they are also on Twitter and Facebook. They've just "pinned" a photo of our slideshow to Pinterest or Instagram. They can post their photo story on Facebook or a blog, or a video on YouTube and Tiktok. And by doing so, they've made the class extant, and their own participation ongoing. They've broken the walls of the classroom (or the LMS) on their own, and so broken down the boundaries of when and where learning takes place.

A digital Pedagogy mindset acknowledges that learning does not take place only in the class, on one LMS or platform, or even one location.

That students can break the walls between which we plan our teaching means that we must adjust our pedagogical approach. And that's the core of digital pedagogy: an acknowledgement that **the space of learning is more fluid and adaptable than we might have been used to or planned on as** w**e outlined the term's lessons**.

Before getting lost in the discussion of what tools to teach or to use to teach, or whether to teach tools in place of (or next to) teaching content, it's important to ask the question: are we teaching digitally? And if we are, there are a number of consequences.

- Our digital pedagogy must inevitably acknowledge the ability of students to control and choose containers for their own learning.
- We cannot compensate for all the ways that students will choose to process and curate their learning in digital spaces, and so it becomes vital to teach students not about particular tools, but about how to choose tools for their use.
- In order for students to choose tools for their own use, they must have a sense of themselves as learners much more than a sense of us as teachers. **Digital pedagogy is necessarily learner-centric, then**. At Yaaka Digital Network we actually like to say it is about learning, not teaching. We are learning facilitators not teachers. When learning doesn't take place (which happens with the learner), all the teaching has been in vain.
- We must empower students to use the web and other digital tools/spaces (because they will anyway) in ways that support their learning. This means integrating the use of smart phones, tablets, and laptops in on-ground classrooms. It also means inviting students to connect with each other outside of the ways we intend them to connect. Let learning go where they go. But it also means we have provided the content we need to give them early on so learners can access it anytime, anywhere as and when they wish.

Digital pedagogy is different from teaching online because it allows us to open up learning and teaching in ways that gravity-bound education doesn't permit. When

we bring digital thinking into our teaching, and truly embrace all that the digital engenders, we open our students (and ourselves) to a whole new world of networked, connected learning.

The following slides tell us more about critical digital pedagogy approach

https://tinyurl.com/ud28nbu8

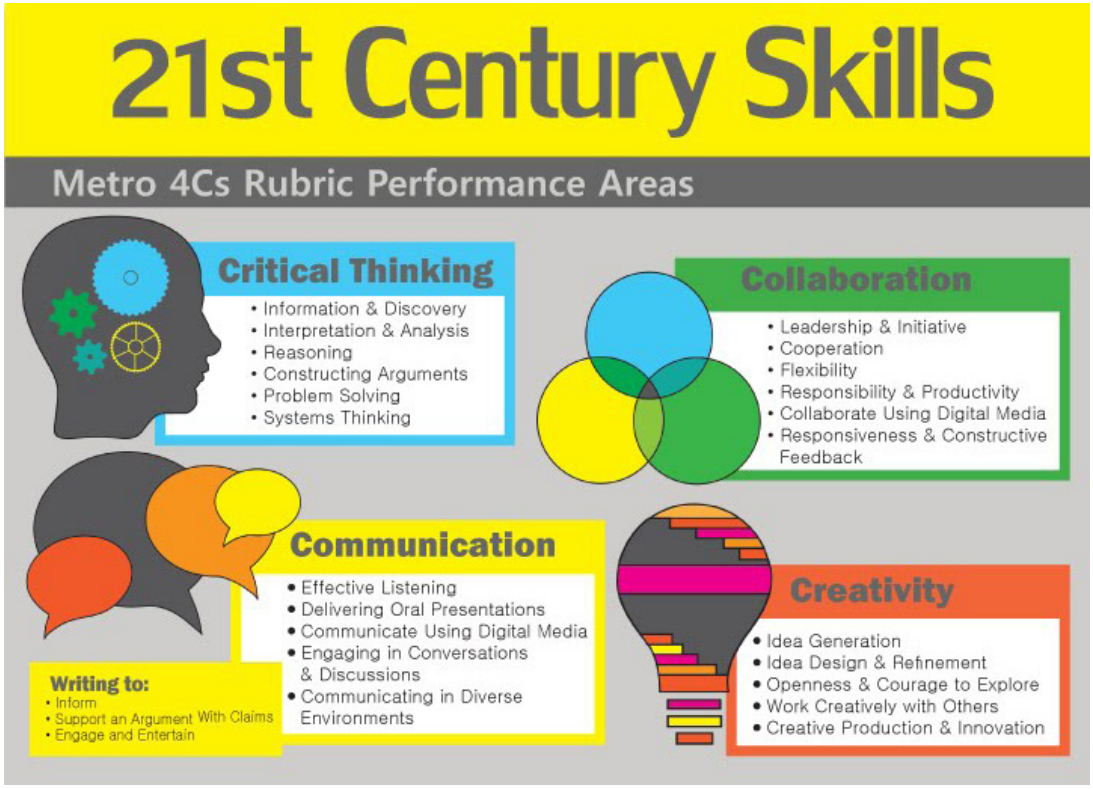
Other reading resources from UNESCO on this topic: https://tinyurl.com/ayj84m4r

RECOMMENDED 21ST CENTURY EDUCATION AND LEARNING

Even with the detailed explanation on Digital pedagogy so far, you might still be asking yourself why you should change the way you teach or facilitate learning. This topic is aimed at helping you appreciate the realities of the 21st century learning so you can offer what will be useful to your learners beyond the things you studied as a teacher or student, as well as support new ways of interaction and engagement to aid your students' learning and usefulness after school.

It is recommended you watch **th**is **video** on **the future of learning** https://tinyurl.com/7jah3n74, you can also scan qr code below

4 Essential Rules of 21st Century Learning contributed by **Jennifer Rita Nichols**



The term "21st century" has become an integral part of educational thinking and planning for the future. Educators and administrators are actively searching for ways to prepare students for the future, and the educational system has been evolving faster than ever before.

Various studies have shown us that rote memorization is not an effective learning strategy and that teacher-centered classrooms (versus **student-centered classrooms** https://tinyurl.com/ca33hchs) may not be the most efficiently structured ones for student engagement.

> ***Educators and administrators are actively searching for ways to prepare students for the future, and the educational system has been evolving faster than ever before.***

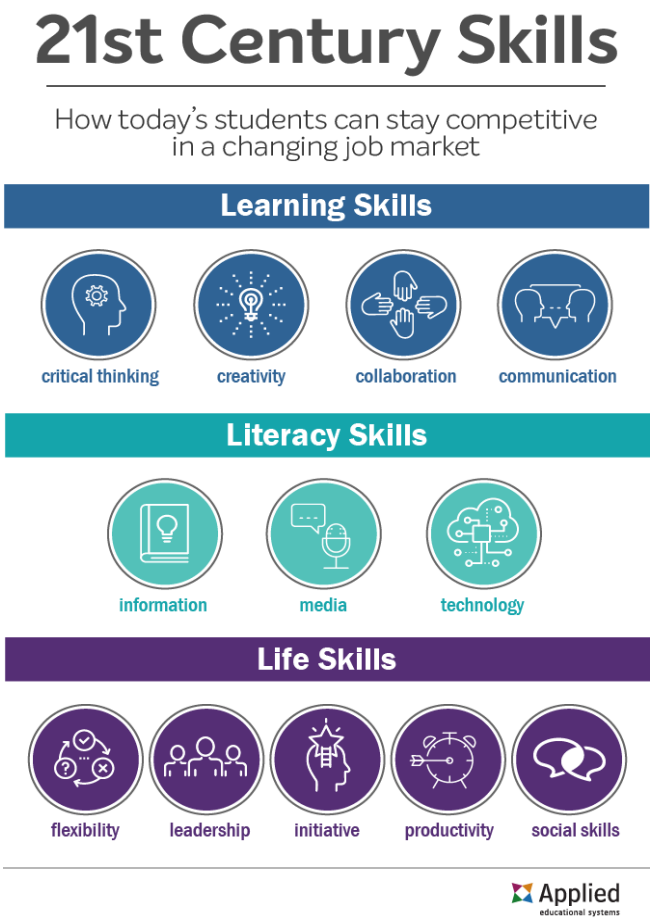
However, despite learning about the skills that students will need to develop to become successful in the 21st century, as well as what beliefs about education may be worth hanging onto or throwing away, schools and teachers are left trying to figure out what their role needs to be in the education of their 21st century students.

Once upon a time, the role of the educator was to prepare students for the specific tasks they would be required to complete (be it a trade, craft, or profession). Communities were also much more homogenous, and so specific values and cultures needed to be transmitted and practiced to ensure the survival of those beliefs.

Nowadays, we don't live in the same world. Society is a mix of many different beliefs and cultures. Globalization has opened up the world and allowed people to connect in new and ways. We blend traditions and create unique belief systems that are not taught in any classroom, but are developed through our life experiences and passions. We transmit our values and cultures without the expectation of them being adopted by our audience – just accepted by them.

The term "21st century" has become an integral part of educational thinking and planning for the future. And this comes along with the need to equip yourself and indeed your learners with the following 21st century skills:

Detailed 21st Century skills are:



Critical thinking

Creativity

Collaboration

Communication

Information literacy

Media literacy

Technology literacy

Flexibility

Leadership

Initiative

Productivity & Social skills

You can watch the video https://tinyurl.com/3cfsx4tr to understand what 21st century learning in more detail. You can also scan QR code below to watch the video.

So then, what is the role of education in the 21st **century?** As always, at its core, the role of education is to prepare students to become active, successful, and contributing members of society. The essence of education's role has not changed. However, there *has* been an important change that must be considered.

Society has changed. We cannot adequately prepare students for the society that exists today or will exist tomorrow, if we continue to prepare them for the society that existed yesterday. In order to prepare students to play their role in the 21st-century society we are a part of, a few things need to be considered when deciding how education will look in our schools, classrooms and homes.

1. Instruction should be student-centered

The days of lecturing teachers has passed – though not entirely. While student-centered learning is strongly encouraged in the 21st century, this does not mean that the teacher can never give a lecture again. Instead, it means that the main source of knowledge in the classroom should not be the teacher. Education is no longer about listening to the teacher talk and absorbing the information provided by the teacher. No one teacher knows all the important aspects about any topic.

In order to contribute to society, students will need to be able to acquire new information as problems arise. Then, they will need to connect the new information with the knowledge they already have and apply it to solving the problem at hand. They will not be able to call upon a teacher for answers, so will need to have 'learned how to learn' on their own.

In this classroom model, the teacher should act as a facilitator for the students. Instead of passively receiving information, the students should gather information on their own, under the guidance of their teacher. **Different learning styles** https://tinyurl.com/3psudu4f are encouraged, and students have an enhanced sense of motivation and responsibility. They engage in many different types of hands-on activities, as well as demonstrate learning in many different ways. Learning is about discovery, not the memorization of facts.

Different learning styles are explored in this video. scan to watch

2. Education should be collaborative

Students must learn how to collaborate with others. Society today has people collaborating across the globe to execute particular tasks or in productive ventures.

How can students be expected to work with people from other cultures, with different values from their own, if they are not able to work with the people they see each day in their classroom? Students should be encouraged to work together to discover information, piece it together, and construct meaning. Collaboration should also be dynamic. Students should learn how to recognize the different strengths and talents each person can bring to a project, and change roles depending on those attributes.

Schools should also be collaborating with other educational institutions around the

world to share information and learn about different practices or methods that have been developed. They should be willing to alter their instructional methods in light of new advancements.

3. Learning should have context

Student-centered does not mean that the teacher gives up all control of the classroom. While students are encouraged to learn in different ways, the teacher still provides guidance as to the skills that need to be acquired. The teacher can make a point of helping students to understand how the skills they are building can be applied in their lives. Students will be much more motivated to learn something that they can see the value in.

Since we are no longer preparing students for specific tasks and roles, we need to take a more general approach and teach them the skills that are useful in *any* situation. Lessons have little purpose if they do not have any impact in a student's life outside of the school.

4. Schools should be integrated with society

In order to prepare students to become responsible citizens, we need to model what a responsible citizen is. Schools will often work at accomplishing this by creating events for the school community, by encouraging students to join committees or take part in school projects, and by occasionally helping the community around them with activities such as food drives or neighborhood clean-ups, health sensitisation campaigns, community documentation etc.

With the powers of technology and the internet, students of today can do even more. Our community is no longer just the area of space located around the school, but reaches out and envelopes the world. Education needs to help students take part in this global community and find ways of impacting more than just their neighborhood. This doesn't mean that they do not need to learn the value of helping others around them and protecting their immediate environment, but that they should *also* be learning about how they can help and protect a world further away from them, but also closer all the time.

Here are more **resources on 21st century learning**

RESOURCE	Link to Website (URL)	QR SCAN CODE
21st century skills explained	https://www.edglossary.org/21st-century-skills/	
Putting 21st century learning in context	https://tinyurl.com/mn6kzr9d	
Rethinking how students learn	https://tinyurl.com/2fvdbe94	
Forbes on getting more from 21st century learning	https://tinyurl.com/4rcymhvh	
The College of St Scholastica	https://tinyurl.com/ytjmkze3	

PROMOTING STEM/STEAMIC 21ST CENTURY SKILLS

Part of the focus on 21st century skills is the promotion of STEM Science Technology, Engineering and Mathematics (now STEAMIC-Science, Technology, Engineering, Arts, Mathematics, Innovation and Creativity) in order to produce students who take thoughtful risks, engage in experiential learning, persist in problem-solving, embrace collaboration, and work through the creative process.

The STEM education movement has for long advocated moving away from segmented content areas, emphasizing technology to connect the subjects, and relating teaching to the outside world. STEM impresses 21st-century skills acquisition so that students gain proficiency in collaboration, questioning, problem-solving, and critical thinking.

For example, many global challenges including "climate change, overpopulation, resource management, agricultural production, health, biodiversity, and declining energy and water sources" need an international approach supported by further development in science and technology to adequately address these challenges (Thomas and Watters 2015, p. 42).

Making crosscutting STEM connections is complex and requires that teachers teach STEM content in deliberate ways so that students understand how STEM knowledge is applied to real-world problems. Promoting engineering design, scientific inquiry, technological literacy, mathematical thinking all aimed at improving learning as a community of practice. Arts Innovation and Creativity have been added because Design thinking and creativity are essential ingredients for innovation and problem solving. This is an area for educators to keep learning and exploring in order to impart 21st century skills.

You can learn more about STEAM education here https://tinyurl.com/yxdbsbf7 or scan QR codes below:

TOOLS FOR SUPPORTING YOU PROVIDE DIGITAL LEARNING

While ICTs have long since become embedded in all spheres of human endeavors, education systems are struggling to keep up with the pace of changes associated with technological progress.

Despite the fact that in most countries digital devices and applications are widely employed for teaching and learning purposes, education fails to respond to the emerging needs and foster 21st century skills due to domination of traditional pedagogical approaches and methods.

To address these challenges, the reform of the educational paradigm and the revision of traditional pedagogy and curriculum are needed.

This transformation should be based on critical analysis of the use of ICT tools and digital content in classroom, blended and online learning. New 'digital' pedagogy demands innovative tools and conceptual approaches.

It is intended to support adaptive and personalized learning and contribute to the design of new creative modes of learning, enrichment of learning experiences and improvement of learning outcomes. For example, think of what has been compressed into a smart phone and what it can do.

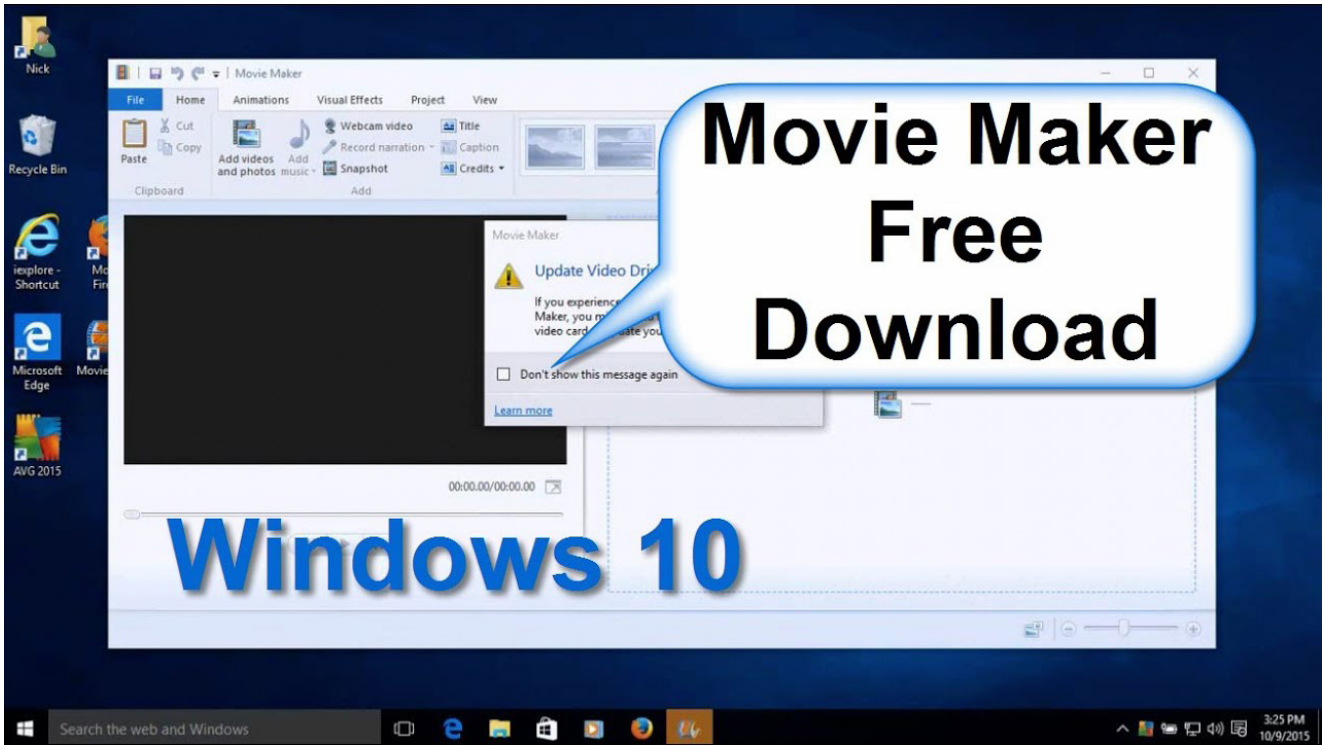
Many tools supporting digital education have been created with the most helpful ones giving autonomy to the student, improving the administration of academic processes, encouraging collaboration, and facilitating communication between teachers (learning facilitators) and learners.

In order to benefit from digital pedagogy tools and approaches, educators and learners should have adequate digital skills, including ICT competencies (digital literacy).

We shall categorize tools for digital pedagogy into four: Tools for Authoring/content creation, Collaboration, sharing/networking tools and hosting.

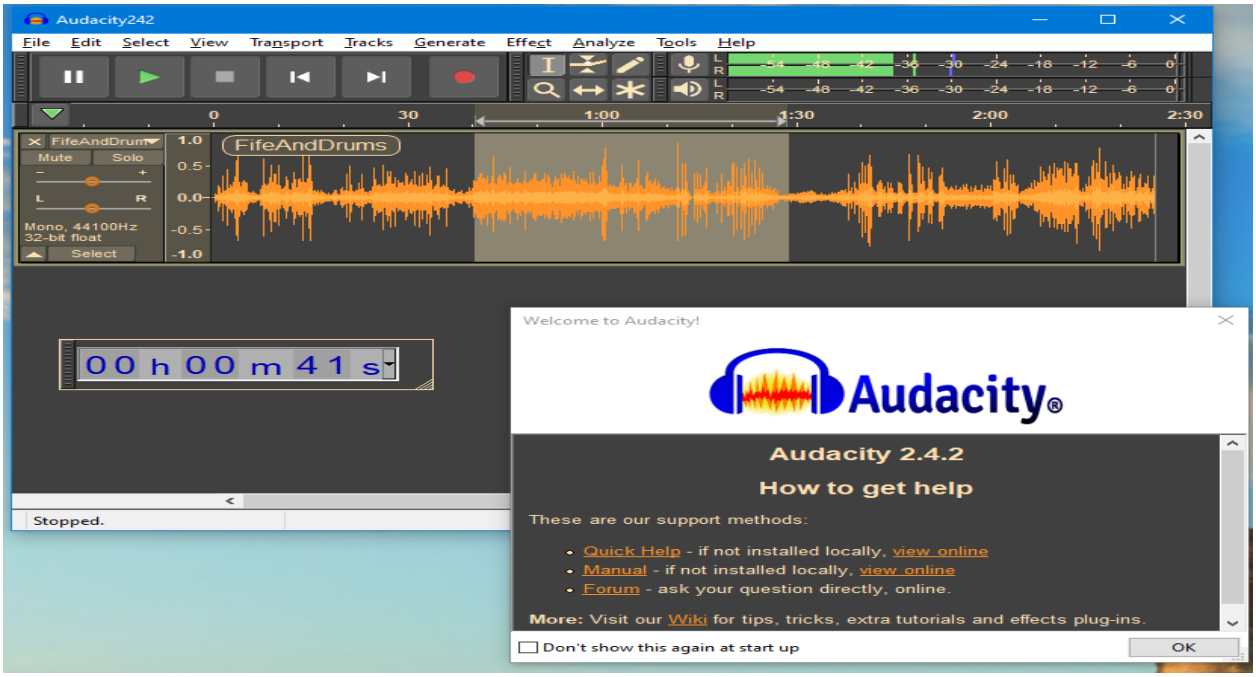
Tools for Authoring/content creation

There are many tools available to help you prepare multimedia content for effective engagement of your learners. If you are to engage all learners, you need to produce content in different media formats i.e. text, audio, video, photo, graphics and interactives.



Windows movie maker is a video editing software by Microsoft. It offers the ability to create and edit videos as well as to publish them on OneDrive, and social media platforms. It allows you to quickly build a personalized *movie* that incorporates video, still images, background music, and narration. This *movie can* be customized further by adding titles, transitions, and video effects. A free alternative for Mac OS is IMovie. Movie maker download https://tinyurl.com/erjb5bt5 See tutorial for producing video with Movie Maker https://tinyurl.com/yk4vdpsm and with IMoivie https://tinyurl.com/y867sr49 We also recommend Filmora Wondershare https://tinyurl.com/mu2nf67e and Wavepad. AI tools like invideo, pictory, lumen5 are also good.

TOOL	Website (URL)	QR CODE
Movie maker software download	https://tinyurl.com/erjb5bt5	
Movie maker Tutorial	https://tinyurl.com/yk4vdpsm	
Editing Videos using Filmora Wondershare, Tutorial	https://tinyurl.com/mu2nf67e	



Audacity: Audacity is an open-source software program that allows users to record sound, as well as edit sound clips. The program is available for the Windows, macOS and Linux operating systems. The software is free and open to use under the GPL (General Public License).

Download Audacity

Audacity (https://www.audacityteam.org/download/) has many features including:

1. Record live audio, as well as audio playback, on a computer.
2. Convert cassette tapes and records to MP3or audio CD.
3. Edit various audio file formats, like WAV, AIFF, FLAC, MP2, and MP3.
4. Take multiple sound files and copy, cut, mix, or splice them together.
5. Change the pitch or speed of an audio recording.

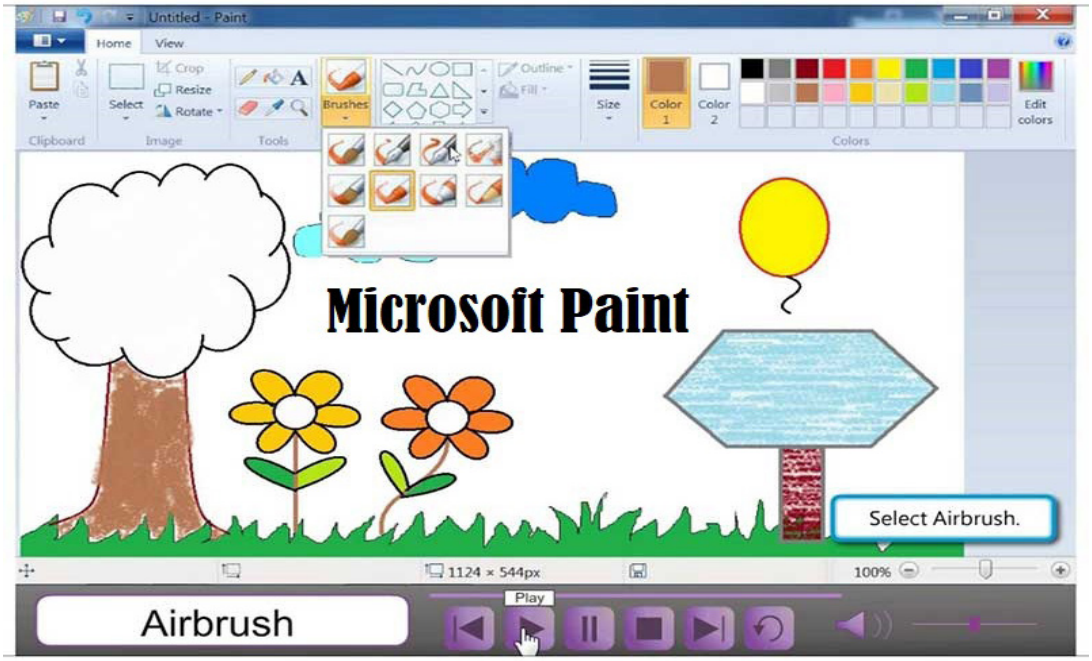
Here is a tutorial for producing audio with Audacity https://tinyurl.com/2p8jnvzh We also recommend lexis audio editor (mobile app) see tutorial https://tinyurl.com/yjez78z9

Tutorial on Editing Audio with Audacity

How to edit audio using mobile lexis audio editor

Microsoft Office Picture Manager: With Microsoft Office *Picture Manager* you *can* manage, edit, share, and view your pictures from where you store them on your computer. *It can also* correct your pictures, if needed. You can add text, change shape and size, crop the image depending on how you what it to be. See video tutorial https://tinyurl.com/2p9ym625

Basic Photo Editing, Microsoft Office 2010, Microsoft Office Picture Manager



Paint: This is a program that comes standard with most Windows operating systems, is a simple tool that allows you to draw and edit images. You can add text as well. Microsoft describes it as a "digital sketchpad."

Although Paint isn't the program that professional graphic artists and image editors use to modify photos, it does have some basic photo editing tools. You can edit photos and graphics using Paint in Windows by adding text, changing colors, shapes and other effects. See video tutorial https://tinyurl.com/2vr7d82k

You can as well use the QR Code below

You can also easily edit or create images using Microsoft Word (see tutorial https://tinyurl.com/bdercsm5) and online tool Pixlr for better quality (see video tutorial https://tinyurl.com/4bu7jznb

How to edit photos using Microsoft Word	Editing Photos using Pixlr

Content Creation Tools: (Word Press, Google sites, infogram, pictochart)

WordPress: WordPress is the most popular free and open-source Content Management System to create websites and blogs. In simple words, WordPress is a web software to create websites quickly and easily.

WordPress is the most popular online publishing platform, currently powering more than 25% of the web. It is easy to use. You can learn basics of WordPress within an hour or two and start creating and publishing teaching materials with it. It is a platform you can use to create learning materials that can reach many people, anywhere, and at all times.

More reading: https://tinyurl.com/3kdh5dnb and tutorial of create site https://tinyurl.com/2p8pjnc9

Google Sites: This is a versatile tool that makes creating a website easy. You can create and build a site to include a variety of information. Use a variety of page templates

based on your needs. Collaborate with others on creating your site. Just like WordPress, you can do a number of things with it.

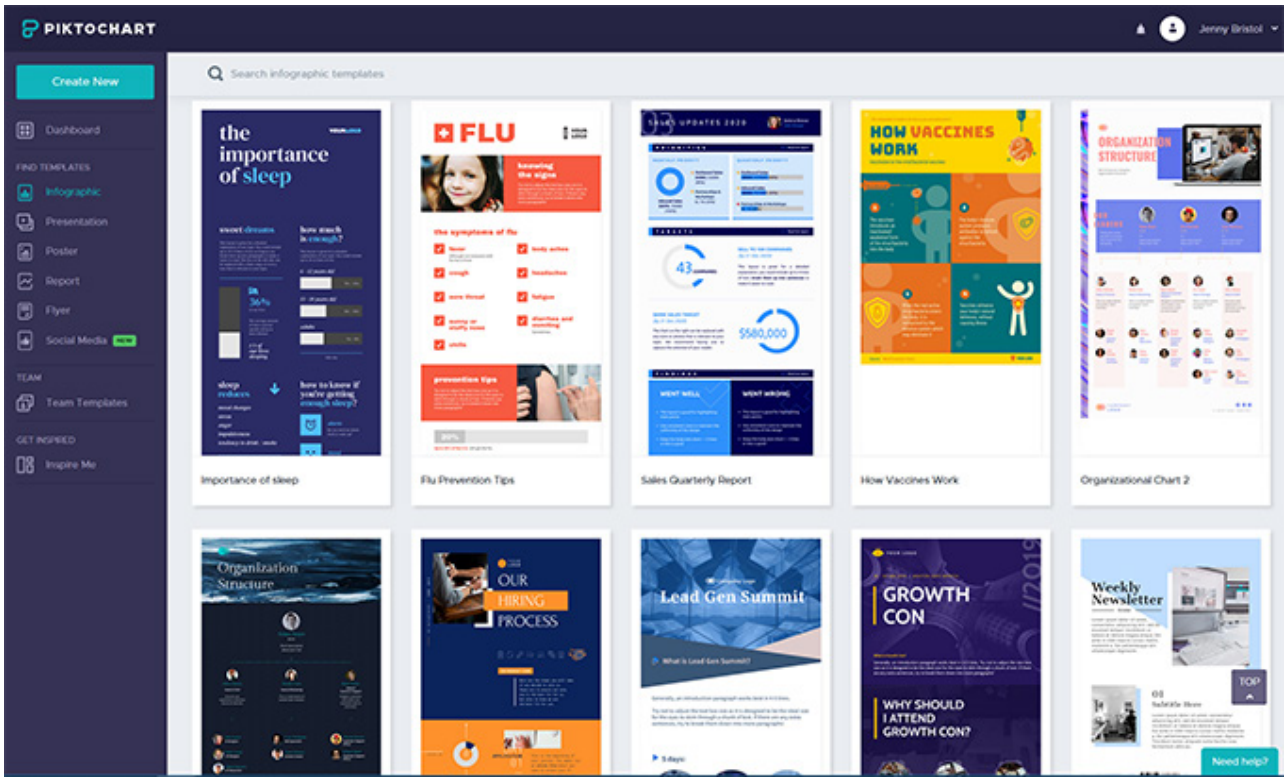
Here's what you can do with Google Sites:

- Customize your site to fit your audience
- Choose different page types: webpage, announcement, file cabinet, lists
- Organize all your information
- Keep your offline files and web content located in one place
- Include images, videos, tutorials, Google docs and more,
- Collaborate with others to create and maintain your site
- Share your site with a few or as many people as you would like

More reading: https://sites.google.com/site and tutorial https://tinyurl.com/2p86ekcc

How to Use Google Sites - Tutorial for Beginners

Piktochart is a web-based infographic application which allows users without intensive experience as graphic designers to easily create infographics and visuals using themed templates.



Users can embed interactive maps, charts, videos and hyperlinks in a Piktochart infographic. It provides a library of icons, images, fonts, and other design tools.

Piktochart allows multiple representations of information and real-world data. It gives students an alternative way to demonstrate their knowledge, while also showcasing their design skills. (For example: Instead of writing an essay on the topic, Piktochart can be used to design a visual on that topic). The visual can include text, graphics, images, video and interactives like maps.

Teachers can also use Piktochart to create infographics to provide an alternative way for students to access content knowledge (e.g., other than a lecture or reading from a textbook).

Since Piktochart infographics are available online, students can access teacher-designed infographics before class to prepare their thoughts or after class to enrich their learning. Teachers can balance teamwork and individual work based on the students learning profiles.

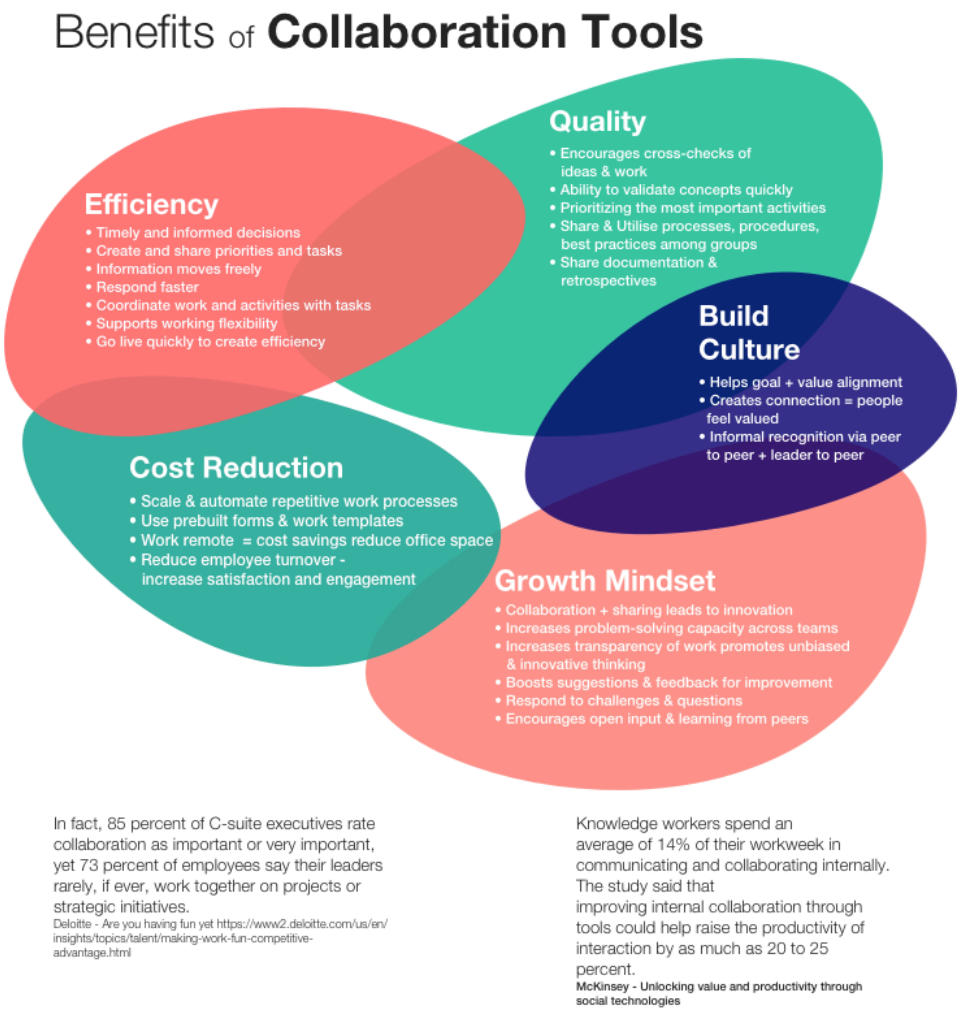
Once completed, each infographic can be saved for future editing, and the finished product can be exported as a PNG, JPEG, or PDF file or added into a website.

More Reading on using Piktochart in the classroom: https://tinyurl.com/yndzzjtj and watch video tutorial https://tinyurl.com/2p98yy46 Infogram is another good tool https://tinyurl.com/2p883c8z

How to Use Piktochart in Any (and Every) Classroom	Piktochart Tutorial: A Simple Guide to Piktochart for Beginners	Getting started with Infogram

What Are online Collaborative Tools?

Collaboration tools' is a catchall term used for different types of software and online services that allow people to work together on common projects, regardless of their physical location. It can be something as simple as email and as complex as sophisticated project management software. Online collaborative tools are tools that enable a more coordinated workflow by providing a unified platform for team discussion, file sharing, online storage for documentation, task assignments, and real-time project collaboration.



Tools for collaborative content development include:

Google drive: Allows You to Share and Collaborate Files. Users have a chance to share individual documents and folders with others. This permission based feature allows multiple users to access and contribute or manage a single document. Each user's changes will then be attributed to them. This means that teachers in a department, say Biology can sit down and begin to collaborate on work and that means projects are done faster.

Supervisors can also follow the process to ensure that everyone is doing what is asked of them and when there is a delay, you can easily determine where it is at. That will mean that when the ball is dropped, you know right away and you will have the chance to take action.

With worldwide access to this document, you can have teachers working around the clock to ensure that a project stays on schedule and that in some cases, they are finished ahead of their necessary deadline. Once the file is completed, you can then download it and utilize the contents for whatever project you are working on.

Google Drive is one of the most powerful choices you will have for productivity at school especially on projects that need the contributions of more than one teacher/ individual. It's easy to use and highly effective in most situations. That makes it one of the best choices you will have for all your professional needs. You can create word documents, spreadsheets, slides (equivalent of PowerPoint), drawings, edit audio, video, manage productivity etc when you add more tools within google drive (see tutorial https://tinyurl.com/264m4hcr

How to use Google Drive - Tutorial for Beginners

Drop box: This is a cloud storage service, which means you can copy your files to the cloud and access them later, even if you're using a different device or in a different place. You can store and share files, collaborate on projects, and bring your best ideas to life. (https://www.cloudwards.net/how-to-use-dropbox/) see tutorial https://tinyurl.com/2h2swwvd

A Beginner's Guide on How to Use Dropbox	**HOW TO USE DROPBOX – tutorial**

Slack: Slack is a popular and well-crafted platform offering instant messaging, file transfers and powerful message search. It has many features and dozens of integrations with other tools like Trello and Intercom. See tutorial on how to use slack https://tinyurl.com/bdfh9kx9

Slack Tutorial for Beginners

Asana: One of the most well-known project management tools, Asana allows users to assign tasks to other members, add followers to projects and monitor deadlines. It's very useful as a to-do list or calendar for strategic planning. See tutorial https://tinyurl.com/yck9nx9j

Sharing/networking tools: (Social media- Facebook, Twitter, Whatsapp, YouTube, etc.)

Social media refers to the means of interactions among people in which they create, share, and/or exchange information and ideas in virtual communities and networks. It is an internet-based and gives users quick electronic communication of content.

Content includes personal information, documents, videos, and photos. Users engage with social media via computer, tablet or smartphone via web-based software or web application, often utilizing it for messaging. You can create communities or organise users around groups, page, lists or even your personal account (posting on your wall or timeline).

People can contribute text posts or comments, digital photos or videos, and data on a topic of choice or general interests to drive online interactions.

More Reading: https://tinyurl.com/f2hwwr2e

Tools for hosting

Web hosting is a necessity for any website — it is the physical location of your website on the Internet, an online storage center that houses the information,

Web hosting is an online service that enables you to publish your website or web application on the internet. When you sign up for a hosting service, you basically rent some space on a server on which you can store all the files and data necessary for your website to work properly.

A server is a physical computer that runs without any interruption so that your website is available all the time for anyone who wants to see it. Your web host is responsible for keeping the server up and running, protecting it from malicious attacks, and

transferring your content (text, images, and files) from the server to your visitors' browsers.

When you decide to start a new website, you need to find a hosting company who provides you with the server space. Your web host stores all your files, assets, and databases on the server. Whenever someone types your domain name into the address bar of their browser, your host transfers all the files necessary to serve the request.

You need to choose a hosting plan that best fits your needs and purchase it. In fact, web hosting works similarly to housing rentals, you have to pay the rent regularly in order to keep the server running continuously.

Different Types of Web Hosting

Most web hosts offer different types of hosting so that they can serve the needs of different clients. The most frequent hosting types are the following:

- Shared Hosting
- VPS Hosting
- Cloud Hosting
- WordPress Hosting
- Dedicated Server Hosting

The bigger your website is, the more server space you need. It's the best to start small, with a shared hosting plan and when your site gets bigger, upgrade to a more advanced type of hosting.

Web hosts usually offer more than one hosting plans for each type of hosting. There are a number of service providers for hosting such as Blue host, inmotion, hostgator.

https://www.creativebloq.com/infographic/tools-2131971

Other tools for aiding your digital learning

There are also tools or platforms that support digital teaching in ways not specified above. You can add to the list below.

Tools or Platforms	URL	QR Code
Google Classroom	https://classroom.google.com/	
Google Classroom Tutorial	https://tinyurl.com/nhce4u9d	
Classroom Screen	https://classroomscreen.com/	
Yaaka Digital Network	www.yaaka.cc	
Shareability / ICT Teachers Association	https://sharebility.net/	

NOTE: Digital teachers must able to provide learning content in multimedia formats i.e. text, images, audio, video, graphics and interactives to support better comprehension by learners and understanding. At UMC we like to encourage usage of mobile phone based tools in creation, editing, producing and sharing of content because of the mobility advantages.

Take time to research and find tools for each group that can work on computer and on phone. E.g.

Audio editing tools

- Adobe Audition CC (macOS, Windows) for an all-around editor at a price
- Audacity (macOS, Windows, Linux) for multi-track editing and recording for free
- ocenaudio (macOS, Windows, Linux) for simple, fast edits for free
- Acoustica Standard Edition (macOS, Windows) for creating and deploying effect chains
- Amadeus Pro (macOS) for one-click audio repair and batch operations
- Fission (macOS) for quick and simple edits on a Mac
- Hindenburg Journalist (macOS, Windows) for journalists and podcasters
- SOUND FORGE Audio Studio 12 (Windows) for Windows users on a budget
- Twisted Wave Online (Web) for quick, web-based edits
- Twisted Wave Mac (macOS) for multi-channel editing and effects on a Mac
- Wave Lab Elements (macOS, Windows) for an alternative to Adobe Audition, without the subscription
- Wave Editor (Android, IoS)
- Wavepad Audio Editor (Android, IoS)
- Lexis Audio Editor (ANdroid, IoS)
- Audiolab Audio Editor, Recorder and Ringtone maker (Android)

Adobe Audition CC (macOS, Windows)

See Video editing tools https://tinyurl.com/y26xf4ms

See photo editing tool https://tinyurl.com/bddnha8m

See graphics creation tools https://tinyurl.com/2aen74mm

See animation tools https://tinyurl.com/2p98dcb7

Each tool has a tutorial that you can follow at their respective website. It is not ideal to fill this publications with specifications of each tool as different people will have different needs and preferences at anyone given time.

Guidelines to choosing the right tool

Remember there are thousands of tools for each task you may want to do. One of the most important skills is to know what tool to use when and for what. You can never master all of the tools, neither are they all relevant. In deciding to chose a tool, think of the following

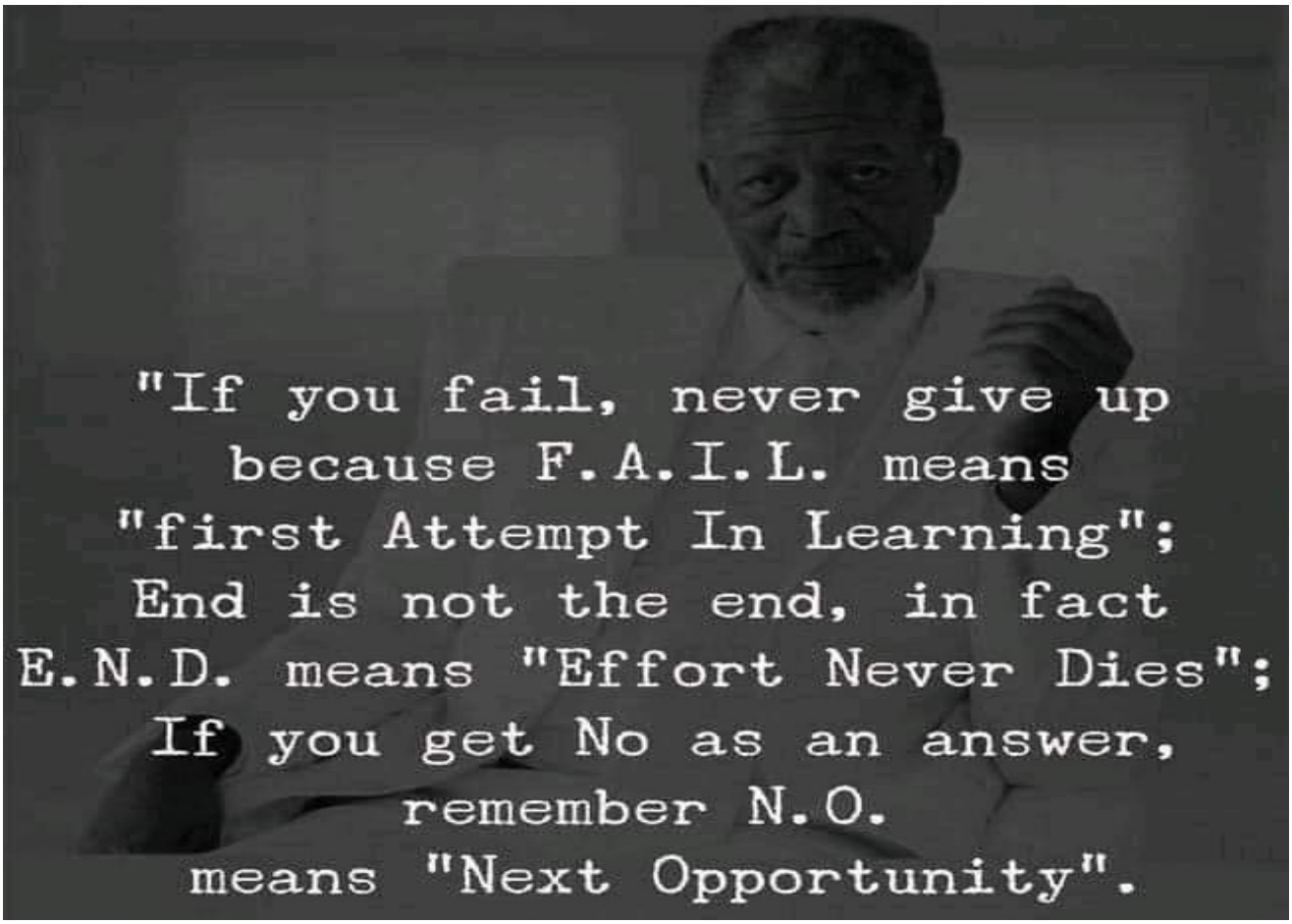
1. Your goal: What is your learning objective? Chose a tool that helps to best deliver on it, not necessary to show how sophisticated you are. The good tool must serve the purpose in the best way possible
2. Efficiency and effectiveness: Which tool helps you meet the objective in less time?
3. Online Vs. Local (offline) (Online tools can be accessed anywhere while local ones don't need internet)
4. Computer Vs. Phone (good tools can be used both on phone and computer... but if not, what do you use most to produce content or share it
5. Ease of use: Good tools are those with a low learning curve-easy to use, with clear user manuals.
6. Cost (Free, premium, Freemium, trial period)
7. Production format (what you produce, will be easily shared by learners, read by their gadgets, etc.), A tool giving you a variety of production formats is better than one that doesn't. E.g. MPs, MOV, WAV, Webm
8. Availability: Don't yearn for tools that your school cannot provide or not available in your country
9. Sharing: Better tools can easily be shared with other users to also create that a license for each or only on one computer
10. Space: Whether on phone or computer, think of the space in will take to install, but also bulkiness of output
11. Completeness: Does the tool enable you to have a shareable product or you need to take product through another process e.g. conversion before sharing with users?

It is such thinking and knowledge of related factors that enables us be truly great digital teachers or users of digital tools. Above all, never be a slave of any tool. You can choose a variety of tools, using each for the part where they serve the best purpose or support you in the available resources or circumstances. Ensure to get a good grasp on good tools and get to specialize after testing. For example is it Camstasia, Screencast (https://screencast-o-matic.com/content/#/video, gilsoft or Awesome Screen Capture to help best with video screen capture and editing?

Hundreds of digital education tools have been created with the purpose of giving autonomy to the student, improving the administration of academic processes, encouraging collaboration, and facilitating communication between teachers and learners.

But in order to benefit from digital pedagogy approaches educators and learners should master digital skills, including ICT competencies (computer Literate).

Also plan for more than one option! A tool that works, online and or offline; Desktop/ Laptop and or mobile or on both. These tools are for Everyone! Learners-Teachers-Parents. Anyone can easily try out these and other tools and with consistent effort will master particular tools.



TERMS AND PLATFORMS USED IN DIGITAL PEDAGOGY

Now that most digital or computer-based training occurs via the Internet, the *term* is *used* infrequently. More common *terms* are *online learning*, e-Learning and Web-based Training (WBT) and others.

Below are some of the terms used in Digital learning or pedagogy.

21st Century Skills

These skills include collaboration and teamwork, creativity and imagination, critical thinking, problem solving, digital literacy and citizenship. They have become building blocks for learning.

One to One

Programs that provide all students in a school, district, or state with their own laptop, netbook, tablet computer, or other mobile-computing device. One-to-one refers to one computer for every student.

Accessibility

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 non English language learners, students in rural communities, or students from economically disadvantaged homes.

Furthermore technology can support accessibility through embedded assistance—for example; text-to-speech, audio and digital text formats of instructional materials, programs that differentiate instruction, adaptive testing, built-in accommodations, and other assistive technology tools (assistive learning tools).

A La Carte Model

This instructional model is one in which students take one or more courses entirely online with an online teacher of record and at the same time continue to have brick-and-mortar educational experiences. Students may take the online courses either on the brick-and-mortar campus or off site. (Source: "Is K-12 Blended Learning Disruptive?" Christiansen, Horn, and Staker.)

Academic and Career Planning (ACP)

This process helps students integrate academic and career development activities and leads to a product that is created and maintained to document and support these activities. ACP facilitates personalizing each student's educational experience while providing opportunities to set goals in preparation for their future.

Adaptive learning

An approach to creating a personalized learning experience for students that employs "a sophisticated, data-driven, and in some cases, nonlinear approach to instruction and remediation, adjusting to a learner's interactions and demonstrated performance level, and subsequently anticipating what types of content and resources learners need at a specific point in time to make progress.

(Source: The Journal, https://thejournal.com/articles/2014/05/14/adaptive-learning-are-we-there-yet.aspx)

Accessible Educational Materials

Accessible educational materials, or AEM are "print- and technology-based educational materials, including printed and electronic textbooks and related core materials that are designed or converted in a way that makes them usable across the widest range of student variability regardless of format (print, digital, graphic, audio, video). IDEA (the Individuals with Disabilities Education Act) specifically focuses on accessible formats of print instructional materials." CAST

Active Learning

Learning that happens through student participation in activities that emphasize active retrieval, application of knowledge, and reflection. Responsibility for learning

shifts from the teacher as students are expected to do more with information than simply receive it. See also student-centered learning.

Agency in learning

Learners with agency can "intentionally make things happen by [their] actions," and "agency enables people to play a part in their self-development, adaptation, and self-renewal with changing times." To build this capacity, learners should have the opportunity to make meaningful choices about their learning, and they need practice at doing so effectively. Learners who successfully develop this ability lay the foundation for lifelong, self-directed learning.

App Flow

Mapping out a combination and sequence of apps that can help students meet lesson and learning objectives.

Assistive Technology Service or learning

A service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device. (Source: 20 U.S.C. §1401(2)

Asynchronous Learning

A student-centered teaching method that uses online resources to facilitate learning without requiring students and instructors to be in the same place at the same time.

Asynchronous Tools

These tools are available all of the time and are not dependent on others being available at the same time in order for an activity or communication to occur such as blogs, email, or twitter.

Authentic Activities

Learning tasks or activities that use actual or simulated real-world content, and reflect real-world situations.

Authentic Learning Environment

An environment designed to make learning relevant and transferable to the real world by providing opportunities for students to work on activities and projects situated in real-world contexts and aligned with real-world problems. See also problem-based learning and project-based learning.

Autonomy

Independence or freedom, the state of self-governance. It refers to allowing learners to decide or determine what, when, where and when they will learn.

Assistive technology device

Any item, or piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of a child with a disability. (Source: 20 U.S.C. §1401(1)

Biased

A slanted opinion for or against someone or something.

Biased site

A site where materials are slanted to support or oppose a specific point of view on a topic.

Blended learning

Learning occurs online and in person, augmenting and supporting teacher practice.

- This approach often allows students to have some control over time, place, path or pace of learning.
- In many blended learning models, students spend some of their face-to-face time with the teacher in a larger group, some face-to-face time with a teacher or tutor in a small group, and some time learning with and from peers.
- Blended learning often benefits from a reconfiguration of the physical learning space to facilitate learning activities providing a variety of technology-enabled learning zones optimized for collaboration, informal learning, and individual-focused study. (Source: National Educational Technology Plan, p. 8, http://tech.ed.gov/netp/)

Blended Rotation Model

A course or subject in which students rotate on a fixed schedule or at the teacher's discretion between learning modalities, at least one of which is online learning.

Other modalities might include activities such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments.

The students learn mostly on the brick-and-mortar campus, except for any homework assignments. (Source: https://tinyurl.com/y5m4e26y)

Coding

A term used in education to mean programming. It is the process of developing and implementing various sets of instructions to enable a computer to do a certain task. (Example course and definition: https://tinyurl.com/3mf5fn3m)

Case-Based Learning

A learning method in which students engage in researching real-world or hypothetical case studies in order to develop applied knowledge by confronting possible misconceptions, and solving real-world problems. See also inductive teaching.

Classroom-focused Professional Development

This is a Professional development that is specifically focused on the curriculum, instructional practices, and assessments that teachers are learning to implement during instruction and the outcomes that students are expected to master. (Source: A New Vision for Professional Learning. 2017.)

Collaborative Teams

Teams of educators who share a common goal or problem and commitment to learn, work, and problem solve together. Most effective when it leads to shared responsibility for the success of the members as well as the students represented by the group. (Source: A New Vision for Professional Learning. 2017.)

Collaborative Workspaces

Any tool that allows for collaboration or access to shared documents such as Google Drive, Asana, Trello or Slack

Community of Practice (CoP)

Practitioners, or "experts," in a specific domain of interest (i.e., same profession) who share information and experiences with the group face-to-face or in online communities such as online SIGs (Special Interest Groups), LinkedIn, Twitter feed,

etc. so that the members learn from each other and have an opportunity to develop themselves personally and professionally (Source: Lave & Wenger 1991)

Competency-Based Learning

This is a type of learning where the student advances in mastery of a set of competencies at a pace, and often in an order, determined by the student.

Cooperative Learning

Students working together, rather than in competition, to develop a common foundational understanding, either as a class or in small groups. Cooperative learning takes advantage of individuals' knowledge, skills, and resources for the benefit of the group. See also active learning and collaborative learning.

Cyber Safety

The safe and responsible use of information and communication online that maximizes the user's personal safety and minimizes security risks.

Data Culture

An educational environment characterized by the effective use of data and evidence-based reasoning.

Data-driven

Includes using a variety of sources and types of student, educator, and system data to identify learning needs, set goals, plan, assess, and evaluate professional learning, preferably in a cycle of ongoing learning and improvement. (Source: A New Vision for Professional Learning. 2017.)

Data Security

The policies and practices that ensure data are kept safe from corruption and that access is limited and appropriate. Data security helps ensure privacy and protects personally identifiable information. (Source: http://dataqualitycampaign.org/

Deeper Learning

Prepares students to have a critical understanding and mastery of core academic content enabling them to think critically and solve complex problems, work collaboratively, communicate effectively, incorporate feedback and be self-directed.

Design Thinking

Design thinking is employed to promote creative thinking, teamwork, and student responsibility for learning.

Differentiated Instruction

Differentiation is responsive teaching rather than one size fits all teaching (Tomlinson, 2005). Teachers proactively plan varied approaches to what students need to learn, how they will learn it, and/or how they will show what they have learned in order to increase the likelihood that each student will learn as much as he or she can, as efficiently as possible (Tomlinson, 2003, https://tinyurl.com/28b4u4x3)

Digital Citizenship

Understanding and practicing appropriate and responsible behavior when using technology.

Digital Footprint

A record of everything an individual does online, including the content he or she uploads. Online information can migrate, persist, and resurface years later.

Digital Instructional Materials

Instructional materials that are created, viewed, distributed, modified, stored on and accessible with computers or other electronic devices.

Digital Learning Environment

The planned interaction of students with digital instructional content, materials, resources, and processes intended to assist them in achieving identified educational goals.

Digital Learning

Any learning facilitated by technology that gives students some element of control over time, place, path and/or pace. This learning includes instructional content, interactions, data and assessment systems, learning platforms, online courses, adaptive software, personal learning enabling technologies, and student data management systems.

Digital Literacy

The ability to use digital technology, communication tools or networks to locate, evaluate, use and create information; The ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers; A person's ability to perform tasks effectively in a digital environment. Literacy includes the ability to read and interpret media, to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments. (Source: University Library, University of Illinois)

Digital Storytelling

The practice of using web-based tools to create and tell stories; they usually contain some mixture of digital images, text, audio, video and graphics.

Digital Workflow

A method outlining and facilitating how classwork is assigned, distributed, accessed, worked upon, collected, and submitted in the digital space.

Discovery Learning

An instructional technique in which students are faced with a challenge and arrive at a solution on their own, while teachers provide little to no direction and minimal feedback.

Document Management

Tools for storing, sharing and organizing digital documents such as drop boxes, file storage and organization tools, shared public spaces, etc.

DOTSS (Africa Union Digital Learning focus)

D	O	T	S	S
Digital Connectivity	This is a call to member states to strengthen the infrastructure needed to realize digital connectivity. From available and affordable internet access, to waiving or subsidizing costs of data use for accessing teaching and learning materials.			
Online Learning	This is a call to adopt online learning as a strategy to bridge the access gap caused by COVID. Investing in quality eLearning solutions will ensure continuous learning at all levels, including TVET.			
Teachers as Facilitators	Teachers should be upskilled to live the new reality of virtual and distance teaching. They should be skilled in usage of these eLearning platforms, scheduling, virtual and distant students' engagement and assessments. This is in a bid to ensure that positive learning outcomes are achieved.			
Safety Online	This is to ensure that while digitized learning is a way to mitigate the effects of COVID-19 on education systems, strategies related to online bullying and sexual harassments of teachers and learners should be developed.			
Skilled Focused Learning	Skills that are foundational and job oriented which ensures that our young people are equipped with the relevant skills needed to function in any industry or discipline.			

E-learning

A web-based learning environment that allows instructors and students to interact through the computer without worrying about time or place; capitalizes on the current "anytime, anywhere" notion of learning.

Enriched Virtual Model

This instructional model is a whole-school experience in which within each course students divide their time between attending a brick-and-mortar campus and learning remotely using online delivery of content and instruction. (Source: "Is K-12 Blended Learning Disruptive?" Christiansen, Horn, and Staker.)

Equity

Increasing all students' access to educational opportunities with a focus on closing achievement gaps and removing barriers students face based on their race, ethnicity, or national origin; sex; sexual orientation or gender identity or expression; disability; English language ability; religion; socioeconomic status; or geographical location.

Experiential Learning

A theory that suggests people learn through inquiry and direct experience with subject matter, followed by critical reflection. See also active learning and authentic activities.

Fabrication Laboratories (FAB Labs)

Fab Labs incorporate technologies like 3D printing and computer-assisted design. They give students hands-on experience with concepts they have learned in science, technology, engineering, and mathematics (STEM) courses as well as STEAM courses, which integrate the arts.

Flexbooks

Digital publications that educators and students can update because they are published with open licenses

Flex Model

This instructional model is one in which online learning is the backbone of student learning, even if it directs students to offline activities at times. Students move on an individually customized, fluid schedule among learning modalities, and the teacher of record is on site. (Source: "Is K-12 Blended Learning Disruptive?" Christiansen, Horn, and Staker.)

Flipped Classroom

A course or subject in which students participate in the primary delivery of instruction by online learning off-site in place of traditional homework and then attending

the brick-and-mortar school for a face-to-face to session to address the issues and questions stemming from the students' work, to provide opportunity for practice and reinforcement, to provide feedback, and to modify instructional guidance to meet student needs.

Formative Assessment

The low- or no-stakes evaluation of student learning that focuses on providing constructive feedback to support students' self-improvement and mastery. Formative assessment by an expert can model self-assessment and help students monitor their own learning and productivity.

Game-based Learning (GBL)

Students learn through playing games. (Details at: TeachThought, https://tinyurl.com/2p8scyze)

Gamification

The application of game-like mechanics to non-game entities to encourage a specific behavior. (Details at: TeachThought, https://tinyurl.com/2p8scyze) For example students can earn ranks or points for each activity they undertake say finishing a topic, submitting an assignment, post in a group or forum etc.

Hybrid Learning

Often used synonymously with blended learning; typically refers to blending multiple modes of learning - combining online and on-site pedagogies and materials within the same classroom. Hybrid is where you instruct learners in a physical class and learners online at the same time both benefiting from the same lesson on engagement.

Information Literacy

A set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information (ACRL 2000) See our course on Media and Information Literacy https://tinyurl.com/2axxfh2n

Information Technologies

Modern information, computer and communication technology products, services, or tools, including the internet, computer devices, and other hardware, software applications, data systems, and other electronic content (including multimedia content) and data storage.

Interoperability

The ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged.

Job-embedded

This type of professional development (JEPD) refers to teacher learning that is grounded in day-to-day teaching practice and is designed to enhance teachers' content-specific instructional practices with the intent of improving student learning (Darling-Hammond & McLaughlin, 1995; Hirsh, 2009).

It can be referred to as "just-in-time" or "real-time" learning because the support occurs during the actual teaching process. (Source: A New Vision for Professional Learning. 2017.)

Learning Community

A group of people (can include students) who share common academic goals and attitudes who meet regularly to share expertise and work collaboratively to improve instruction and the academic performance of students or of knowledge available on a given topic/ issue.

Learning Management System (LMS)

It is a technology system designed for off the web or mobile app to support learning content input, access, assessment and interactions between learners, instructors and admins. It includes content management, communication tools, instructional tools, student controls, gradebook and assessment features.

Makers

Individuals who use their imagination and resources to design and build new things. Makers are hobbyists, contractors, artists, engineers, students, teachers, tinkerers, cooks, technology enthusiasts, architects, crafters, performers, scientists, writers, etc.

Maker Movement

Nurtures the design-it-yourself, hands-on, do-it-yourself (DIY) development of products such as a written work, computer program, circuit development, movie, robotics, 3D printed objects, etc. Maker spaces often support this participatory learning with tools, materials, and technologies that may not ordinarily be accessible.

Maker Spaces

Designated areas where an individual or a group (also known as Fab Labs, Hacker Spaces, and Creative 3D Learning Spaces) learns through creative design and building activities.

Massive Open Online Course (MOOC)

A course in which materials and instruction are delivered over the Internet to users around the world; the course is designed to connect instructors with learners interested in a common topic and works best with a large user-base with open content.

Open Education Resources (OER)

OER are teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and repurposing by others (re-use, re-mix, re-distribute). Open education resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge." -The William and Flora Hewlett Foundation

Online Learning

Instruction takes place via a web-based educational delivery system that includes software to provide a structured learning environment. It can be a teacher-led education that takes place over the Internet, with the teacher and student separated geographically (also referred to as cyber learning, e-learning, distance learning).

Performance-based Learning

Activities are completed that require performances as demonstrations of knowledge.

Personalization or Personalized Learning

An approach to learning that is designed around individual learner readiness, strengths, needs and interests. Learners are active participants in setting goals, planning learning paths, tracking progress and determining how learning will be demonstrated. At any point in time, learning objectives, content, method and pacing are likely to vary from learner to learner. A fully personalized environment moves beyond both differentiation and individualization.

Personally Identifiable Information (PII)

Personally identifiable information (PII) is any data that could potentially identify a specific individual. Any information that can be used to distinguish one person from

another and can be used for de-anonymizing anonymous data can be considered PII. It includes such information as location, age, gender, income, status, class performance, race etc.

Privacy

The balance between collection and dissemination of data, technology, and individual's right to have their personal information kept private. (Source: Data Quality Campaign.

Problem-based Learning

An instructional approach in which students solve a real-world, authentic problem by gathering information and applying research or problem-solving skills.

Project-based Learning

Inquiry-based learning where learning takes place in response to a question or challenge. Learners undertake or participate in a real-life project, draw lessons and present them as part of knowledge sharing or to be assessed by instructors or learning community. It can be undertaken individually or in groups.

Return on Investment (ROI)

Refers to the benefit obtained from an investment of a resource such as time, money, an intervention or a transaction. It may yield a favorable or unfavorable benefit (return). In education, the favorable benefit could be greater student learning, higher graduation rates or increased lifetime earnings and career options.

Rotation Model of Blended Learning

Within a given course or subject, students rotate on a fixed schedule or at the teacher's discretion between learning modalities, at least one of which is online learning.

Data Security

The policies and practices implemented at the state, district, and school levels to ensure that data are kept safe from corruption and that access is limited and appropriate.

Social Learning

Learners are presented with social networking functionalities where they are able to create, share content as well as connect and interact with other learners or teachers in the same platform. Like Facebook for schools, social learning platforms provide a messaging and content sharing among groups. Leading platforms manage privacy issues.

Student-centered Learning

A wide variety of educational programs, learning experiences, instructional approaches, and academic-support strategies that are intended to address the distinct learning

needs, interests, aspirations, or cultural backgrounds of individual students and groups of students.

Summative Assessment

Summative assessments are used to evaluate student learning, skill acquisition, and academic achievement at the conclusion of a defined instructional period—typically at the end of a project, unit, course, semester, program, or school year.

Sustained Professional Development

This involves intentional and focused learning for the period of time required for successful implementation. Learning Forward clarifies that professional development that is sustained lasts more than the term of one day or a short, self-contained workshop. (Source: A New Vision for Professional Learning. 2017.)

Synchronous Online Learning

A real-time learning situation in which immediate two-way communication between instructor and participants is possible.

Synchronous Tools

Communication tools that support real-time communication such as webinars, Skype, zoom, Google meet or chat rooms.

Total Cost of Ownership (TCO)

A financial estimate to determine the direct and indirect costs involved in an overall system.

Transformative Budgeting for Digital Learning

A process by which innovations in schools are accomplished within existing budgets.

Three essential strategies characterize transformative budgeting when applied to technology readiness for digital learning. They are:

- Alignment of technology expenditures with the goals in the district's strategic plans;
- A cross-functional budget leadership team that brings together finance, technology, curriculum; and
- Transformative zero-based budgeting. (Source: NJDOE's NJ Digital Learning portal, https://tinyurl.com/yc76fx53 .)

Universal Design for Learning

A framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn. (CAST)

Virtual Classroom

A place for instructors and students to interact and collaborate in real time (synchronously). Using webcams, conferencing tools like Zoom, Webex, Google meet, chat boxes and class discussion features, it resembles the traditional classroom, except all participants are accessing it remotely over the Internet.

Virtual Resources

Resources that are not physical in nature, such as computer hardware platforms, operating systems, storage devices, computer network resources, electronic databases, and e-books.

Visualization Tools

Tools that support the visual representation of thinking and ideas such as charting, graphing, or concept mapping tools. See our Data Visualization course https://tinyurl.com/bdh4h2eb

Glossary compiled from Yaaka Digital Network, Wisconsin Department of Public Instruction, Wisconsin Digital Learning Collaborative (WDLC), CoSN, SETDA, Canvas, State of New Jersey Department of Education, Clayton Christensen Institute, Common Sense Media, Learning Forward and Future Ready Schools.

OTHER READING SOURCES

Source	URL	QR Code
What is Pedagogy | Define Pedagogy | Pedagogy Teaching | Education	https://www.state.nj.us/education/techno/glossary/	
	https://tinyurl.com/yj9yart4	

Click in the image below to watch the video

WHAT ARE THE MOST COMMONLY USED PLATFORMS & TOOLS IN DP?

As teachers, education institutions and regulators strive to embrace digital pedagogy and employ functional digital learning, it is important to know and chose the best possible digital learning tools and platforms. Here we give a few in addition to what was discussed earlier in tools and platforms.

1. Moodle

Moodle is widely known among open-source LMS solutions. It features detailed guides on how to set up your own Learning Management System, tips on how to create online training courses and teach with Moodle, as well as a large community of Moodle users who interact on various topics. Most importantly, it's entirely free of any charge and it comes with a mobile application as well.

Moodle is among the platforms forming the Ultimate List of Open-Source LMS.

Moodle is FREE. Check the latest Moodle reviews!

2. Chamilo

An open-source LMS that is here to improve access to online training. Backed up by the Chamilo Association, which aims to promote the software, maintain a clear communication channel, and build a network of service providers and software contributors. Chamilo offers easy-to-use authoring tools for creating online training that meets all learning preferences.

Chamilo is included in the Ultimate List of Open-Source LMSs.

Camilla software products are entirely for free. However, there is a network of official providers who offer professional-level services for organizations that do not have IT/ Media/Infrastructure resources in-house to run the platform.

Click here to read reviews about Chamilo.

3. Open edX

The Open edX is a tool empowering learners to access online course content, including videos and textbooks, plus checking their progress in the online training course. The Open edX LMS also has a discussion forum and a wiki at your disposal, that both learners and course team members can contribute to. There is also a dashboard through which the online instructor can enroll online learners, produce reports, and administer an online training course as it runs.

Open edX is placed among the ultimate list of open-source LMS as well.

It is free. Read what other members in the eLearning Industry community say about Open edX.

4. Totara Learn

Totara Learn meets all the requirements related to your employees' roles, training needs and objectives through effective delivery of individual learning plans. It provides for rich functionality, which can be implemented quickly and with a significant cost reduction, comparing to proprietary solutions. This award-winning open-source learning platform is designed for helping you to develop, train, manage and engage your staff.

Totara Learn is featured in the Ultimate List Of Open-Source LMSs.

Pricing for Totara Learn is based on the total number of active users per year. A range of user tiers is available. If you want to find out what customers say about Totara Learn, take a look at Totara Learn reviews here.

5. Canvas

An open-source LMS that is free for instructors. It makes teaching and learning easier in terms of implementation, adoption, customer support, and success. It is adaptable, reliable, and customizable. Designed to get out of your way and let you do your thing. Its interface and features are crafted to save you time and effort, resulting in getting adopted faster and deeper than many other Learning Management Systems.

Canvas is valued among the Ultimate List of Open-Source LMSs.

Quotes and further pricing details are available only upon request.

Click to read Canvas reviews to discover how other eLearning Industry community members have experienced the software.

6. YAAKA DIGITAL NETWORK PLATFORM

Yaaka DN is a digital multimedia learning platform where you can access or provide class notes, online classes, connect with students and trainers who share in your interests/ field of study. The platform, provides the **best of digital learning**: where one can interact (Facebook style) with learners and trainers, create or attend classes online, access academic materials in any subject/ topic at your convenience, or use any of our tabs to access the learning platform and content offline.

7. Skillshare

Skillshare offers a varied collection of courses to enhance your creative side, as well as enrich your business goals. Examples of course categories include leadership, marketing, productivity, graphic design, culinary arts, languages, and wellness. Every Skillshare class has a project that offers practical experience and the opportunity to receive feedback.

8. Khan Academy

Initially created for tutoring high school and college students, this site offers up exceptional training modules for all types of educational coaches, and for students at various levels of the learning curve.

Khan Academy is known for well-researched units of multiple levels of science, the arts, mathematics, and history, but the company has made additional headlines since receiving more than $9 million from the Gates Foundation.

It has also partnered with institutions like NASA, the Museum of Modern Art, Pixar Studios, the California Academy of Sciences, and MIT to offer specialized content, free of charge.

9. Wisdom Destinations

Wisdom Destinations offers a streaming library of inspirational business and life lessons with a twist; the "wisdom"' is relayed in a story format.

This innovative platform taps into the fact that we are hardwired to learn from the power of storytelling, so each "journey" begins with an audio recording of a real-life scenario or tale.

Once you listen to the narrative, the experts convey insights into what you can learn from the characters and apply the lessons to real-life issues. Resources and learning guides are also provided. It is a unique concept covering a range of topics from personal development to leadership and wellness. There is also a section for children and teens.

10. LinkedIn Learning

If you are looking to improve your professional development skills, LinkedIn Learning is an excellent place to start, especially after taking on Linda.com

It has a range of courses that can cover business and technology as well as creative pursuits and are offered in seven languages.

The platform is open to individuals and organizations, and most courses include quizzes, exercise files, templates, and other supporting documents to help you apply the material.

If you are interested in a new field or industry, there are specific "learning paths" that will guide you to the appropriate courses.

LinkedIn Learning also allows users to interact with experts, colleagues, and others who have taken a course, to share ideas and ask questions.

Organizations can also upload their own content and customize learning experiences with company documents, videos, and links.

11. Coursera

The Coursera website states that it provides universal access to "the world's best education," partnering with top universities and organizations to offer online courses.

Founded in 2012 by two Stanford computer science professors, users can earn credentials from distinguished universities like Yale and Stanford as well as leading companies such as Google and IBM. The site offers hundreds of diverse courses, certificates, specializations, and degree programs. Many of the courses are free.

12. Udemy

Udemy for Business Taught by experts to help your workforce excel, Udemy's sophisticated learning recommendations deepen skills and are customized to drive employee engagement.

Its course selections include more than 3,500 on-trend subjects that will enrich learning and boost your skills in a host of areas including business, tech, design, and more.

Udemy also offers a great mix of expert resources on the latest e-learning trends, including e-books, webinars, videos, infographics, and case studies that will benefit your L&D department.

Other digital learning tools and platforms include;

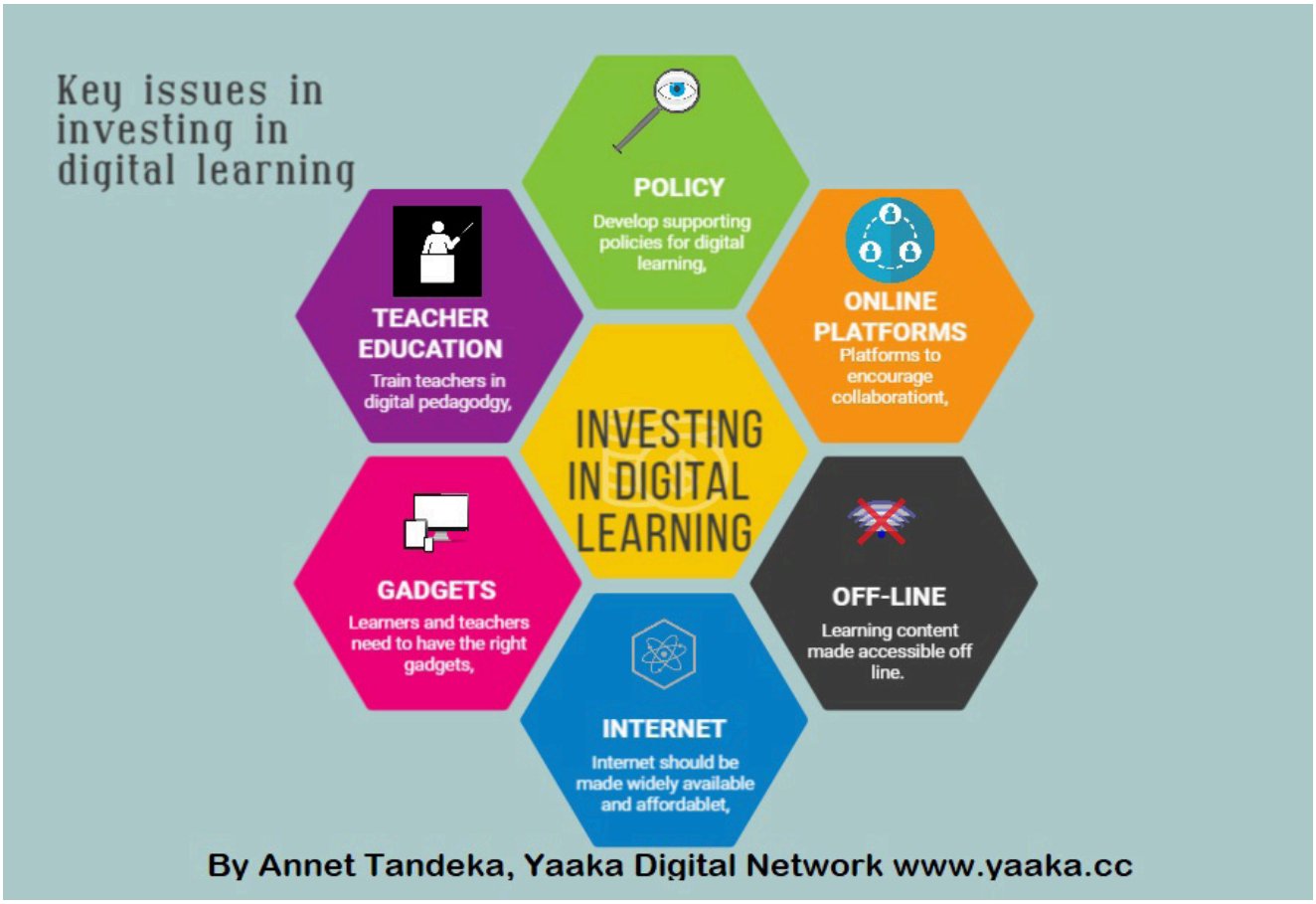
Tools	URL	QR Code
Adobe Captivate Prime	https://tinyurl.com/55re9vhv	
Docebo	https://tinyurl.com/s8kzfaxt	

Tools	URL	QR Code
SAP Litmos LMS	https://tinyurl.com/3m6xthdr	
LearnUpon LMS	https://tinyurl.com/468unva4	
Asentia LMS	https://tinyurl.com/2nvhyusw	
Mindflash	https://tinyurl.com/299me5wj	
iSpring Learn	https://tinyurl.com/4jbad7f8	
TalentLMS	https://tinyurl.com/246xxzp7	

For those interested in creating your own platforms

Platform	URL	QR Code
Moodle (most universities use this)	www.moodle.com/lms www.moodle.org	
Joomla, Joomla LMS Template	https://www.joomlms.com/	
Joomla extension	https://tinyurl.com/4z6vaf79	

Platform	URL	QR Code
Drupal- Drupal Learning Management Systems	https://tinyurl.com/2su9ep48	
Wordpress- Wordpress Learning Management Systems	https://tinyurl.com/2p8r9p3j	
Kolbri (offline content option)	https://learningequality.org/kolibri/	
Racheal (offline content option)	https://worldpossible.org/rachel	
Further resources can seen at	https://tinyurl.com/4t4fssz7	



MULTIMEDIA PACKAGING AND PUBLISHING PRACTICES AND TOOLS

Digital learning content is better when prepared in multimedia formats, using a combination of two or more of the media formats i.e. text, audio, video graphics and photos. We have a whole course on Multimedia Production https://www.yaaka.cc/course/multimedia-production/ where you can explore more on this concept. But this topic is aimed at helping you appreciate multimedia content packaging.

Multimedia packaging refers to the art of designing content for web-based platforms using a variety of media formats to present one set of content.

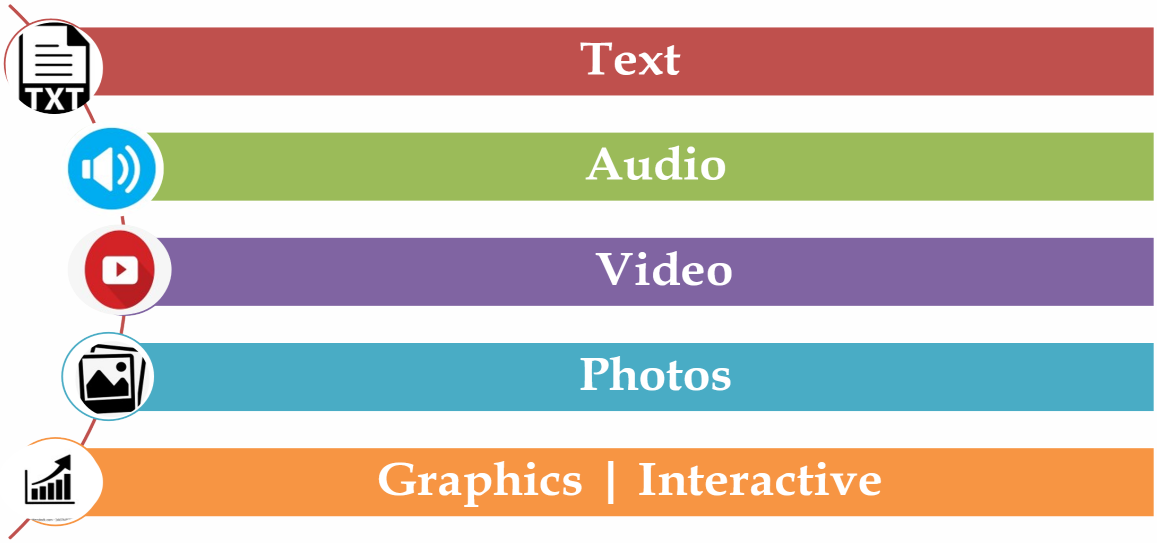
There are two good reasons for publishing multi-media content on your website or education app:

1. People have different preferences for how information is presented online. Publishing content (academic) in several different forms on your website to appeal to different visitors can greatly increase your content's consumption on your website or app.

2. Google indexes multi-media content and ranks it higher than basic text. For example, Google indexes images, audios, videos and interactives and ranks content with such elements higher.

This means your website's (learning management system) search engine rankings will improve if you include images, audios and/or videos on your site, as long as the images, audios and videos contain elements that Google looks for, notably keywords for SEO (search engine optimization).

Elements of Media



Text: written word, the most-used way to present information on the internet. Transcriptions of video and audio (see Video and Audio, below) are a newer and increasingly popular way to use text online.

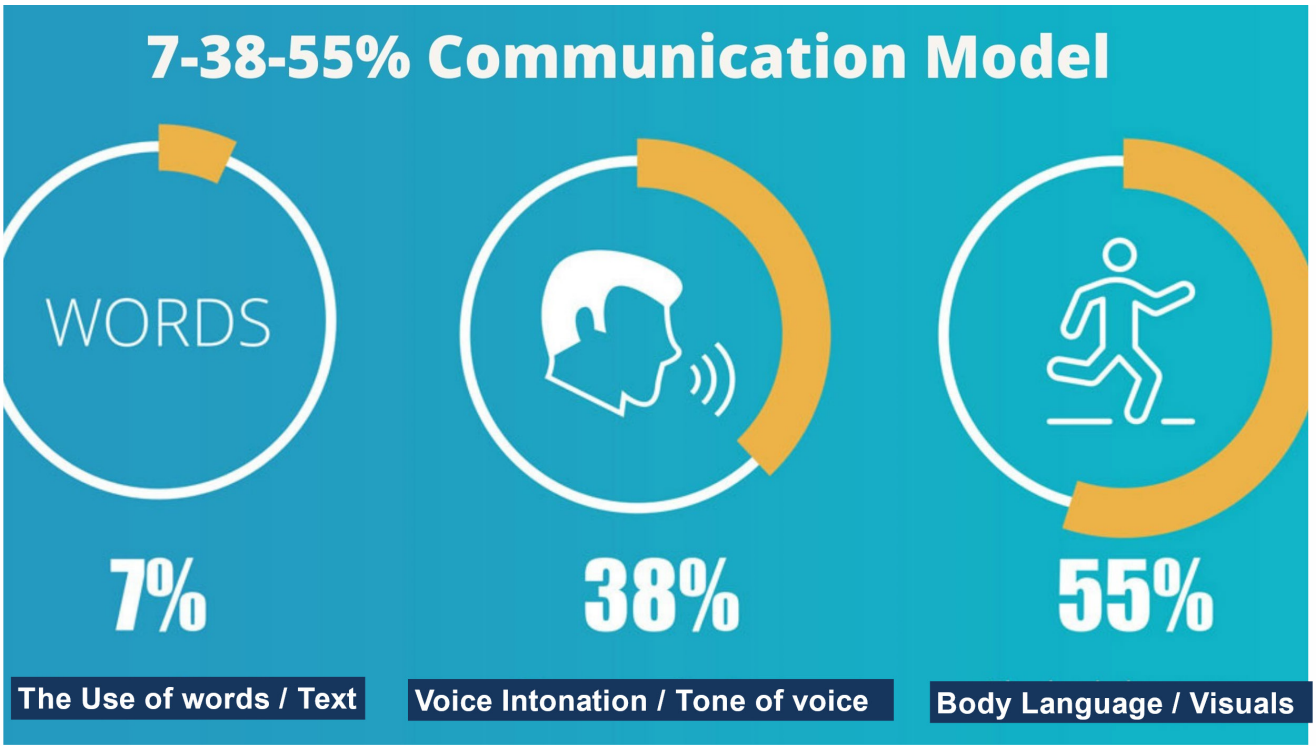
Image: photos and graphics created with digital cameras, graphic software, or images from scans of printed material.

Video: screen capture (recording activity on a computer screen combined with audio, often used to create how-to videos for computer-related demos), talking head, and webinars (online seminars converted into video) are popular kinds of videos that can be used online. Videos can also be transcribed and offered in text form for people who don't have time to watch the video and/or prefer text.

Audio: sound recordings, a popular example being podcasts which can also be transcribed and offered in text form for people who don't have time to listen to the podcast and/or prefer text.

Graphics and interactives: Graphics like maps, shapes, graphs help to present or explain complex information that cannot be recorded or easily understood with just text.

Why would it be important to use multimedia in your content packaging? In communication, we know that pitch and tone of voice, the speed and rhythm of the spoken word, and the pauses between those words may express more than what is being communicated by words alone. Also, gestures, posture, pose and expressions usually convey a variety of subtle signals. These non-verbal elements can present a learner with important clues to the teacher's thoughts and feelings and thus substantiate or contradict the speaker's words.



The most commonly cited study on the relative importance of verbal and nonverbal messages in personal communication is one by Prof. Albert Mehrabian of the University of California in Los Angeles. In the 1970s, his studies suggested that we overwhelmingly deduce our feelings, attitudes, and beliefs about what someone says not by the actual words spoken, but by the speaker's body language and tone of voice.

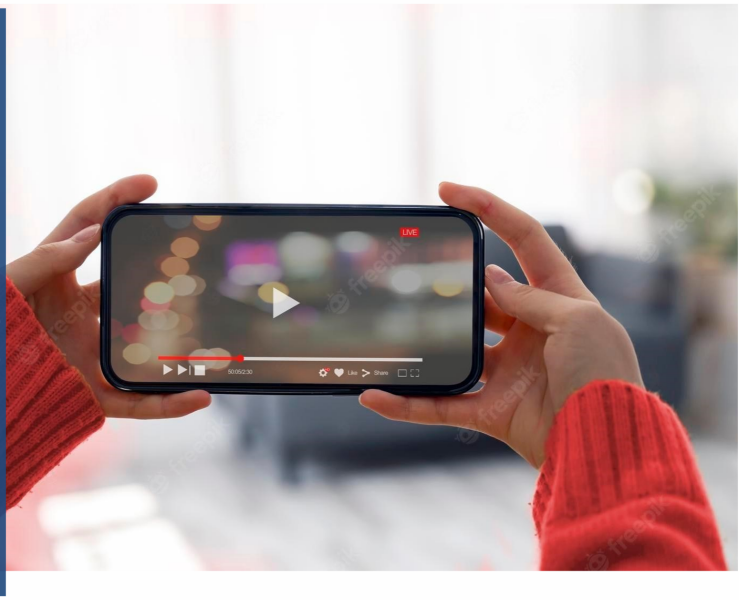
In his 1973 book, Silent Messages, Prof Mehrabian deduced the 7%-38-45% communication model showing that words, tone of voice, and body language respectively account for 7%, 38%, and 55% of personal communication. "The non-verbal elements are particularly important for communicating feelings and attitude, especially when they are incongruent: if words and body language disagree, one tends to believe the body language," he wrote.

This means that using different media elements that show more non verbal communication will lead to better understanding of messages being communicated.

But the key to multimedia content is to know which media to use when.

Video

- It is used to show action.
- It takes viewers somewhere they would not have access to, or places they would want to visit.
- It helps you bring your point home without using texts – People will just watch and understand.
- It engages your audience.



Still Photos

- Used to capture and emphasize a strong emotion or a key moment in time.
- A picture is worth a thousand words
- People believe by seeing.
- Panorama or 360-degree photos, combined with audio, also immerse a reader in the location of the story.

Graphics

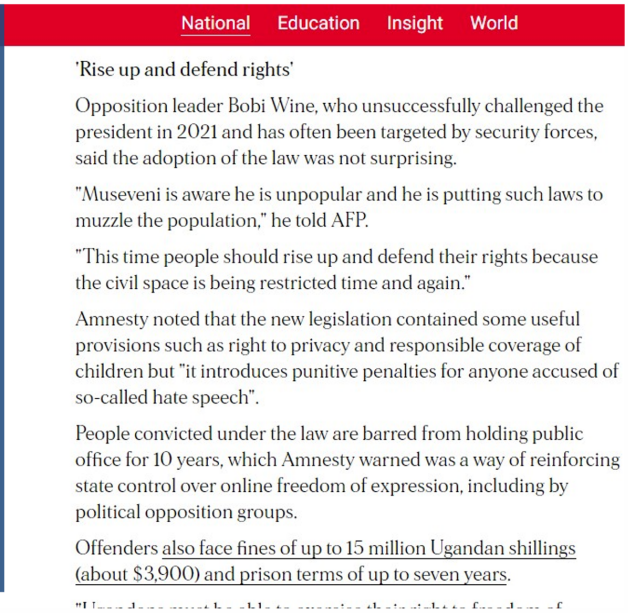
- Are used to show complicated processes (Processes that can't be seen)
- Communicates complex data in an easy to understand format
- Graphics enable you to communicate to your audience in a beautiful and effective way as they summarize an idea with consistent imagery.
- Graphics should help to guide the viewers' focus to the important content on the page.

Audio

- Used to capture compelling quotes by bringing the voices of characters into the story
- Its brings intimate experience to your audience on what you are talking about.
- Good audio makes still photos and video seem more powerful and real.
- Whenever possible, try to add transcript of the audio

Text

- This can be used to describe the history of a story or a process of an event in a story.
- These are mostly used when the information cannot be conveyed with other media.
- Used to give background information and captions.
- It helps compliment all the above



National Education Insight World

'Rise up and defend rights'

Opposition leader Bobi Wine, who unsuccessfully challenged the president in 2021 and has often been targeted by security forces, said the adoption of the law was not surprising.

"Museveni is aware he is unpopular and he is putting such laws to muzzle the population," he told AFP.

"This time people should rise up and defend their rights because the civil space is being restricted time and again."

Amnesty noted that the new legislation contained some useful provisions such as right to privacy and responsible coverage of children but "it introduces punitive penalties for anyone accused of so-called hate speech".

People convicted under the law are barred from holding public office for 10 years, which Amnesty warned was a way of reinforcing state control over online freedom of expression, including by political opposition groups.

Offenders also face fines of up to 15 million Ugandan shillings (about $3,900) and prison terms of up to seven years.

What are Multimedia Content Packaging Tools

The following are examples of Multimedia packaging tools.

PowerPoint Presentation: A PowerPoint presentation is a presentation created using Microsoft PowerPoint software. The presentation is a collection of individual slides that contain information on a topic. You can input text, audio, video, graphics and photos in a PowerPoint presentation.

PowerPoint presentations are commonly used in business meetings and for training and educational purposes. What can you do with PowerPoint presentation?

Design

The design features of PowerPoint allow you to customize the appearance and format of the slides. PowerPoint typically comes with a set of preloaded themes for you to choose from.

Additionally, these can range from simple color changes to complete format layouts with accompanying font text. Themes can be applied through the whole presentation or a single slide.

Using the page setup allows you to optimize the presentation for the display size; for instance, you should use a larger screen ratio when displaying on a projector compared to a computer screen.

Animation

PowerPoint animation is divided between slide transitions and element animation. Using slide transition adds an effect when switching slides during a slide show. You can edit the transition effect and timing, as well as opt for an on-click or automatic transition between slides.

Element animation adds movement and sounds to the objects within the slide. For example, if you're constructing a photo gallery as a slide show, you can choose which pictures enter the slide first, how they enter and add a sound as they enter.

Presentation

The presentation function of PowerPoint is largely designed to accommodate public speaking. PowerPoint comes with a built-in notes function; when printing out presentation slides, you can add presenter notes beside each slide as accompanying content.

This is useful to clarify points in the slide without sacrificing the slide's readability. As of the 2007 version of PowerPoint, you can pre-record narration for a presentation. PowerPoint also has a rehearsal function as well, allowing you or your team to practice your timing and monitor the length of your presentation.

Integration

It should be noted that PowerPoint is compatible with all other software in the Microsoft Office suite; you can export slides into Word documents or use Excel charts within your presentation.

In addition to image and audio support, PowerPoint 2007 onwards also has video-integration functionality; you can embed videos within a presentation for easy playback without exiting the program. You can also export presentation files to an online interface for multi-user remote editing and presentation practice.

Thinglink

Thing Link is a tool for creating interactive images by tagging content to a photo or drawing. Tags can link to websites, Facebook or Twitter pages, videos, maps, other images, audio, or Google resources.

Users can also create interactive videos with a professional or premium account.

Interactive images can be shared on social networks, including Facebook, Twitter, Pinterest. There is an option to embed the Thinglink image on other websites as well.

Another feature that Thinglink offers is 360 degrees tours with tags. Users can upload 360 degrees pictures and add audio and video tags for a 3D virtual reality experience. This feature is only available with a Professional or Premium subscription.

Thinglink can be especially useful for science, geography, history, language, and visual arts.

Science: Students can create an interactive image to develop or demonstrate their knowledge about a scientific concept or topic. Check out this example of the solar system:

English/Language Arts: Students can make their own vocabulary mind map and tag related words and images. Students can also annotate images of their favorite authors and texts. See an example in which the image links to the Edgar Allan Poe's birthplace, major works, and related websites.

Geography: Students can pinpoint names of places and landmarks. They can also include definitions or annotate historical facts on maps.

Arts: Have you ever wanted to show your students a virtual tour to the Louvre? Better yet, your students can create one by tagging paintings to artist, times and movements. See an example here:

How to Use ThingLink

Step 1. Go to https://www.thinglink.com/

Step 2. Sign up by creating an account using an email or sign up using your Facebook, Twitter, or Google account.

Step 3. Explore or follow popular users or topics.

Step 4. Upload an image from your hard drive, the Internet, or Facebook.

Step 5. Select a position on the image and tag it to a website, video, or map.

Step 6. Share your interactive image on Facebook, Twitter, Gplus or obtain a code to embed it in your website.

Prezi

Prezi is a web-based tool for creating presentations (called **prezis** for short). It's similar to other presentation software like Microsoft PowerPoint, but it offers some unique features that make it a good alternative.

How does a prezi work?

Most types of presentation software use a slide-based approach, where you move back and forth between individual slides, kind of like pages in a book.

Prezi, however, uses a **canvas-based** approach. Instead of using slides, Prezi has one very large canvas that your presentation moves around on, zooming in and out to view various **frames**.

This concept is much easier to describe with a visual aid, so we've embedded a sample prezi below. Simply select **Start Prezi**, then use the **arrows** at the bottom to navigate through the presentation.

What makes Prezi unique?

You might be wondering what makes Prezi different from other presentation software, like **PowerPoint** or **Keynote**.

- Prezi is completely **free** to use. There are upgrades you can pay for to unlock additional features, but everything you need to create and share a dynamic prezi is available free of cost.
- Prezi is run entirely through your web browser, meaning there will be fewer compatibility issues than with other programs like PowerPoint. Your prezi will **always look the same**, no matter what computer you're viewing it on.
- Because of its unique presentation style, Prezi can use movement and metaphor to help communicate a point you're trying to make. If you want your audience to really feel a sense of space and distance between locations, you could use a **map template.**

Canva

Canva is a graphic design platform that allows users to create social media graphics, presentations, posters and other visual content. It is available on web and mobile, and

integrates millions of images, fonts, templates and illustrations. You can do different graphic content types including posters, newsletters, videos, logos etc.

See tutorial on creating graphics with canva

See other content creation tutorials for different tools like postermywall, Piktochart, pixlr etc

More Resources for producing multimedia content

What are Multimedia Content Packaging Tools

https://products.office.com/en-us/what-is-powerpoint

https://tinyurl.com/4x56w2a2

You can also check out our courses for Digital Video production, audio production, Digital photography, imaging and graphics, immersive storytelling, data visualization,

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DIGITAL PHOTOGRAPHY & IMAGING FOR CONTENT DEVELOPMENT

From the previous topic on multimedia packaging and publishing practices and tools, we have already seen that photos/images are important in digital content presentation. Photos are important because:

—Photos are a medium of communication

—Capture the humanity, nature & situation

—Enhancing message comprehension (1,000 words)

—Evidence (authority, empathy, humility and passion) “cameras never lie”

Introduction to Photography

Photography is the art of capturing light with a camera, usually via a digital sensor or film, to create an image. With the right camera equipment, you can take any type of photo that can support your digital teaching.

Whatever the subject you teach all photography involves the same basic principles of obtaining a clear, focused image through a lens and onto the recording medium.

To take photos, you must have a camera. There are many types of camera. Professional photographers like to have a selection of cameras for different purposes.

The most popular type of general-purpose camera for taking high-quality images is the single lens reflex (SLR). If you are interested in photography you will probably want to own an SLR camera. But most phones and tablets on the market today are able to take good quality grade photos. What matters is the type of camera.

Like all arts, good photography comes with practice. Learn about the camera; learn about picture composition and practice.

Getting/buying a good camera

Always, always remember to consider these factors when buying a digital camera:

- Battery Life
- Number of Megapixels
- Zoom Lens
- Exposure Control
- User Controls

Battery Life: This has got to be one of the most overlooked features in digital cameras. I know many people who go for the latest and greatest digital cameras which are short in the battery life department. If you want to take good photos, your camera needs to powered for extended periods of time. I've found that cost and battery life don't go together - many cheap cameras have good battery life, while some high-end models drain your battery really fast. Make sure you choose a camera that has good battery life.

Number of Megapixels: The megapixel rating of a digital camera determines how much fine detail you can capture in your shots. Typically, the number of megapixels can range around from 2 megapixels to 8 megapixels. How do you decide how many megapixels you need? As a rule of thumb, if you're only interested in taking small snapshots to send via email or for posting on the Web, you won't need more than 8 **megapixels**. If you want large print outs of your gorgeous photographs, then you'll probably want to get **12 megapixel cameras** and above. You may want to refer to this guide for more information.

Zoom Lens: You'll definitely want a camera with decent optical zoom. Now the keyword here is optical zoom (as opposed to digital zoom). Optical zoom physically moves the camera lenses to zoom in on a subject. Digital zoom, however, digitally averages and magnifies the image within the camera's microchip - resulting in poor picture quality. Many manufacturers' advertisements talk about digital zoom instead of optical zoom - so do be careful when choosing. I'd recommend getting **at least 3x optical zoom** in any camera you buy.

Exposure Control: The ability to control exposure settings such as shutter speed and lens opening is critical to professional photographers. Cheaper digital cameras only allow you to shoot photos in automatic mode - just press the shutter release and voila, your picture is taken. More advanced users prefer to tweak the shutter speed and aperture to capture fast moving objects or blur the image background. Choose a camera with **good exposure control** if you foresee yourself taking on photography as a serious hobby.

User Controls: If you are getting a point-and-shoot camera, make sure you find one that's easy to use. User controls to set resolution, macro mode, flash and exposure should be within easy reach. Of course, if you're a serious photography buff who wants to take the time to tweak all sorts of manual settings, then this many not be so critical.

General Tips for Better Photography

There are common practices that you need to bear in mind to take good and even great photos that enhance your purposes.

Know Your Camera: Does this sound familiar? You buy the latest digital camera out there, come home, rip off the box, and then proceed to fiddle with the device. You briefly flick through the hundred page camera manual and then never look at it again. Not a good idea! If you buy a digital camera, you owe it to yourself to understand its ins and outs. Learn how to control exposure, how to use different camera modes and how to use the flash. The knowledge you gain about the camera will be invaluable when you're out in the field taking those special photos.

Learn to Control the Flash: One of the most important things you need to know about digital photography is to control the flash. Many people rely on the automatic flash that comes with the digital camera. Depending on the situation, you may need to switch off or switch on the flash.

For example, when taking outdoor photos, it is sometimes good to turn on the flash to illuminate the subject, especially if he or she is in the shade. On the other hand, you can also choose to turn off the flash when taking indoor shots. Sometimes, using the flash indoors will result in unnatural skin color and harsh glare in your photos.

Play with the Macro Mode: Almost all digital camera these days have a macro mode. This setting is ideal for taking close up shots of objects like flowers or insects. What you do is to pick a subject, turn on macro mode, then get as close to it as your camera

will allow. Make sure you allow the camera to focus properly before depressing the shutter button fully.

Hold the Camera Level: A basic rule of photography is to hold the camera level. Since most digital cameras come with a LCD, you can use it to properly frame your shots. Next time you're taking a shot, try to look for the horizontal lines and use them as guides. A good example is to make use of the horizon when you're taking a photo of a sunset.

Keep still: A lot of people are surprised at how blurry their pictures come out when going for a close-up, or taking the shot from a distance. To minimize blurring: If you're using a full-sized camera with a zoom lens, hold the camera body (finger on the shutter button) with one hand, and steady the lens by cupping your other hand under it. Keep your elbows close to your body, and use this position to brace yourself firmly. If your camera or lens has image stabilisation features, use them (this is called IS on Canon gear, and VR, for Vibration Reduction, on Nikon equipment).

Use the Tripod: Camera tripods are an essential tool in your photography arsenal. When will you need a tripod? Well, it's useful if you're taking shots under low-light conditions or trying to capture fast moving objects. Always try to look for a tripod that's convenient to carry around. For personal use, you don't need a huge one - just a simple compact one that's easy to pack.

Play with the ISO Setting: The ISO setting of camera controls its sensitivity to light. If you're taking a photo of a still object, like a flower, then always use a low ISO setting. It allows for a longer shutter speed and produces a cleaner image. If you're shooting a moving object, like a baby playing with a toy, then a higher ISO setting of say 400 would be better. Do take note, however, that a higher ISO setting gives a faster shutter speed and requires less light. This will produce noiser photos.

Your camera's ISO speed number stands for the sensitivity of the digital sensor. Slower ISO speeds result in less noisy pictures -- even on a digital SLR; but this is especially important on a point-and-shoot camera.

Have Enough Memory Capacity: Just like you must have enough rolls of film when using traditional cameras, make sure you always have enough memory capacity in your digital camera. It's terrible to go upcountry say in Kabong in Karamoja, North Eastern Uganda to great photos and suddenly realizing you've no memory space left. Carrying your laptop computer along (and a memory card reader) is also helpful. If on your phone, ensure you have enough memory or a good capacity memory card

Take many Pictures: With digital cameras, you don't have to worry about spoiling film so take many pictures of the subject from as many different angles...if you go once in the field, this is especially helpful for you to come back with as many usable photos from a trip.

Snapping a subject in both landscape and portrait is advisable as some publishers will prefer either.

But don't be snap happy...take as many photos as necessary. Remember you are spending your battery and filling your memory card.

Composition rules: We all dislike rules, but the **rule of thirds** is one worth learning. Lots of images look better when following this rule. Imagine the image you're composing split into three segments horizontally and three vertically. The grid image below illustrates the point; the horizon line is roughly a third of the way up the frame. The sky fills the other two thirds. The lighthouse is also a third of the way in (roughly) from the edge of the frame.

Fill the frame with your subject: Don't be afraid to get closer to your subject. On the other hand, if you're using a digital camera with plenty of megapixels to spare, you can crop it later in software.

Try an interesting angle: Instead of shooting the object straight on, try looking down to the object, or crouching and looking up. Pick an angle that shows maximum color and minimum shadow. To make things appear longer or taller, a low angle can help. If you want a bold photo, it is best to be even with the object. You may also want to make the object look smaller or make it look like you're hovering over; to get the effect you should put the camera above the object. An uncommon angle makes for a more interesting shot.

Focus: Poor focusing is one of the most common ways that photographs are ruined. Use the automatic focus of your camera, if you have it; usually, this is done by half-pressing the shutter button. Use the "macro" mode of your camera for very close-up shots. *Don't focus manually* unless your auto-focus is having issues; as with metering, automatic focus usually does a far better job of focusing than you can.

Consider *not* using a tripod, especially if you don't already have one. A tripod infringes on your ability to move around, and to rapidly change the framing of your shot. It's also more weight to carry around, which is a disincentive to getting out and taking photographs in the first place. As a general rule, you only need a tripod if your shutter speed is equal to or slower than the reciprocal of your focal length If you can avoid using a tripod by using faster ISO speeds (and, consequently, faster shutter speeds), or by using image stabilisation features of your camera, or by simply moving to somewhere with better lighting, then do that.

If you are in a situation where it would be nice to use a tripod, but you don't have a tripod at the time, try one or more of the following to reduce camera shake:

- Turn on image stabilization on your camera (only some digital cameras have this) or lens (generally only some expensive lenses have this).
- Zoom out (or substitute a wider lens) and get closer. This will de-magnify the effect of a small change in the direction of the camera, and generally increase your maximum aperture for a shorter exposure.

- Hold the camera at two points away from its center, such as the handle near the shutter button and the opposite corner, or toward the end of the lens. (Do not hold a delicate collapsible lens such as on a point-and-shoot, or obstruct something that the camera will try to move on its own such as a focusing ring, or obstruct the view from the front of the lens.) This will decrease the angle which the camera moves for a given distance your hands wobble.
- Squeeze the shutter slowly, steadily, and gently, and do not stop until momentarily after the picture has taken. Try putting your index finger over the top of the camera, and squeezing the shutter button with the second joint of the finger for a steadier motion (you're pushing on the top of the camera all along).
- Brace the camera against something (or your hand against something if you're concerned about scratching it), and/or brace your arms against your body or sit down and brace them against your knees.
- Prop the camera on something (perhaps its bag or its strap) and use the self-timer to avoid shake from pushing on the button if the thing it is propped on is soft. This often involves a small chance that the camera will fall over so check that it does not have far to fall, and generally avoid it with a very expensive camera or one with accessories such as a flash that could break or rip off parts of the camera. If you anticipate doing this much, you could bring along a beanbag, which would work well for it. Purpose-built "beanbags" are available, bags of dried beans are cheap and the contents can be eaten when they begin to wear through or get upgraded.

Relax when you push the shutter button. Also, try not to hold the camera up for too long; this will cause your hands and arms to be shakier. Practice bringing the camera up to your eye, focusing and metering, and taking the shot in one swift, smooth action.

Avoid red eye. Red-eye is caused when your eyes dilate in lower lighting. When your pupils are big, the flash actually lights up the blood vessels on the back wall of your eyeball, which is why it looks red. If you must use a flash in poor light, try to get the person to not look directly at the camera, or consider using a "bounce flash". Aiming your flash above the heads of your subjects, especially if the walls surrounding are light, will keep red-eye out. If you don't have a separate flash gun which is adjustable in this way, use the red-eye reduction feature of your camera if available - it flashes a couple of times before opening the shutter, which causes your subject's pupils to contract, thus minimizing red-eye. Better yet, don't take photographs which require a flash to be used; find somewhere with better lighting.

Use your flash judiciously, and don't use it when you don't have to. A flash in poor light can often cause ugly-looking reflections, or make the subject of your photo appear "washed out"; the latter is especially true of people photos.

On the other hand, a flash is very useful for filling in shadows; to eliminate the "raccoon eye" effect in bright midday light, for example (if you have a flash sync speed fast enough). If you can avoid using a flash by going outside, or steadying the camera

(allowing you to use a slower shutter speed without blur), or setting a faster ISO speed (allowing faster shutter speeds), then do that.

- If you do not intend the flash to be the primary light source in the picture, set it up to give correct exposure at an aperture a stop or so wider than that which is otherwise correct and which you actually use for the exposure (which depends on the ambient light intensity and the shutter speed, which cannot be above the flash-sync speed). This can be done by choosing a specific stop with a manual or thermistor flash, or by using "flash exposure compensation" with a fancy modern camera.

Go through your photos and look for the best ones.

Look for what makes the best photos and continue using the methods that got the best shots. Don't be afraid to throw away or delete photos, either. Be brutal about it; if it doesn't strike you as a particularly pleasing shot, and then ditch it.

If you, like most people, are shooting on a digital camera, then it would not have cost you anything but your time. Before you delete them, remember you can learn a lot from your worst photos; discover why they don't look good, and then *don't do that*.

Practice, practice, and practice. Take lots and lots of photos -- aim to fill your memory card, (or to use up as much film as you can afford to have developed, but don't mess with film until you can get decent pictures frequently with a simple digital camera:

until then, you need to make many more glaring mistakes to learn from, and it's nice to make them for free and find out immediately, when you can figure out exactly what you did and why under the current circumstances it is wrong). The more pictures you take, the better you'll get, and the more you (and everyone) will like your pictures. Shoot from new or different angles, and find new subjects to take pictures of, and keep at it; you can make even the most boring, everyday thing look amazing if you're creative enough about photographing it. Get to know your camera's limitations, too; how well it performs in different kinds of lighting, how well auto-focus performs at various distances, how well it handles moving subjects, and so on.

More tips

- Your camera doesn't matter. Nearly any camera is capable of taking good photographs in the right conditions. Even a modern camera phone is good enough for many kinds of shots. [8] Learn your camera›s limitations and work around them; don›t buy new equipment until you know exactly what these limitations are, and are certain that they are hindering you.
- Pick up a big-city newspaper or a copy of National Geographic and see how professional photojournalists tell stories in pictures. It's often worth poking around photo sites like Flickr or deviant ART for inspiration, too. Try Flickr's camera finder to see what people have done with the cheapest point-and-shoot cameras. Look at the Camera Data on deviant ART. Just don›t spend so much time getting inspired that it stops you from getting out there.
- When shooting photos of children, get down to their level! Pictures looking down at the top of a child's head are usually pretty lame. Stop being lazy and get on your knees.
- If you shoot digital it's better to underexpose the shot, as underexposure is easy to correct later on in software. Shadow detail can be recovered; blown highlights (the pure white areas in an overexposed photo) can never be recovered, as there is nothing there to recover. Film is the opposite; shadow detail tends to be poor compared to digital cameras, but blown highlights are rare even with massive overexposure.[9]
- Get your photos off your memory card ASAP. Make backups; make several backups if you can. Every photographer has, or will, experience the heartbreak of losing precious image/images unless he or she cultivates this habit. Back-up, back-up, back-up!
- If the camera has a strap, use it! Hold the camera out so that that the neck strap is pulled as far as a can, this will help steady the camera. Furthermore, it'll also stop you from dropping the camera.
- Install photo-editing software and learn how to use it. This will allow you to correct color balance, adjust lighting, crop your photos, and much more. Most cameras will come with software to make these basic adjustments. For more complicated operations, consider buying Photoshop, installing the

free GIMP image editor, or using NET, a free light-weight photo editing program for Windows users.

- Keep a notebook handy and make notes about what worked well and what didn't. Review your notes often as you practice.
- Upload to Flickr or the Commons and maybe one day you will see your photos used on wiki How!
- To find an interesting angle at a tourist location, look where everybody else is taking their picture, and then go somewhere completely different. You don't want the same picture as everybody else.

WARNINGS

- Beware of taking photographs of statues, artwork, and even architecture; even if it is located in public places, in many jurisdictions this can often constitute a violation of the copyright in these works.[10]
- When taking photos of people, their pets, or even their property, ask for permission. The only time you clearly do not need it is when you are capturing a crime in progress. It is always polite to ask.

Editing/touching up the photos

Taking good photos is one part of the equation in ensuring desirable photographs. The compositions you make and quality of photo might not meet the desired standards. But thanks to photo editing software, you have a chance to improve your photos.

There are free and paid for photo editing programs you can use e.g. paint, windows fax viewer, GIMP or buy Photoshop, downloading and installing or Paint.NET among others.

Start Up Your Image Editor: The first step, of course, is to fire up your favorite image editing program. For beginners, it's best to get a program like paint of fax viewer. You will be amazed at how much you can achieve with such a free photo editing program.

Ok - with your image editor ready, open the picture you want to edit within the program and save a backup copy.

Remove Red-Eye: If you're taking photos of people, chances are you may have taken a photo with red-eye problems. This is easily removed with image editing software.

Rotate and Crop: If you've taken a photo in a wrong orientation, it's easily corrected with little loss in quality by using a rotate tool. You'll also want to do some cropping of your photo to remove cluttered surroundings that draw attention away from your subject. Cut away the two sides of the picture and you have a much more professional look.

Play with Color: Don't be afraid to experiment with colors. Image editing programs put a lot of power in your hands. You can make the leaves purple, change the entire photo to black and white, add a sepia effect - almost anything you want. A good photo editing program will have automatic color balance options to adjust color defects in your pictures.

Blurring Effects: What you can do here is to select areas of the photo which are unimportant and blur them out. This will bring more attention to the main subject of your photo. For example, if I had a picture of a flower and I wanted to play down the details in the leaves in background, I might add a blurring effect to the background.

Sharpen Up: Sharpening the image is the next step in the photo touch up process. Contrary to popular belief, you can't actually sharpen an out of focus image.

Resize: Depending on your needs, you may want to resize your photo. If you're emailing a picture to a friend, you'll want to resize the picture down to a much smaller size. If you're printing the photo on a greeting card, you can scale down the image to the size of a 4x6 print.

Save Your Work: Ok, you're pretty much done. Remember to save your work in the appropriate image format. Use the large TIFF image format if you want to retain all details for subsequent image editing. On the other hand, you can use the JPEG image format if you want to just send the picture via email or upload them to your website.

Types of Cameras

DSLRs: These larger cameras are the industry standard for high-quality photography. They have large sensors, support many lenses, come with a huge number of features, and are packed with technology that helps you take great pictures.

Of course, it takes a lot of room to get all that technology into one device. DSLRs are big and unwieldy (though they're getting more compact). They're also very expensive, with introductory models starting in the $350 range.

But if you want the best photos, there's no other choice. Professionals use these for a reason.

Buy a DSLR if you want the best pictures you can get, and if you're willing to put in some work to learn the camera.

Mirror less

If you want something between a point-and-shoot and a DSLR, both in complexity and price, a mirror less (or "bridge") camera is perfect.

These cameras pack many of the features of larger DSLRs, but have a shorter learning curve and more portability.

The smaller bodies mean that they're more easily stashed in a purse or backpack, too. There are some compromises with mirror less cameras, though. Many don't have optical viewfinders, and they usually don't have as many features as DSLRs.

They can be expensive, too (though there are more affordable entry-level and mid-range models).

Buy a mirror less camera if you want the best of both worlds, but are willing to accept some compromises.

Smartphone

Recent advances in smartphone technology mean that many phone cameras now have dedicated cameras. And while many photography enthusiasts might not consider

them “digital cameras,” there’s a saying in photography that “the best camera is the one you have with you.”

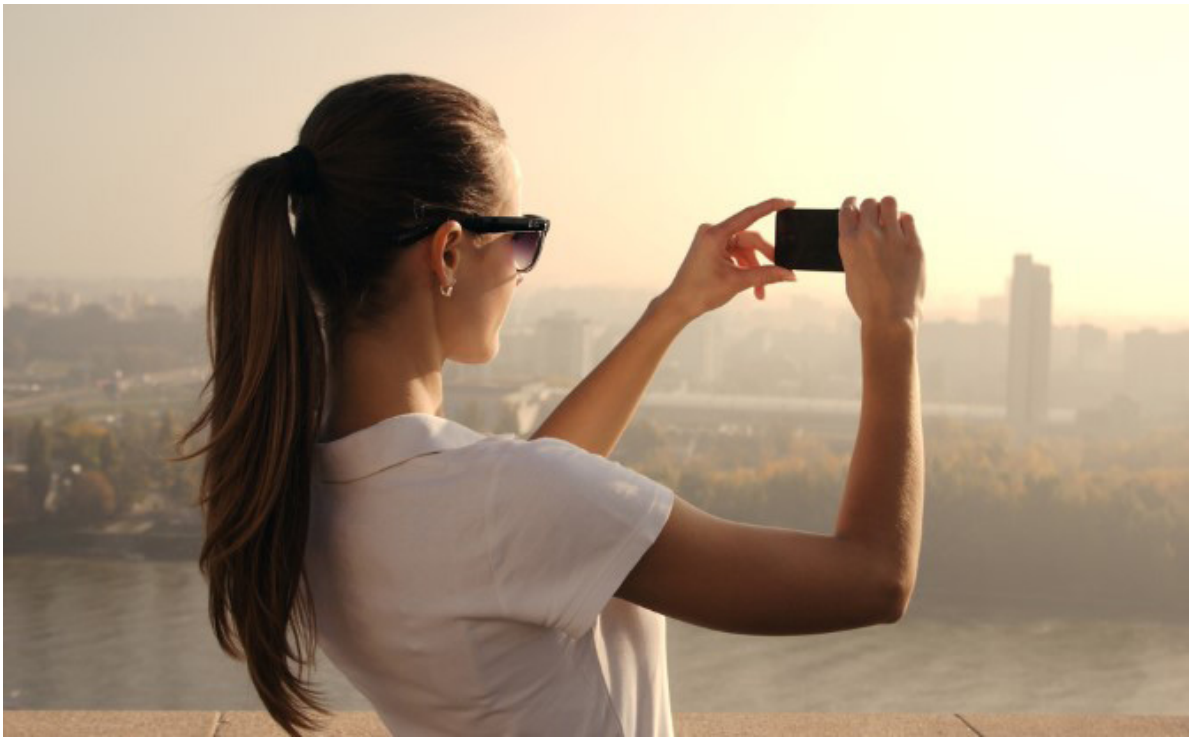


Image credit: Ondrooo/Deposit Photos

And that’s the biggest advantage of using your phone as your camera. You always have it with you. There are a lot of great camera apps out there that let you tweak settings and apply cool effects, too.

Of course, you won’t be getting very many features. The settings are minimal. And the camera sensor on your phone is very small. But you also already have it, which means your initial investment will be $0.

Use your smartphone camera to try out digital photography with no investment. And when you need the maximum in portability.

Understanding Digital Camera Features

There are a lot of different features listed on different cameras. Manufacturers have proprietary ways of talking about the same thing, too. We’ll just be covering the basics here. If you have questions about a specific model or brand of camera, it’s best to head to the manufacturer’s website.

Megapixels vs. Sensor Size: There’s some confusion about exactly what it means to have more megapixels listed on your camera. The number of megapixels (usually written like “16MP”) does relate to the amount of information that your camera can capture. And, in most cases, more is better.

But what really matters is the size of your camera's sensor. The larger the sensor, the clearer the resulting image. There are many different sensor sizes. Here's a breakdown of a few common sizes:

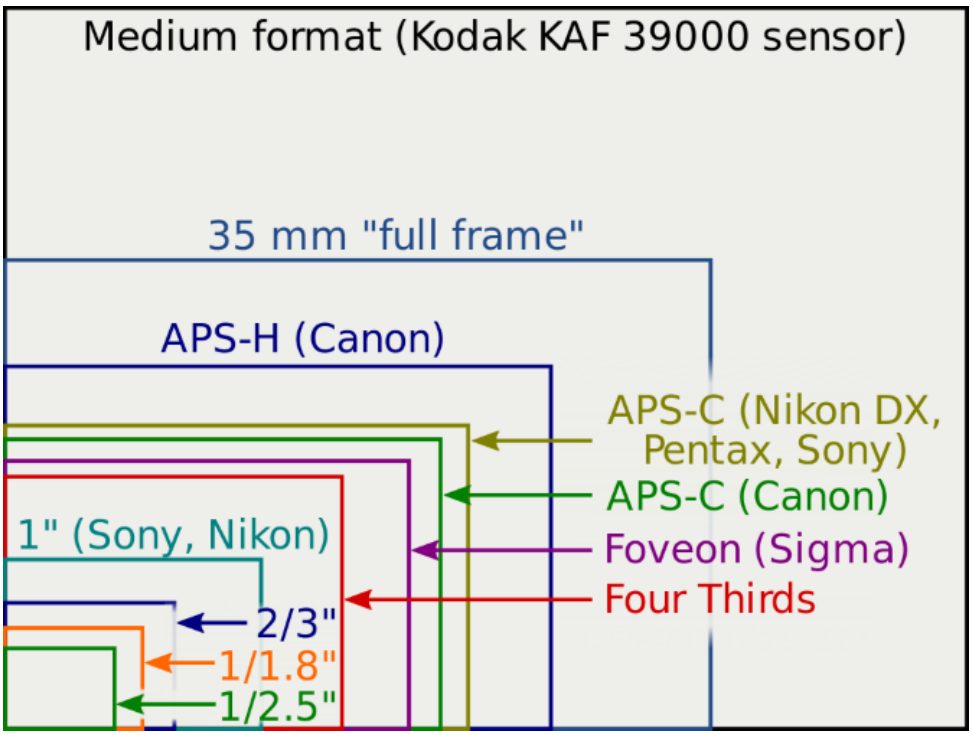


Image credit: Moxfyre/Wikimedia Commons

Most entry-level DSLRs have APS-C or Micro Four Thirds (MFT) sensors. Point-and-shoot cameras are likely to have 1" or smaller.

When it comes down to it, larger sensors produce better images, even if they have fewer megapixels. And nearly every camera today comes with a lot of megapixels. So focus on sensor size.

Optical zoom is always better. It's also more expensive.

RAW Capability: When your camera takes a photo, it can store the image in RAW format or a processed format like JPEG. In RAW, all of the information captured by the camera is saved to your memory card.

This takes up a lot of space, but also gives you the most options when you're editing later. Professionals shoot in RAW, and it's a good idea to start doing it yourself when you get into photo editing.

Image Stabilization: It's rather difficult to hold a camera still — which is why tripods are so helpful. But you aren't always going to have time to set up a tripod. In these cases, image stabilization can help.

There are different methods of stabilization and a huge number of acronyms across

companies that describe it. It all boils down to your camera making an adjustment to minimize image degradation when you move the camera while taking a photo. Even a small shake in your hands can have an effect.

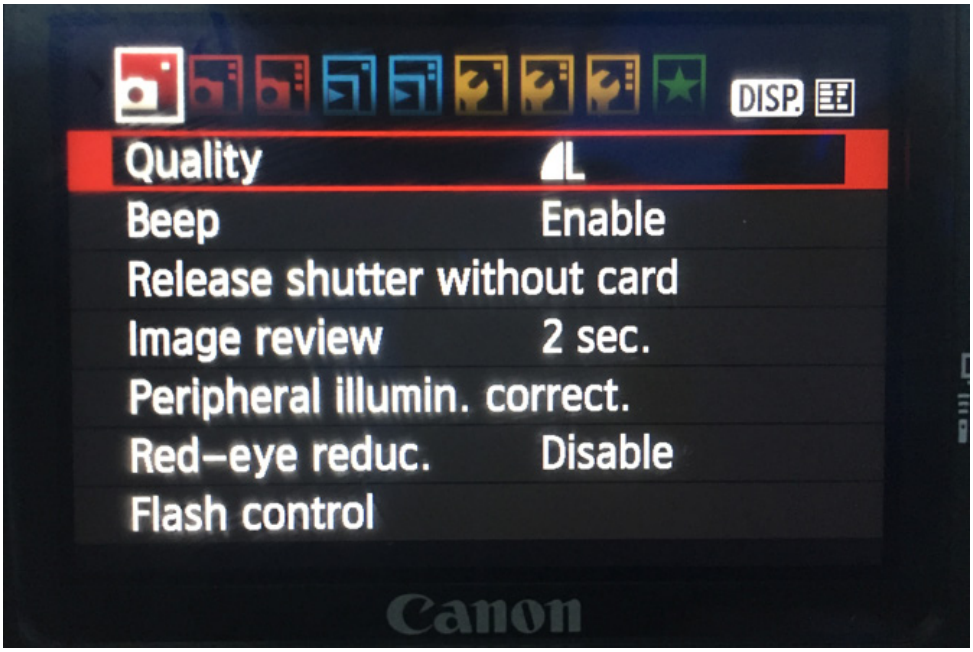
You won't want to have image stabilization on all the time, but it can be very helpful when you're not using a tripod.

Optical vs. Digital Zoom: When you're looking at lenses or cameras, you'll see two different kinds of zoom listed: optical and digital. Optical zoom is created by lenses, and it gives you the clearest pictures when you're zoomed in.

Digital zoom is applied by the camera, and it's just like scaling an image on your computer. It will necessarily reduce the quality of the photo.

If the photo is really clear, you'll be able to digitally zoom a bit without creating noticeable degradation. But not much.

Take note of whether your camera is able to shoot in RAW format. If it is, consider trying it out!



Menus and Shooting Modes: When you're getting started, you probably won't worry too much about the features you can access from the menus or the different shooting modes. But as you become more experienced, these things will become much more valuable.

For example, the ability to use a fully manual mode gives you the ultimate control over your photos. Modes like Av, Tv, and P, which we'll discuss below, give you more control than Auto, but don't require extensive knowledge to use. And the ability to adjust ISO, shutter speed, aperture, and other shooting variables is key for progressing your photography.

Menu features might let you edit and organize your photos, adjust the screen on the back of your camera, and change shooting options (though it's best when these are on the body of the camera itself). The more options you have, the more control you'll have over your photography.

Don't worry about all of these options at the beginning. But know that you'll appreciate having more of them later.

Dozens More...

You can compare the number of points used in autofocus. ISO ranges. Battery sizes. Types of image stabilization. It's easy to fall down the rabbit hole of camera features. But don't get too caught up in this. Having more and better features is nice. But you are the ultimate creative force in your photography. If you practice and develop your skills, you'll get better photos with a point-and-shoot than an unskilled photographer with the highest-end DSLR.

Digital Camera Modes to Know

As you'll see when you look at any digital camera, there are numerous different modes you can use. Different cameras might have slightly different modes, and some will have more than others, but there are a few basic ones you should know.

Auto

The Auto mode is extremely simple to use. Just point and shoot. Even on a DSLR, the Auto mode takes care of all the settings. It's great when you want to snap a photo really quickly or you're not in the mood to tweak lots of settings.

Giving creative control to the camera, of course, takes it away from you. Which is why many people recommend not using it.

And they have a point — getting to understand specific settings gives you a lot of control and lets you decide what your photo will look like.

That being said, sometimes you just need a photo, and fast. That's what Auto is good for.

Macro, Portrait, Landscape, Sports, and Night modes are all types of automatic mode. They'll tweak the settings so they're optimal for the specific type of photography you're doing. Again, you lose control here, but if you need a quick photo, they'll do the job.

Aperture Priority

This mode, usually denoted by "A" or "Av", lets you change the aperture, and your camera will handle the rest. In general, this is used for controlling the depth of field in your photo.

If you want a shallow depth of field (a blurry background), using a larger aperture will get it for you. If you want everything in your image to be in focus, a smaller aperture is the way to go.

Shutter Priority

The "S" or "Tv" mode lets you change the shutter speed, and lets your camera deal with aperture, ISO, and other settings. Usually, you'll adjust the shutter speed when you're photographing something in motion.

A faster shutter speed (denoted by a smaller number, like 1/650) will let you capture subjects moving very quickly. A slower speed gets you more light and detail for stationary objects.

Program

Some cameras have a program mode, denoted by the letter P. This is usually very similar to the auto mode, but it gives you a bit more control over things like ISO and flash.

Not all cameras have this, though, and the exact specs of this mode differ between manufacturers. Check your owner's manual to find out exactly what this mode does.

Manual

The full manual mode, "M," gives you control over everything. Aperture, shutter speed, ISO, flash, autofocus, and everything else. Using this requires some skill and a lot of patience, but it can be very rewarding.

In the beginning, don't worry about this mode. Stick with aperture and shutter priorities to learn the basics.

ISO and White Balance

In addition to shooting modes, your camera may have a wide range of other settings. Not all cameras are going to have the same settings, but some of them are consistent across models.

Understanding ISO and white balance is the first step to really taking control of your photography. Not all cameras will give you the ability to change these settings, but it's important to understand them either way.

ISO: This is best thought of as the camera's sensitivity to light. The higher the ISO, the more sensitive. Why would you want to adjust this? In very bright settings, you might get images that are blown out if the ISO is too high:

Conversely, an ISO that's too low for dim settings won't register enough light and will give you a very dim image. Test out by taking images in different ISO settings based on the environment.

Whenever whites in your photo are too bright, lower the ISO. And if there's a lot of noise in a dark image, lower the ISO. If you can't see as many things as you'd like, raise it. It's a bit more complicated than that, but keeping those ideas in mind will give you a head start.

White Balance: Different types of light have different shades of color. Incandescent light, for example, has a warmer hue than daylight fluorescent. Your camera can take the type of light into account when taking your photo, giving you the truest colors possible.

Most cameras automatically adjust the white balance in automatic and semi-automatic modes. But if it's not working well, or you're shooting in manual, you can make adjustments yourself. In addition to these settings, check your owner's manual for how to change the self-timer, exposure compensation, and burst mode. Play around with them to see what happens!

WATCH THE VIDEO BELOW TO KNOW MORE ABOUT DIGITAL PHOTOGRAPHY

https://tinyurl.com/4zyuc9k8

Using Open Camera

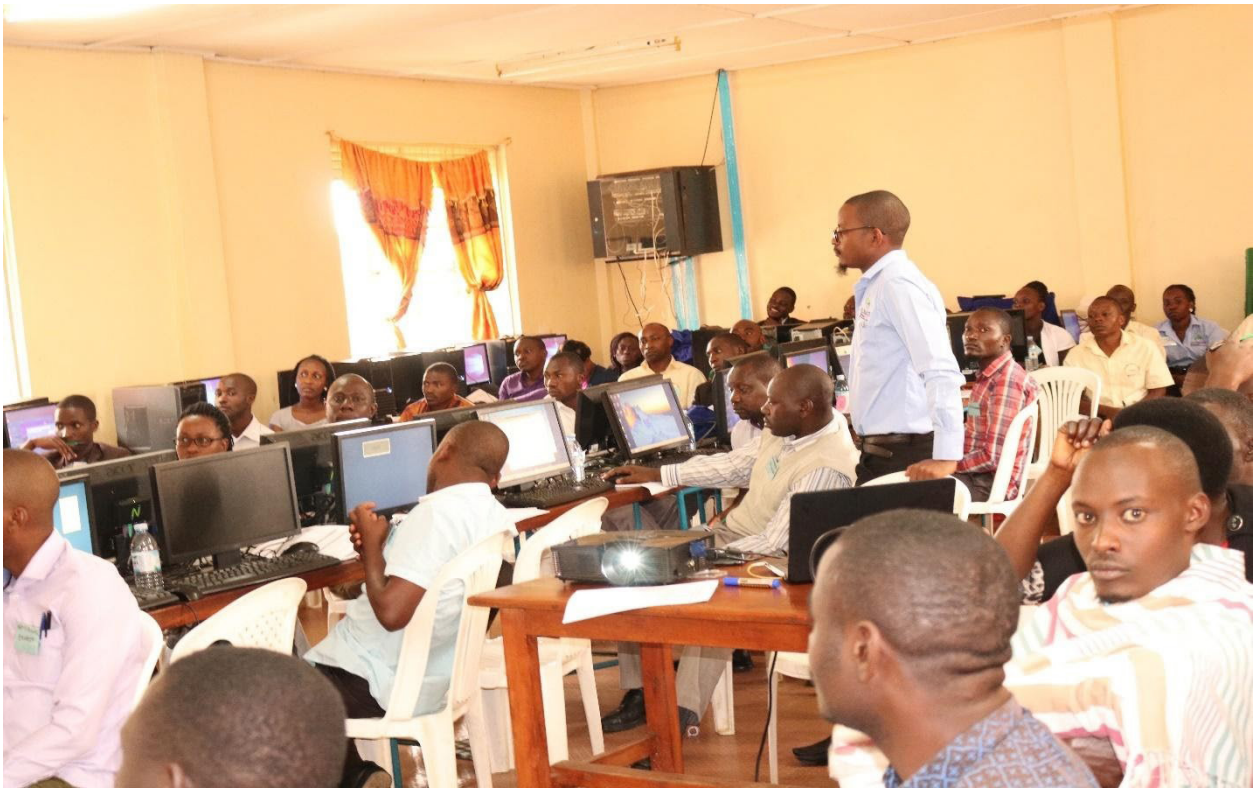
Since many of you might be using phone cameras, most the above principle apply. We however encourage you to use Open Camera app. ´It is a free app available from Google Play Store

´This app will significantly improve the quality of your films and photos made using a smartphone. It basically frees up the controls so that the camera is now in manual rather than automatic mode and you can choose exposure and focus and even colour temperature and fix these for filming so that the camera does not change them automatically in the middle of your shot.

Here is a tutorial on Using Open Camera

Exercise: What is the difference between a photo, image, picture, diagram, graphic, illustration, info-graphic and drawing

You can also take our full short course on Digital Photography, Imaging and Graphics



DIGITAL AUDIO PRODUCTION

Audio is one of the popular media formats. Audio has a lot of advantages as already expounded in previous topics. Educators must seriously consider providing some of the content in this less invasive medium (that can be consumed while user does other tasks) and is less bulky than other media formats that appeal to the sense of hearing.

Streaming audio (available online) has become easier to access, is readily accessible on mobile devices, and is now more personalized than ever before. This presents a huge opportunity for teachers and schools, as it has for publishers, marketers, journalists, and communication professionals to connect with audiences via this "new" medium.

You thus need to develop skills to record, mix and master audio using available audio production equipment and software. You need to apply technical skills and creativity to design sound for stories, film, TV and video games using standard audio software.

Question for your reflection: Are audio notes produced by teachers fit to be called podcasts?

Narrative structure

Topics that fit to be communicated through audio will most likely are about stories, like history, Christian religious education, political science and few content based sections in the sciences. In traditional audio production, audio production begins with writing a script. For you as trainer, your class notes are the what you are turning into audio. But to make it more interesting, it is still helpful to put in a script format so that you are able to o prepare how long the different subtopics will be and where to put music breaks in addition to the intros and outros, etc.

Intros should be like your standard signature as a teacher or school i.e. Welcome to Yaaka (replace with your name or institution) audios. This audio is about (topic) under the (subject under which topic is) series. The outro will be something like. Thank you for listening to Yaaka audio, we hope you liked and enjoyed this topic. You can find more of these audios and topics on... (Mention your website address full url, Facebook page or podcast platform account).

For good preparation of all this, writing your script with basic narrative elements is important. It's often easiest to plan out the spine of your narrative and then fill in content from your already prepared notes. In traditional script writing, focus is put on the basic elements of dramatic structure:

- Story arc: beginning, middle, and end to your story
- Exposition: the introduction of background information, such as setting and backstories
- Conflict: situations where characters are challenged or must overcome some adversity
- Climax: turning point for the characters' story; beginning of overcoming the conflict
- Denouement: resolution to conflict

But what is important for you as a teacher or school is to stick to the content of your subject/topic. Where dramatizing creates more appeal and understanding, then you can go ahead and be creative.

Don't be afraid to make your audience part of the story or topic. If you have a narrator, have the narrator use "we" and "us." Talk to the audience like they are involved in what is happening, like they are also a part of the team. This allows you to forge a more personal connection with your listeners (learners), which in turn leads to better information retention.

Setting the scene

In order to make your story more real, you need to devote some time to helping the listener visualize the scenes you have created. Use descriptive terms to set your scenes and inform the audience where events are taking place. This can be done either by a narrator or in the way that your characters speak or think.

You can also use audio clues to help set your scenes, things such as background noises and sound effects. You need to edit your class notes for the ear, not the eye (as most notes are prepared to be read not listened to). Unlike reading a book, listeners cannot linger over text until they understand what you're saying. Scripts written for the ear literally move at the speed of sound, and thus you need to be able to build your scenes quickly and in simple terms.

Audio editing tools

Whether you work with sound files on a weekly basis or only a couple of times a year, a great free audio editor will save you valuable time and effort.

The complexity of some audio editing software might scare you away if you're a new user, but it's more likely to be the price tag that sends you running. Never fear, though – there are free tools that pack professional-level audio editing tools in a user-friendly interface that you can master in minutes.

Whether you're looking for a tool to help create a soundtrack for your learning audios or videos, there's a free audio editor out there for you.

Tutorial for producing audio with Audacity

1. Audacity

Download link https://www.audacityteam.org/download/

Audacity is as powerful as many premium audio editors, and is used by many podcasters. Flexible and powerful – the very best free audio editor available. It has advanced editing tools and effects.

Available for any desktop platform you care to mention, Audacity is our first choice free audio editor. Audacity is equipped with an extensive suite of built-in tools, enabling you to edit pre-recorded files, capture sound through an attached microphone, or even stream music and podcasts. There's support for a wide range of audio formats for both importing and exporting, and the range of built-in effect is impressive.

There's also a great selection of third-party plug-ins to make it even more versatile (one of our favourites is auto tune add-on Gsnap, for that Drake§ effect), and a comprehensive manual is available to help you to get to grips with the more complicated aspects of the program.

2. Ocenaudio

Ocen audio isn't as feature-packed as Audacity, but it's easier to master. Like Audacity, Ocenaudio is available for multiple platforms (Windows, Linux and Mac). While not bursting with features, it›s a great tool for everyday audio editing. Real-time effect previewing should help to speed up your work as there›s no need to apply a change just to try it out, and a highly precise selection tool makes it easy to apply the same effect to multiple sections of a file.

You can use Ocenaudio to work with locally stored files, or even open those hosted online.

On mobile phones, we recommend editing audio with lexis audio editor and WaveEditor.

Eight Tips to Practice for Recording Sessions

1. Spruce up Your Style

Practice your material deeply, refining your tone, rhythm, and interpretation. Also mitigate extraneous sounds such as shifting feet and loud breaths.

Zoom H4n Recorder

If you're accustomed to performing live but not for recordings, bear in mind that rough edges that go unnoticed in live shows will sound crass in the studio. In your practice room, therefore, record yourself and listen back with the discriminating ears of a producer.

Recommended self-recording devices: Zoom H4n / Zoom H2n / Tascam DR-22WL

2. Maintain a Stable Position

When you record, the sound source and the microphones need to be in a steady relationship. Added to that, excessive body movements generate noise.

Keyboardists usually aren't troubled by this issue, but, for many others, steady positioning can be tiring. Acclimate in practice to any positioning constraints, and you'll be more at home in the studio.

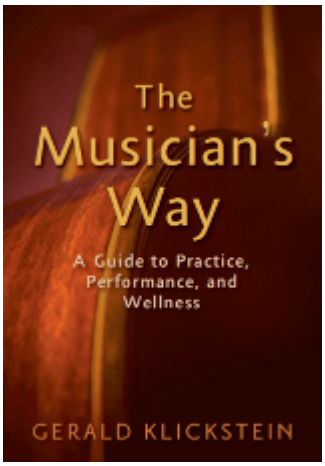
3. Manage Your Beginnings and Endings

Use longer silent counts to launch each piece, and then extend your closing silences, framing every selection in stillness.

4. Solidify Tempos

Jot down metronome settings in practice and be a stickler for consistency of tempo. For editing purposes, all takes of a piece should be at identical tempos.

"Jot down metronome settings in practice and be a stickler for consistency of tempo."



5. Plan the Length of Takes

If you're dividing pieces into sections and recording those sections individually, practice starting and ending each chunk.

6. Polish Intonation

Regularly refer to an electronic tuner, keyboard, or other pitch source to guarantee that your intonation is reliable.

7. Practice Performing

Above all, enlist a personal recorder and practice performing, employing the same deliberate protocol you'll use in the studio.

That is, announce titles and take numbers ("Prelude, first section, takes one"), create ample silence, maintain a stable position, and play or sing through errors. In general, execute complete takes, even when things get bumpy midway.

8. Ensure Quality

You can edit your takes together to eliminate glitches, but you can't turn a mediocre performance into a superior one.

Only schedule a recording session after your performance level reaches a good level.

Remember sound or audio can be recorded as a standalone product or to escort pictures (still or motion) to tell better stories.

Mobile phone based audio production

Phone microphone

For most people, the mobile phone is the most convenient tool for audio recording and production. Most phones come are ready production suites themselves while you may need to download sound recording and editing apps on some phones or to achieve better output.

We record sound using a microphone. Smartphones come with in-built microphone. When filming with a smartphone it is best to use an **external microphone** which plugs into the phone.

Standard external microphone [/caption]

When preparing to record sound, ALWAYS:

1) Analyze your Environment

- Echoes:

- Traffic / other background noise:
- Fridges/air conditioner/fans and other noisy machines

Don't sacrifice your Sound for a pretty Background! (Filming is a constant compromise between **pictures** and **sound** – and sound is slightly more important.)

Microphone muffler

2. Check your Mics

- Fit a microphone muffler (dead cat or kitten) if it is windy and you are outside
- If you don't have a separate piece of mic kit, you can use an Exterior (Auxiliory) mic, you can usually find one in the smartphone headphones

3. Your Subject or you speak clearly

Get close up - Direct them to speak loudly and clearly. If you are doing the voicing yourself, position properly near the mic and speak clearly

4. Do a sound test recording

- Record the person voicing for you or yourself or the one you are filming talking for a minute and then play it back and check that your sound is good. If the mic is noisy or there is loud background noise then reset and record another test and check that this has solved the problem.
- Before you leave the location ask everyone to stop talking for **one** minute and record the sound of the location - this **wild track (ambiance).**

Using tripods and monopods in photography

A **tripod** is a three legged device which is designed to securely and steadily hold a camera.

- Tripods are used for both motion and still photography to prevent camera movement and provide **stability**

It's essential for avoiding blurred photos, especially when shooting in low light. Traditionally, photographers have used tripods to provide a solid, stable base for their cameras.

- However, while tripods do an excellent job, they're not suitable for all situations. If you need the ability to move around quickly, such as when photographing

sports or wildlife, or if you're shooting in a crowded area, a tripod can be impractical and cumbersome.

- **Monopods** are a better alternative in cases like this.
- A monopod, also called a **unipod**, is a single staff or pole used to help support cameras
- It provides a similar level of stability as a tripod, but is quicker and more practical to use.

There are also text to speech tools you can use to translate your notes into audio files quickly. E.g.

URL	QR Code
http://www.fromtexttospeech.com/	
https://cloud.google.com/text-to-speech	
https://www.text2speech.org/	
https://notevibes.com/	

Apps on Google play

https://play.google.com/store/apps/details?id=com.google.android.tts&hl=en

After recording your audio, you can publish it on your website, send it to learners on email, share it on a drive, share it in learning WhatsApp group(s), or in podcast platforms like Soundcloud, podbean, audioboom etc. You can also supply it on CDs, memory cards or flash disks.

DIGITAL VIDEO PRODUCTION FOR LEARNING ONLINE AND MOBILE

Many people today can attest to how important video content is for digital content consumption. Video consumption has been growing consistently. Video also known as the complete medium (appeals to both senses of sight, hearing and feeling) is preferred by many learners as well. Without video, content can start to feel stale. Consumers and students are demanding more video content than just text, still photos or audio, as can be seen in the popularity of video on YouTube, TikTok, Facebook, WhatsApp and other video sharing platforms.

We have a full course on Digital video Production we recommend you take. But we explore the key aspects you need to know as a teacher/lecturer below to be able to produce good video learning content.

Why you need video in your digital learning efforts

As teachers, lecturers and trainers, we know not all our students learn at the same pace. Some grasp things quicker, others are slow. For different reasons beyond our control, not all students manage to attend every class where we are able to facilitate. Yet sometimes, we as trainers also end up missing class, sometimes for long periods. Preparing content prior and availing it using digital means is the most reasonable solution to ensure your learning facilitate goes on whether you are available or not, and also to enable all learners to follow at their pace wherever and whenever they can. But nothing accomplishes this better than video lessons.

There is a lot of anecdotal evidence that Replacing your classes(lecturing/teaching) with video lessons by especially yourself as their learning facilitator can boost students' engagement and free you up to work with them directly in the live class, but also give you time to engage in other career building activities like research and community works like consultancy.

Videos can empower students at all levels to learn at their own pace and build mastery skill-by-skill. Videos can be used:

- To replace traditional lecture-style direct instruction, freeing you up to work directly with individual students;
- To give directions for projects and other complex tasks; and (screen casts)
- To provide remediation on skills that students might need to practice.

As teachers and trainers, you need the skills and knowledge to help you create high quality instructional videos and provide them in platforms or ways where learners can easily access them and better if you can track usage. Videos will greatly help you to create the best blended learning experiences for your learners.

Task: What is the difference between a video, a film, a movie and television?

Learn to storyboard and develop the narrative of a video

- A conventional storyboard is a visual representation in the form of hand drawn or computer generated images of how a film/video or television commercial story unfolds – scene by scene or, depending on the complexity of a scene, shot by shot – and with action notes and dialogue or voice-over written under each frame.
- Some businesses use storyboards for other purposes, such as explaining a step-by-step process to colleagues, delivering training or brainstorming ideas. It's a great visual device and is part of the pre-production stage of film making.
- In the corporate video world we often use storyboards – especially to demonstrate how visual action integrates with animated graphics. But if the story is straightforward, a written storyboard is utilized; basically it's the script. The story's arc is described scene by scene with action notes, dialogue and voice-over, and details of how one scene moves into the next. It can be emailed back and forth with each party pitching in to hone the story and messages.

Writing scripts for videos

Start with a brief. Although it might seem like this is an easy step to skip given that as a teacher you have your content in the head, it's not worth it.

Starting with a brief allows you and your team to document the answers to the most important subject questions so everyone involved in creating the video can get on the same page. You can work with your department members to ensure you have written the text to be voiced in the video or to be used as text graphics to accompany the images in the video are in sync..

Focus on your goals, topic, and takeaways when developing your brief.

A brief doesn't have to be fancy, nor does it have to follow a specific formula, but there are several key questions it should include to craft an effective video script.

- What's the **goal** of this video? Why are we making the video in the first place?
- Who is the **audience** of this video? Learners of what class?
- What's our video **topic**? (The video can be used to show a particular part of the topic that is more appropriate to be shown in vide).
- What are the **key takeaways** of the video? What should viewers learn from watching it?
- What's our call-to-action? What do we want viewers to do after they've finished watching the video?

You can easily create a brief in Google Docs to serve as a living, breathing template that you revise over time -- and that your team can collaborate on.

2) Write your script.

For every topic in your subject, you need to write a script.

The screen for educational or academic purposes should be written for the eye and ear with motion picture. For example use images to show what can be shown and use the text (script) to explain.

Write conversationally.

Writing a script is not the same as writing a college paper or marketing research report. You want to write the script how you want the video subject to speak. Saying, "I'm gonna create a video after reading this topic" on camera will read much better than, "I am going to create a video after reading this topic." Keep sentences short and crisp -- remember the writing a script explainer videos like how valleys are created may be different from one on the nervous system. Watch other videos on a similar topic and strive to do better or be using those very videos if they are available for free usage in your digital lessons. At the end of this course, we provide links to royalty free media for both audio, images and video.

Write for the audience and the platform.

Is your audience made up of young teens, middle-aged professionals, or older retirees? Will your video live on Instagram, YouTube, or your website? Make sure you're keeping it conversational for the people you're trying to connect with -- and infuse humor, tone, and inflection accordingly. Furthermore, if you're writing a short-form video for Facebook, you might want to consider keeping your script choppier with sentence fragments -- but if you're producing a long-form explainer video for your website, make sure you're as thorough as possible.

Differentiate the main narrative from B-Roll, text overlays, and voice overs by using different formatting or callouts.

If your video will transition from the subject speaking the primary narrative to a close-up shot of your product with a text overlay, you'll want to call these things out in your script so anyone who reads it knows what's supposed to be read on-screen -- versus incorporated into the editing process.

Take a look at how the folks over at Wistia did that in the video script for Wistia's scripting tips below. Text overlay is called out with a big, bold "TEXT," audio is called out in all caps (REWIND SOUND), and B-roll or additional details are called out in italics (with glasses on). (Note: It might help to watch the video first for the excerpt of this script to make sense).

TEXT: Keep it conversational!

A video becomes authentic when it doesn't feel scripted, so when you're writing a script keep it conversational.

Avoid marketing buzz words like "synergy" and "cutting edge" and "turnkey"... For some reason they always seem enticing to use when the script-writing get's challenging, but I promise you they'll only cloud up your message.

(with glasses on) "Once you engage in the process of script-writing, it behooves you to keep the language within the prevalent conversational trends." REWIND SOUND.

The way you learned to write in college ain't going to work. For example, consider changing phrases like "for example" to "like", like, don't use "for example".

Source: *Wistia*

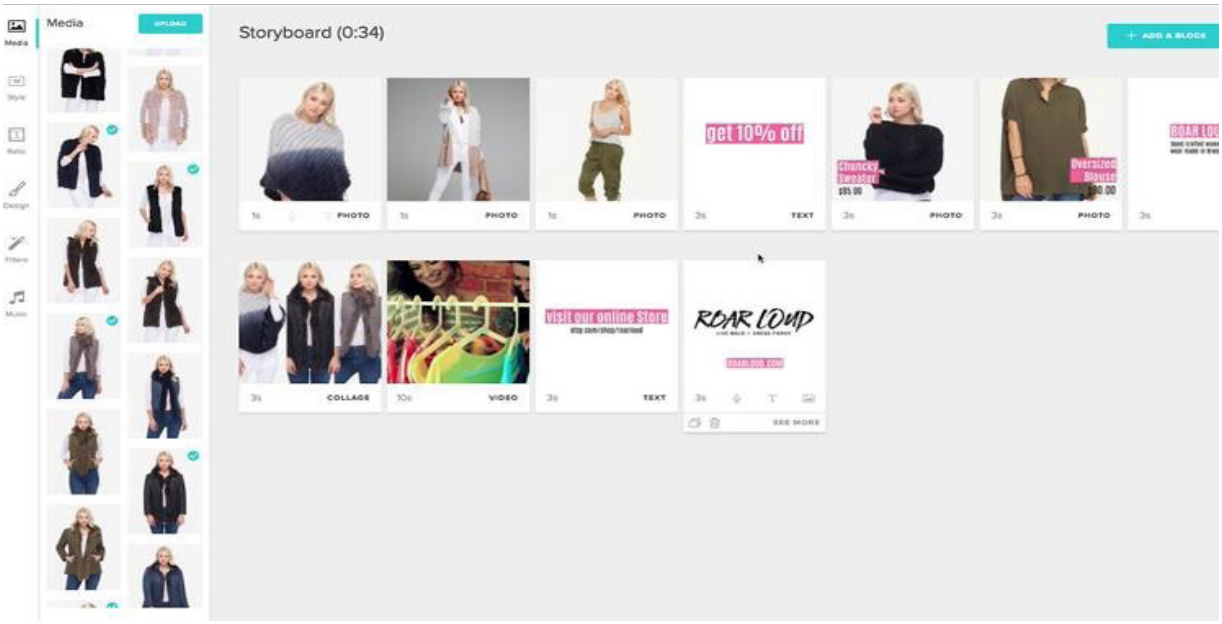
Script every *single* word.

It's understandable to think you can just jot down the main bullet points for a script, and then just wing it on camera, especially if you know your subject matter (a temptation for most teachers). This approach makes it tough to communicate a message as clearly and concisely as possible (which you should aim to do in every video you create), and it usually results in a lot of re-dos.

So, we suggest scripting every last word. Doing this will keep you organized during filming and save you loads of time later.

Tools for creating and posting quick videos

1. Animoto

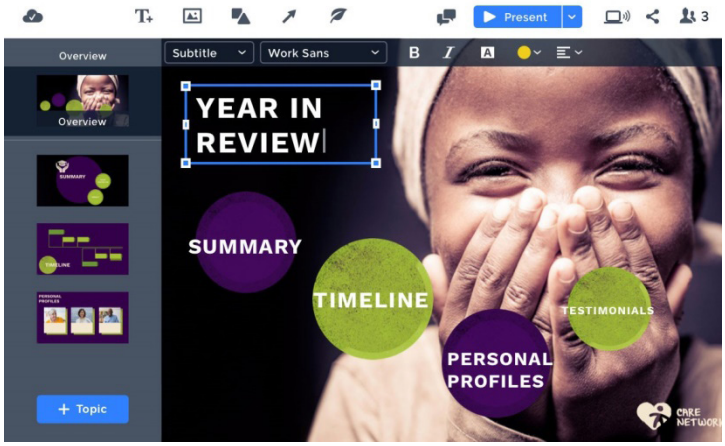


Itching to create a video but don't trust your own video or graphic design skills? Animoto could be a good choice for you.

Choose from their professionally-designed video templates (ads, sales, how-to guides, etc.), add your own photos, videos or text, and then upload straight to social media.

Cost: Free 14-day trial. After that, it ranges from $13/month for the personal version, up to $39/month (paid annually) for the business version.

2. Prezi



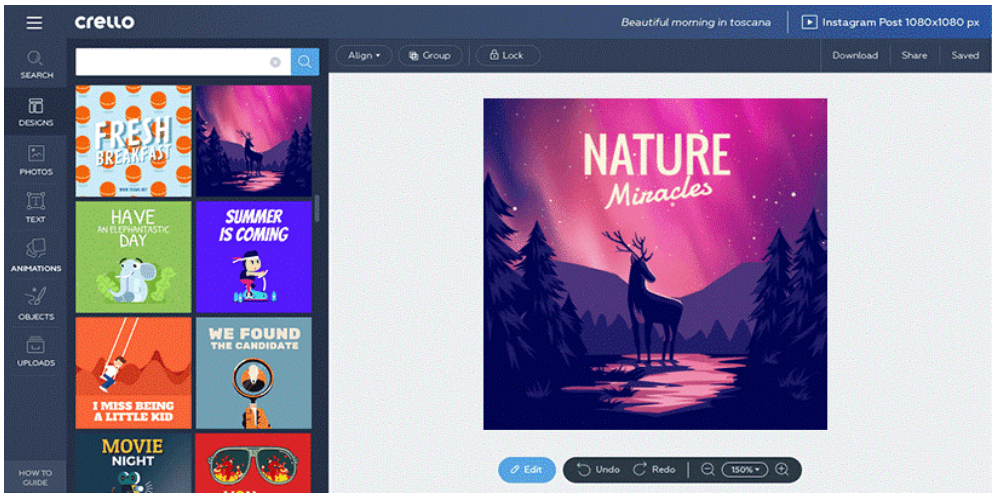
Want to create an amazing video slideshow, but have no idea where to start?

Prezi lets you easily create stunning presentations with no tech or design skills.

Choose from a variety of templates targeted to different aspects of your business (e.g., sales, marketing, etc.); create and edit "conversational presentations" that are more fluid and engaging than the typical PowerPoint; then track all the important stats related to your presentation using Prezi's full set of analytic tools.

Cost: Free to create and share online presentations. Starts at $7/month for the personal version and $19/month for the business version.

3. Crello

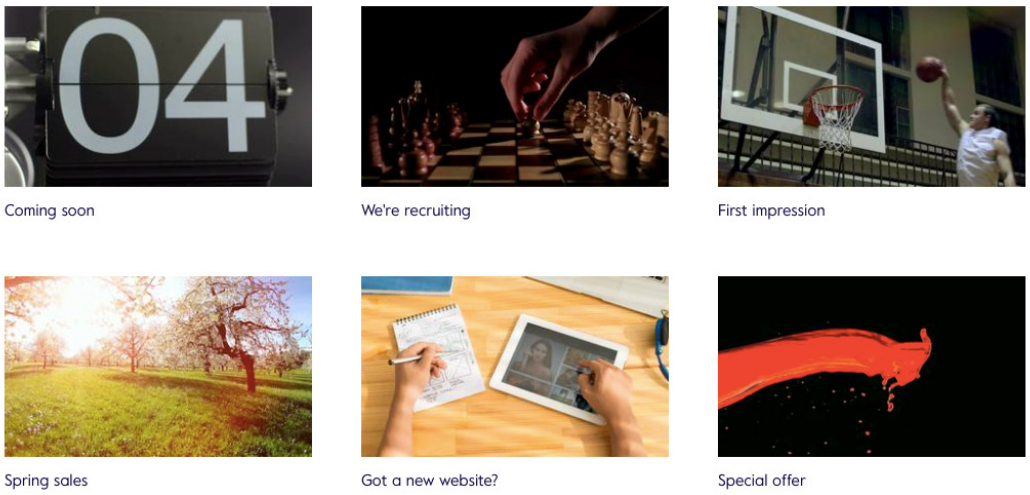


While Crello may be best known for online image editing, they now offer something pretty awesome – the ability to create animated posts for social media.

Simply choose a professionally-designed animated image template, add/edit as desired, and then save and share your design on social media.

Cost: This is the best part...all of Crello's animated templates are FREE! And if you want to add additional design elements, these will run you just $.99 each. I love that there are NO monthly fees!

4. Magisto

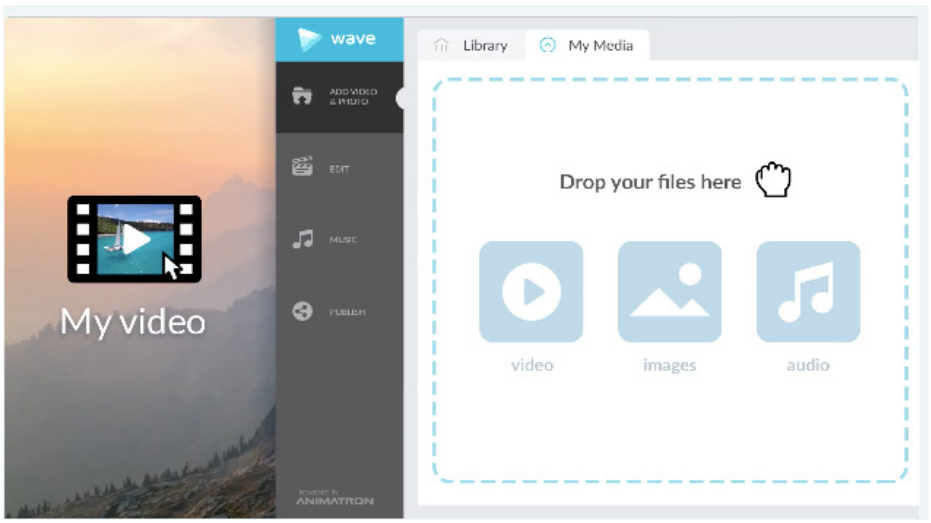


With Magisto, simply upload your videos and photos, and then choose a style and soundtrack to go along with your video.

But here's where Magisto is different than other tools – at this point, Magisto's powerful artificial intelligence will take what you've uploaded, combine them with the customizations you've selected, and put them all together into a professionally-designed video.

Their special patent-pending "Emotion Sense" AI even ensures your video gets the right *emotional response* from viewers!

5.Wave.video



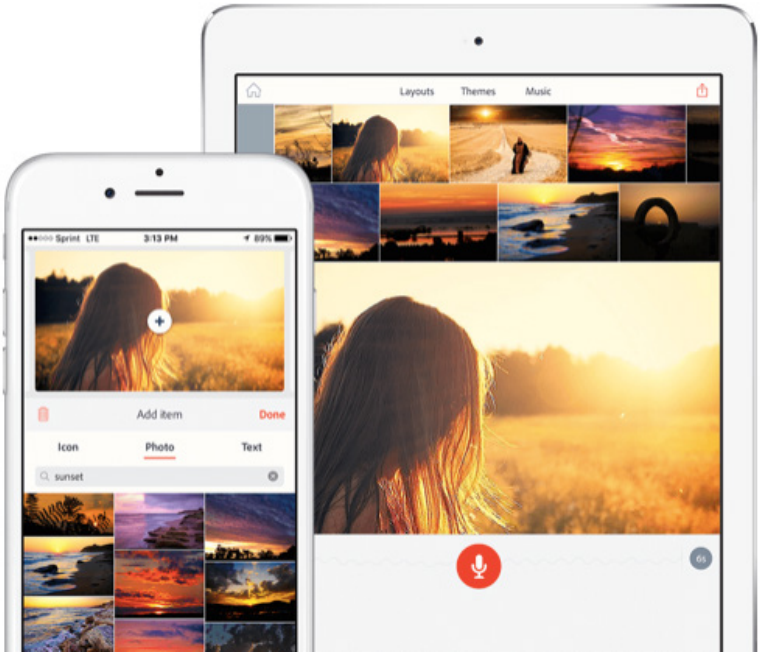
One of the easiest-to-use tools on this list, Wave.video will help you get your video created, edited and shared within minutes.

The best part of Wave.video is their extensive repository of stock photos and videos. With over 2.5 million to choose from, there's no need to create or find your own images and videos!

Simply choose the ones you want to use, add text, upload your own content as desired, and then choose from their bank of 300,000 audio clips.

Cost: $39/month (paid annually) for the Pro plan, up to $49/month for the Agency plan. Receive a 10% discount when you follow this Kim Garst friend link.

6.Spark Video



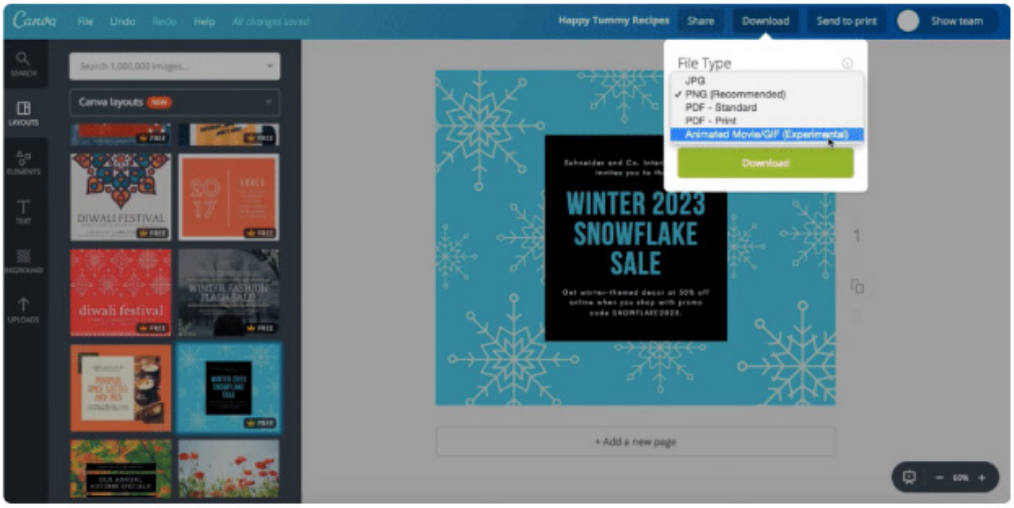
You may already know that Adobe Spark has some pretty amazing graphic and web design tools.

However, what you may not know is that they also have a powerful, intuitive video creation software as well!

Simply choose a style and theme for your video, add any videos, images or icons you want to use, and then choose from a variety of free soundtracks...or even your own voice!

Cost: The free version doesn't allow much customization, but it's a great way to give the tool a try. And if you do want more options, the premium version costs just $9.99/month.

7. Canva Pro



You likely already know how much I love Canva! This is probably my #1 recommended tool for creating eye-catching graphics for free (or really, really cheap).

But did you also know the Pro version lets you create and save animated GIFs and videos?

Simply create your image as usual, and once you're ready to animate it, click the *Download* button. Instead of choosing a regular image type, select *Animated Movie/GIF*.

You can then choose the type of animation style you want and voila! Creating an animated GIF is as simple as that!

Cost: Standard price is $12.95/month.

8. WeVideo

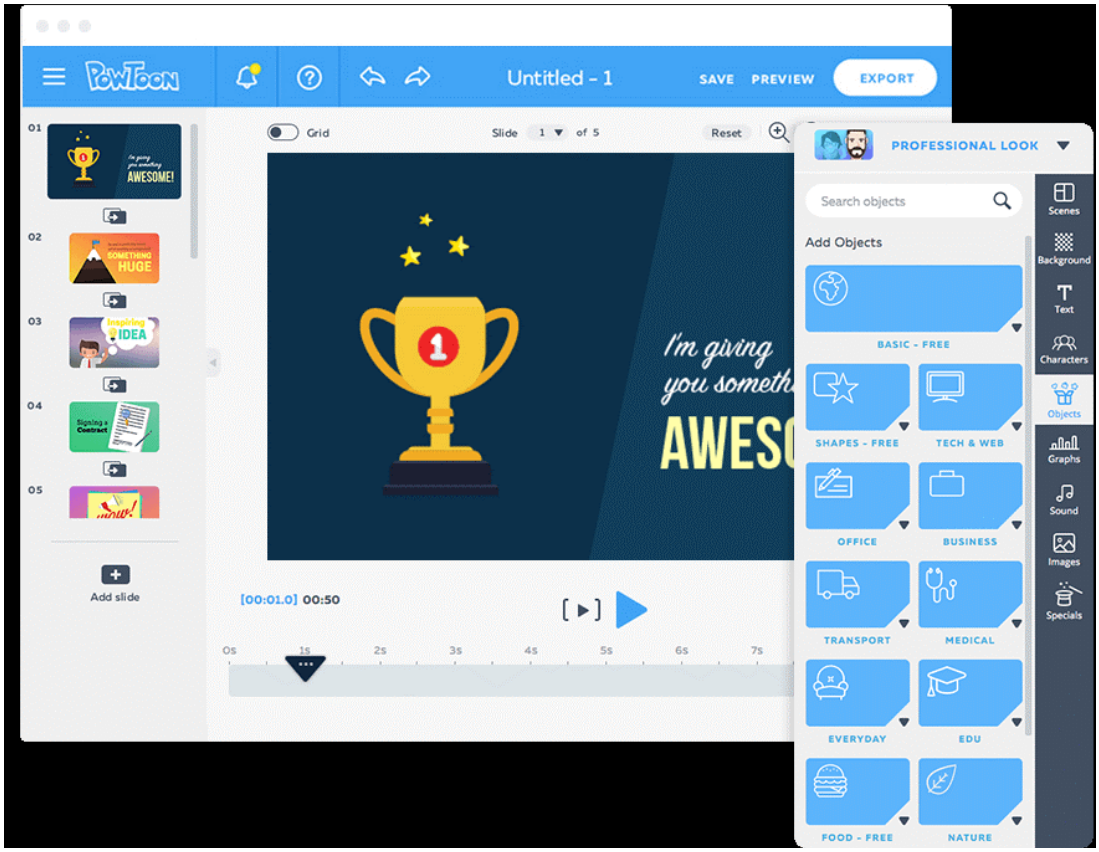
Create professional-looking videos in minutes with WeVideo...and save all the way up to 4K resolution!

Choose from hundreds of thousands of stock photos, video clips and music tracks, add special effects, and even use a green screen.

Other awesome features: Voice over narration, motion control, screencasting and picture-in-picture effect.

Cost: $4.99/month (paid annually) for the basic plan, up to $29.99/month for the business plan. Don't want to pay a monthly fee? WeVideo's Flex Plan lets you pay a one-time fee ($29.99) for some basic video creation options.

9. PowToon



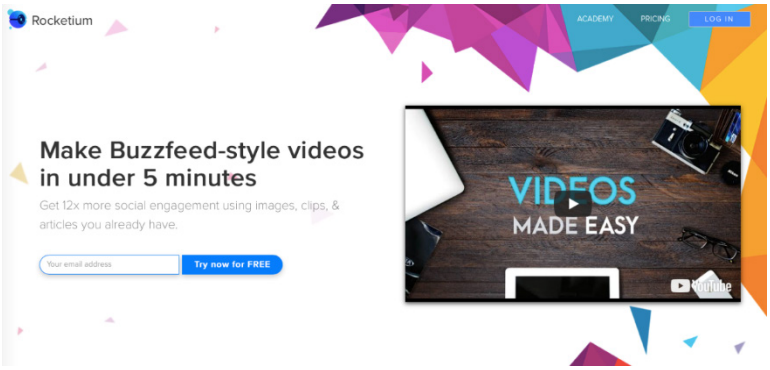
Looking for something a little bit different? PowToon is an amazing tool for creating short, animated videos and presentations.

Specially designed for business use, PowToon lets you choose exactly what type of video you want to create: marketing, HR, IT, training or reports.

They even have a set of ready-made templates you can customize and start using within minutes!

Cost: Free basic version, which lets you create videos up to 5 minutes long. Other options range from $19/month for the Pro plan up to $99/month for the Agency plan.

10. Rocketium



While Rocketium is definitely one of the pricier options on this list, it consistently gets rave reviews online.

While it has all the features you'd expect from a video creation app, it's shining feature is that it allows easy collaboration in Google Docs...this way your team can work on videos together with the click of a button!

Cost: Free for the basic version, which lets you create up to 10, 30-second videos per month. Other options range from $49/month for the Professional plan up to $149/month for the Business plan.

11. Kine Master

KineMaster is the only full-featured professional video editor for Android, Chrome OS, iPhone and iPad, supporting multiple video layers, image layers, and text.

KineMaster is a mobile phone based video production software[/caption]

With both a free and paid version, KineMaster includes unlimited exports in resolutions up to 4K! Feature Highlights include adding and combining multiple layers of video, images, stickers, special effects, text, and handwriting.

Here is a video tutorial on how to use KineMaster to edit and produce video

Kinemaster Tutorial and Kinemaster level 2 (pdfs) or video below

Useful tips

- Alternative for zoom in/zoom out is pinch in/pinch out
- Before filming
- Check battery to make sure it is charged
- Check that you have enough space; have spare SD cards for extra space
- Clean your lens
- Ensure that your phone is in flight/airplane mode (Show how to switch on and off)
- When filming, you have to know:
- What to film
- How to film it
- When to film from
- When an object is in focus it is sharp

Out of focus, it is blurry

- When filming, it is best to zoom with your feet instead of the device
- Golden rules of filming
- Tell the truth
- Make sure no one gets hurt
- Responsible film makers make sure they tell the truth

Get informed consent (You can even get informed consent from your subject by filming it)

- Why don't we select many videos to edit in KineMaster? (they can slow down the phone)

The following video shows free online free editors

https://tinyurl.com/2te3m8bb

BEST PRACTICES FOR PRODUCING EDUCATIONAL VIDEO

Whether you choose to do the learning videos yourself and or work with a videographer or producer, there are best practices for producing educational videos that you need to be aware of.

Here is a 5-step guide to creating educational videos by Kareem Farah, Robert Barnett

STEP 1: CHUNK INSTRUCTION

Great teachers have a lot to say about their subjects. When it comes to video creation, however, time is of the essence. Research on instructional videos shows that learner engagement with videos begins to drop after the 6-minute mark—and it falls dramatically after 9. So it's essential to chunk instruction such that each video covers a single learning objective or task, and nothing more. Multiple short videos are better than one long video.

For example, this video on inference by middle school English teacher Toni Rose Deanon introduces an important concept, provides several examples, and gives the students a task—all in just over 4 minutes. Her colleague Emily Culp's video on four-box notes is equally concise, walking students through an example and teaching a note-taking strategy in 3:25. In a world of short attention spans, videos like these make their points clearly and quickly.

Bottom of Form

STEP 2: BUILD VIDEO-READY SLIDES

Studies also show that the best instructional videos are highly focused, use visual cues to highlight key information, and minimize the use of on-screen text. The slides that a teacher would use in a lecture may not work in a video—it's critical to build a slide deck that is clear, simple, and visually compelling. (We have templates for math/science and English/history.)

In her video on the big bang theory, high school science teacher Moira Mazzi uses compelling visuals and clear annotations to explain a complex idea to her students. This keeps student attention on what Mazzi is saying and gives students an idea of the key terms and ideas they need to record in their notes.

STEP 3: RECORD

There are many tools you can use to create a strong instructional video. Here are a few that can really simplify the process and enhance the quality of the video.

Recording device: Ideally, you have a touch-screen tablet or laptop with a high-quality stylus. This ensures that you can easily annotate visuals and show work. Handwriting also adds a nice personal touch. But if you have a non-touch-screen laptop, or a tablet but no stylus, you can still make your own videos.

Screencasting program: The best programs, like Explain Everything, allow educators to pause and re-record specific segments of their video easily, which removes the pressure of getting a perfect take. Look for a program that has a robust video editor and an embedded annotation tool.

Microphone: This is often forgotten, but it's really helpful to have a pair of headphones with an external mic—these headphones help you improve the sound quality and ensure that your videos don't contain background noise.

In this video on digital sound production (note: video is in Spanish), music teacher Zach Diamond uses highlighting, annotating, and a computer screencast to show students how to create their own songs using a program called Soundtrap. The clarity of Diamond's voice and the video helps students follow along, even with a complex task.

STEP 4: ENHANCE ENGAGEMENT

Simply sitting and watching videos can lead students to lose focus—the best instructional videos keep them actively engaged. Research shows that when students take notes or answer guided questions while watching, they retain material better than students who watch passively. Embedding questions in your instructional video using programs like Edpuzzle can improve student interaction and provide you with invaluable formative assessment data. Students should think of video-watching as a task they perform actively in order to learn.

In this video on the Pythagorean theorem, math teacher Michael Krell embeds frequent checks for understanding and provides feedback for students who get those checks wrong. Students are free to jump ahead to key points in the video to test their mastery of the material, if they so choose. Krell makes paper copies of the video slides for his students so that they can take notes as they watch.

STEP 5: BE YOURSELF

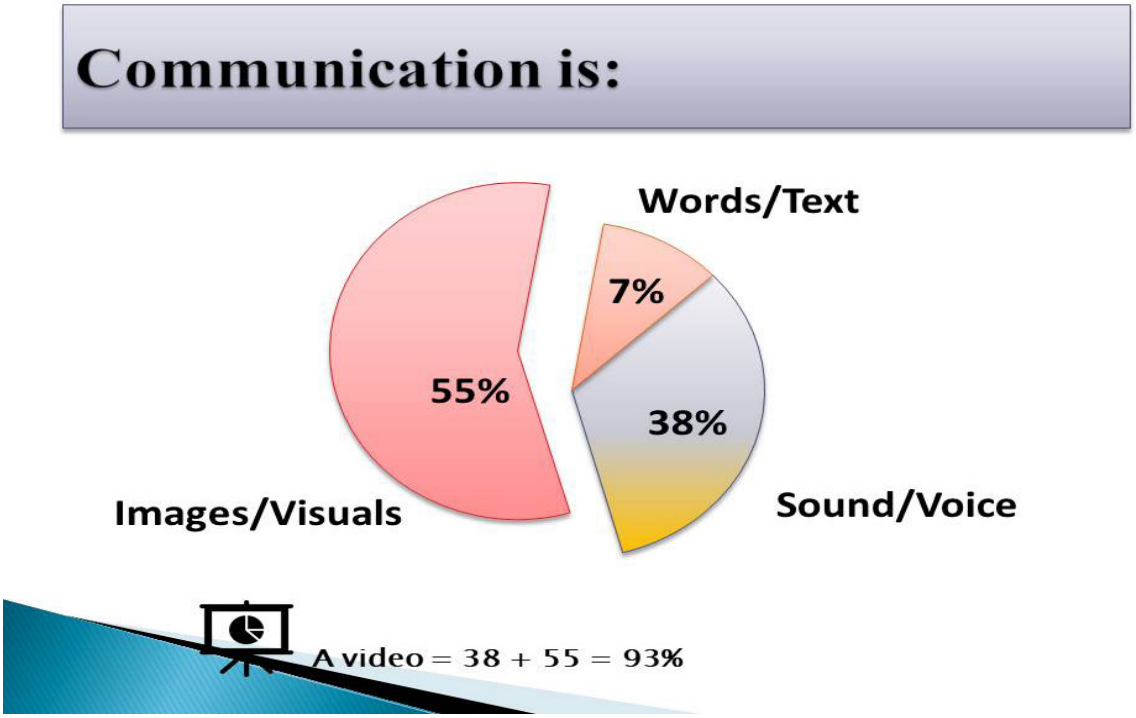
Perhaps the most important element of a strong video is authenticity. The most effective blended instruction isn't pretty—it's personal. Don't be afraid to make mistakes, and make sure your authentic personality shines through. Research shows that videos in which the instructor speaks in a natural, conversational manner, with an enthusiastic tone, are the most engaging. In our experience, students really appreciate knowing that it's their actual teacher behind the video.

In this video on states of matter, for instance, middle school science teacher Demi Lager lets her personality shine through. No matter how interested students may be in solids, liquids, and gases, her warm tone and sense of humor are likely to keep them engaged.

Learning to create a high-quality instructional video doesn't happen overnight—it requires continual trial, error, and innovation. We've been recording videos for years, and we still often struggle to be compelling and concise. Yet we keep trying, because we believe that teacher-driven blended instruction is what's best for our students. So start planning, grab some recording software, be yourself, and have fun!

WHY YOU SHOULDN'T FORGET TO USE VIDEO

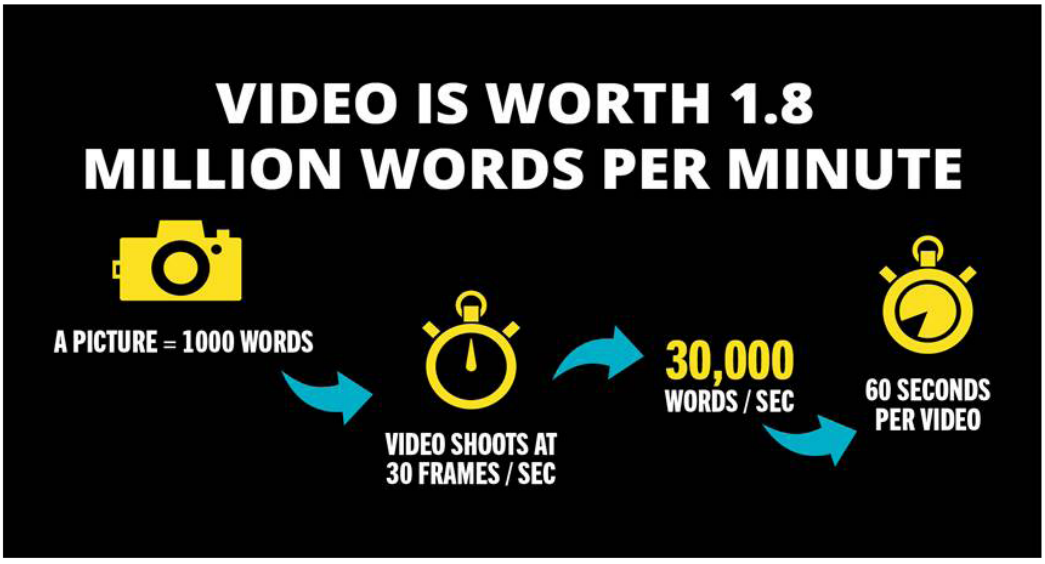
Prof. Albert Mehrabian in his 7-38-55 Communication model posts that the person receiving a communication trusts the element which most accurately reflects the communicator's true feelings towards them (the receiver). In his 1973 Book , Silent Messages, he gave this model



Reasons why you have to use videos in communication

- According to Dr. James McQuivey's Forrester study, *How Video Will Take Over the World*, "Video is worth **1.8 million words**."
- His reasoning is simple: "If a picture is worth a thousand words, then a video has to be worth at least **1.8 million words**."

Power of VIDEO



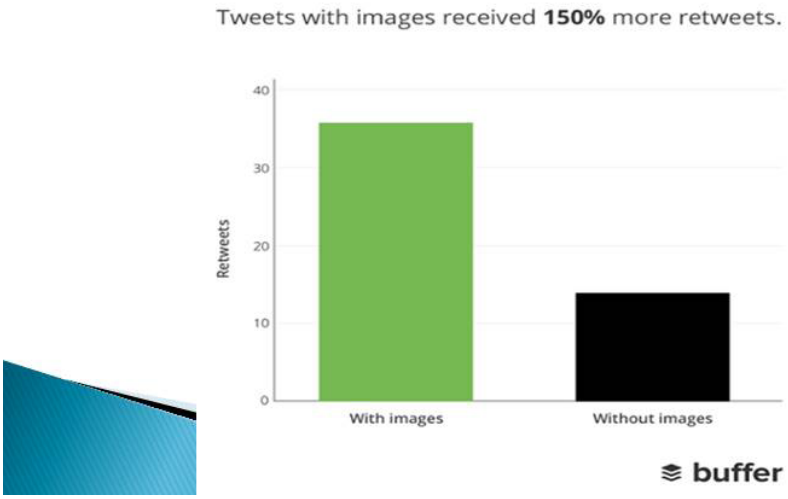
- Video is known as the complete medium because it appeals to senses of sight, hearing and feeling.
- Without video, content can start to feel stale because consumers are demanding more video content than just text, still photos or audio.
- Therefore, you have to produce good videos in order to grab your attention from your audience or class and make them want to watch till the end.
- Ask yourself why even in Uganda YouTube is more visited than Facebook! Because Video is popular

Video displays nonverbal communication

- With video, viewers are able to determine exactly what the speaker is trying to get across by observing body language, verbal tone and other visual cues.
- With visual aids like footage and images, videos strengthen the mood of the viewers.

Video engages audiences

- With the combination of visuals and sound, the audience gets fully engaged with what is being communicated.



Video comprises all other mediums

- Video has the ability to include all other visual and auditory content.
- It includes images, infographics, and text. No other medium has this ability.

More resources for you

The Ultimate Guide to creating great instructional videos

https://tinyurl.com/y6avtnyu

How to produce animated videos with Animaker

https://tinyurl.com/22v6z5fd

How to make videos from Powerpoint presentation

https://tinyurl.com/35dwsfe7

How to make animated videos with Powtoon

https://tinyurl.com/ms2uvk5m

Creating animated scenes in PowerPoint

https://tinyurl.com/3h2me3v2

and How to create animated characters

https://tinyurl.com/mtpkdc4a

WEBSITE DESIGN BASICS AND CONTENT MANAGEMENT SYSTEMS

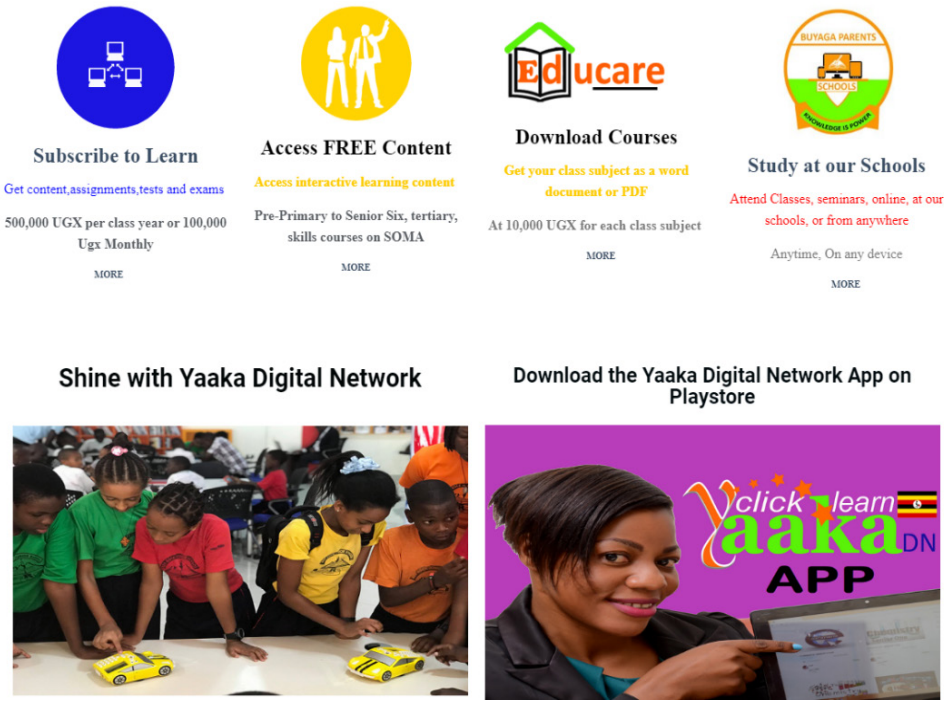
A website or web site is a virtual collection of related network web resources, such as web pages, multimedia content, which are typically identified with a common domain name, and published on at least one web server. But in simpler terms, a website is a location on the web where people can find your information. If you are to offer great digital learning, it is important to avail your content on the web and that will need some basic knowledge of having a good website.

Learn what makes good web design, how to find good free web themes and templates or paid ones, how to design your own website, how to get a good content management system, basic HTML (language for the web), basic CSS (cascading style sheets), FTP (how to transfer files to your website), PhP (useful web programming language), creating and using CMSs.

Understanding basic HTML

HTML-Hypertext Markup Language; the language of the Web. HTML files are text files that

include tags that indicate format, style and layout functions. A Web browser reads the HTML file and interprets the tags, thus presenting the information in the way the designer intended.



An HTML file can be developed in a simple text editor like TextEdit (Mac) or Notepad (PC). You simply save the file with the .html extension. You can also use a word processor like Word, but if so, you need to save as a text file and give it the .html extension (do not

use “Save as HTML” feature, more on this later). We will be introducing the Web Editor Macromedia Dreamweaver, but with a Web Editor, we are doing the same thing: we are creating an html file that is textbased. Once you have an html file you can move from TextEdit to Dreamweaver or back without issue to maintain and modify the page.

XHTML or Extensible Hypertext Markup Language is the next generation of HTML. It functions in the same manner, but just provides more structure and guidelines to HTML. Used in conjunction with stylesheets (to be discussed later), XHTML separates document structure from formatting, thus allowing more flexibility in Web design. As we discuss

HTML, we will identify the aspects of XHTML that must be observed. These days, most web pages are designed using more advanced html5 which has enabled inclusion of elements like video within that wasn’t possible before.

However, many people who design websites today use already existing templates which they customize, while some use whole themes especially with the growing popularity of **Content Management systems** (CMS). The CMS like wordpress, Drupal, joomla among others provide software on which you can design your website and from a collection of themes and templates (free and premium) one can design a good website without having to do HTML. But it is still important to know a few of the elements of HTML.

A **tag** is a command written between angle brackets (the less than and greater than symbols).

Ex. <html>

Some tags have attributes that provide a variety of options within the tag. The attributes have

associated values deemed by the designer.

<tag attribute= “value”>

Ex. <body bgcolor=”blue”> <body bgcolor=”#AACC00”>

Values are surrounded by quotation marks.

Most tags must also be closed after inserting the contained text.

Ex. Cindy’s Page (This tag bolded the text Cindy’s Page. The closing tag makes sure

no other text is bolded in the document.

In HTML tags could be upper or lower-cased and it made no difference to most major browsers.

However, with the move to XHTML, lower-cased tags are required. Many designers use uppercased letters within tags to make them stand out from the content. Others use lower-cased for simplicity (prevents from having to use the shift key or cap lock). You will be expected to use lowercased tags for this course.

More on web design in the detailed course on [Webdesign, CMS and Server management]

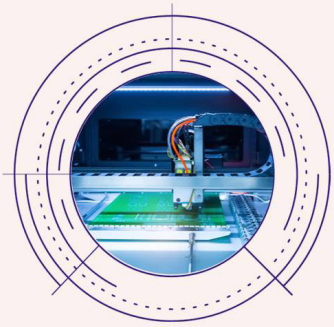
Tips on creating a good website

- Good web design always caters to the needs of the user. Are your web visitors looking for information, entertainment, some type of interaction, or to transact with your business? Each page of your website needs to have a clear purpose, and to fulfill a specific need for your website users in the most effective way possible.
- Web users expect information they are looking for quickly, so it is important to communicate clearly or straight forward, and make your information easy to read and digest.
- Simple tactics to put in your web design include: organizing information using headlines and sub headlines, using bullet points instead of long windy sentences. Therefore, edit the information and make it more concise.
- It's believed that Sans Serif fonts such as Arial and Verdana are easier to read online (Sans Serif fonts are contemporary looking fonts without decorative finishes). The ideal font size for reading easily online is 16px and stick to a maximum of 3 typefaces in a maximum of 3 point sizes to keep your design streamlined.
- How easy is your website to navigate? Navigation is about how easy it is for people to take action and move around your website.
- Some tactics for effective navigation include a logical page hierarchy, using bread crumbs, designing clickable buttons, and following the 'three click rule' which means users will be able to find the information they are looking for within three clicks.

Tips on creating a good website https://www.yaaka.cc/wp-content/uploads/2020/03/tips-on-creating-a-good-website.pdf

If you have prepared your content and have it in a digital form, where can students easily access it any time anywhere?

If you want to offer digital learning where would you put your content?



WHY

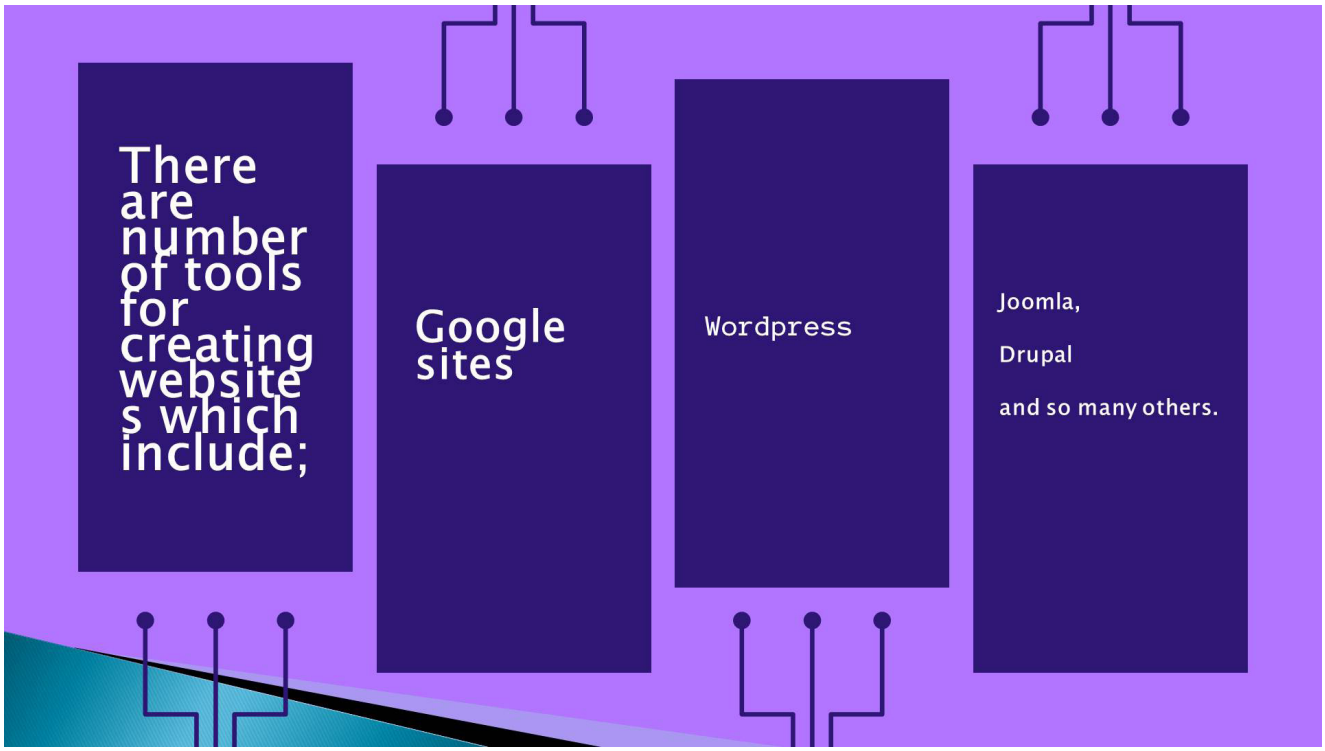
How many of us have ever put content on the University website/Elearning platform?

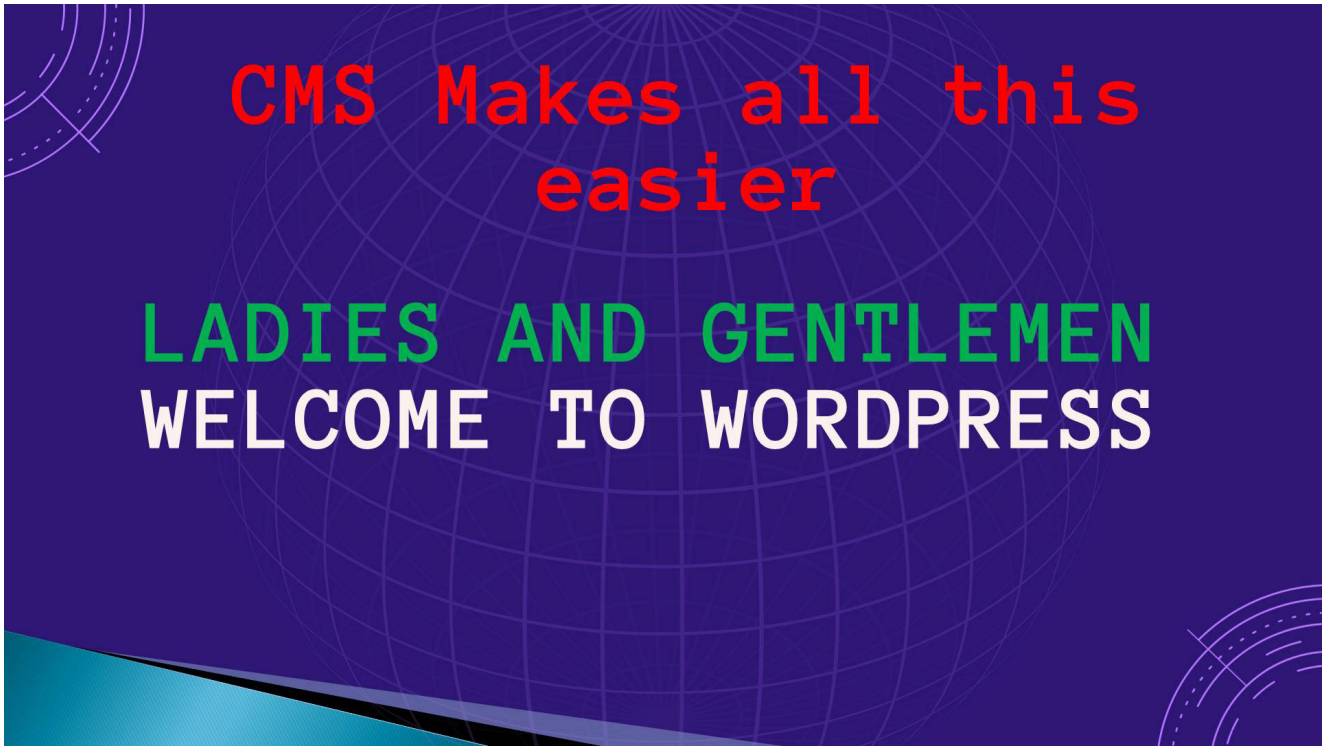
https://ucu.ac.ug/

https://elearning.ucu.ac.ug/

However much we would like to use University space but it's important to create your own space that you have full control to offer some of digital learning as you want it beyond the university platform

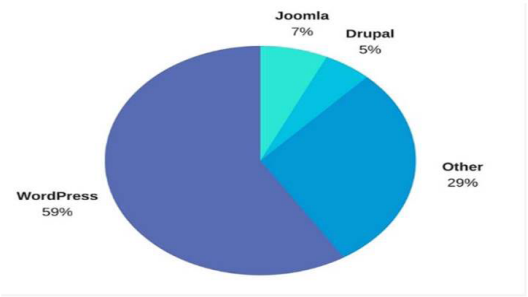
And this would be hard for us to achieve but thanks for CMS'S which are designed to make content publishing and management easy.


There are number of tools for creating website s which include;
Google sites
Wordpress
Joomla,
Drupal
and so many others.


CMS Makes all this easier
LADIES AND GENTLEMEN
WELCOME TO WORDPRESS

WHY WORDPRESS

- The most popular CMS in the world



- Open Source with room for expansion
- Highly customizable for great flexibility
- Designed for anyone, not just developers
- Lower setup and maintenance costs

HERE ARE TUTORIALS TO HELP IN PRACICAL WEBSITE CREATION

Tutorial Title	URL	QR Codes
How to create a WordPress account and free site	https://tinyurl.com/yupt-mkb2	
Content Publishing on a WordPress website	https://tinyurl.com/2h2trwcs	
How to use WordPress to design website for UNEB	https://tinyurl.com/576djfyp	
WordPress Education themes free	https://tinyurl.com/yx5sakk6	
How to use AI to create a wordpress website	https://tinyurl.com/2p8nrbkr	

INTERNET SEARCH STRATEGIES FOR RELEVANT COURSE CONTENT

Internet is a worldwide collection of computer networks cooperating with each other to exchange data using a common software standard. Internet makes it easy for people to post and access information anytime, anywhere on any device at will. There is a lot of information available on the internet published over the years. However, finding the exact information you need can be akin to getting a particular tree type in a huge forest. You have to know what you want and have the skills to navigate through lots of what you don't want to get what you want.

If you are looking for information online or searching the internet we use the following tools:

—Search engines like Bing, Google, DuckDuckGo, Wiki.com, cc search, Yandex...

—Browsers like Google chrome, Mozilla firefox, internet explorer (the most commonly used is chrome).

—Specific search apps or apps for particular organisations

Some of the world's search engines

ONLINE RESEARCH: TIPS FOR EFFECTIVE SEARCH STRATEGIES

The internet has had a marked influence on teaching practice in many ways. It is both a big platform for sourcing information, publishing and disseminating it.

- Flat Earth News: Educators can enliven their digital content with diverse sources and data and avoid flat or boring content.

https://tinyurl.com/42kytyw3

- website book **http://www.flatearthnews.net/**

- Copy/paste content; no checking...can be avoided since the internet provides massive data bases to cross check most of the things we include in the content we prepare for learners.
- The internet offers new possibilities especially multimedia content and visualisation.
- Concept of continuum content---i.e online content can be improved continuously

How to find out more about a subject using the internet

Remember the Internet presents:

- More sources –search names, officials or experts, including particular data
- Has a wider geographical range (world wide web)
- Direct access (the time you want the info you search and get it from anywhere you are with an internet connection-as opposed to a library)
- Multi media: you can search for audio/video/graphics, maps to help add more info and life to your story

This **https://tinyurl.com/29a72xrd** is the summary.

The detail on search strategies is here below.

By now, many of you know that you can easily search for what you want in Google, the leading search engine. You put your search term in the search box and hit search and you will get many results from which to choose the most relevant.

But remember that Google indexes about 10 billion pages but that is 20% of the information on the web. Databases provide more data but are not accessed easily by search engines

- How do you find databases?
    - Utilise Institutional approach for searching: For human rights stories as an example, the UN, Human Rights Watch, CIA fact handbook, etc. these organizations keep compiling on Human Rights issues. Go to their websites and search for the information you want. If you are looking for Economic growth or gender disaggregated data, the World Bank, the International Finance Corporation and the UN are additional sources of wide ranging data. There is also government or CSO led efforts to provide relevant data, like data.ug www.ubos.go.ug www.budget.go.ug in the case of Uganda.
- Find leading media: BBC, Economist, newvision.co.ug, and subscribe to RSS feed. If you are looking for Uganda curriculum related content, you can search on www.yaaka.cc, www.sharebility.org
- Search news site (newspaper) archives: on their website search. Every worthy website has a search box which you can use to search that very site.
- Search the web with Google

Important tips for web search

The trick to efficient web searches is to choose your search keywords and phrases with enough precision to exclude the masses of results that are irrelevant to what you are interested in.

- **Set your preferences to return the maximum results**

The Google page has a link marked 'preferences'. This allows you to set some search preferences (to search only English language pages, for instance) but the most useful preference to change is the number of results shown for each search. The default setting is for 10 results which means you have to refresh the page each time to get the next ten. Set preferences for the maximum 100 results – which allows you to scan much bigger chunks of data to see if it is relevant.

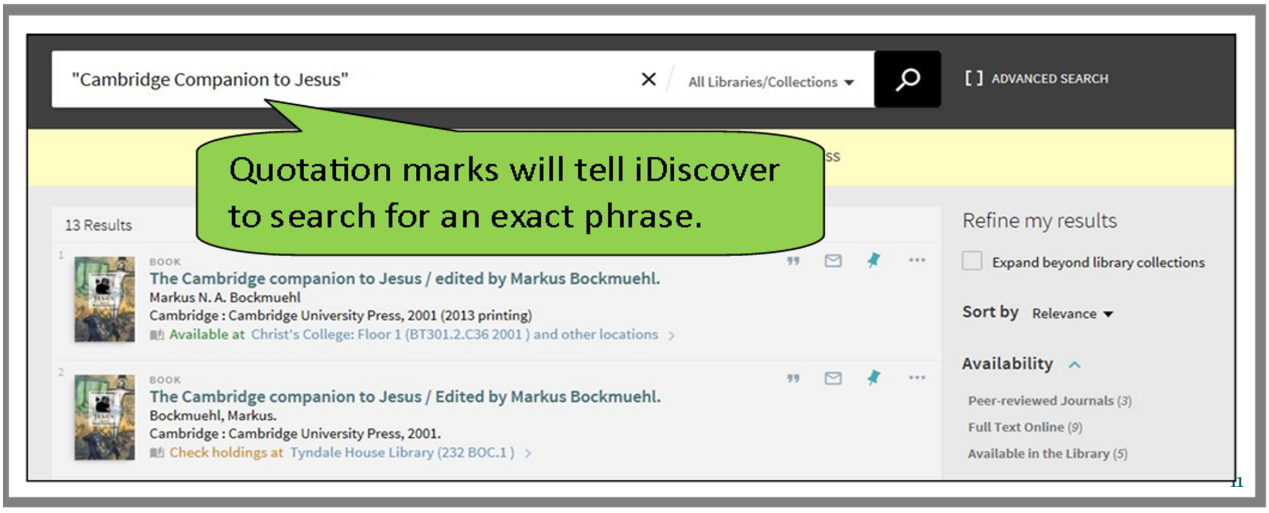
Keywords provide a simple way of narrowing down your focus, but, often, keywords alone are not enough. Say you are looking for Jack Smith. Simply typing in Jack and Smith in the search bar is going to give you every document where both of those words appear: hundreds of thousands of documents. To avoid drowning, you will need to find relatively unique features that identify the Yaa you are looking for.

- **Use quotation marks**

"Jack Smith" will return only those results where the words appear together. If you have a middle name you can add that, for example: "John James Smith" You can combine options using the OR command written in capitals, which Google uses to distinguish from the word 'or'. "Jack Janes Smith" OR "John J Smith" OR "JJ Smith"

Use quotation marks ("") to find exact match

E.g "Communication in media"
"Ebola cases in Uganda."
"Climate Change in Uganda"



USE A HYPHEN (OR MINUS SYMBOL) TO REMOVE OPTIONS

. To narrow your results, you can omit certain words and sites from your results by adding a " -" symbol in front of the word (or words) you don't want your search results to include.

Climate change -global warming, Apple –fruit, Rolex –watch etc.

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Use (and) or (+)

To indicate that you want results that mention two (both terms) things you're interested in.

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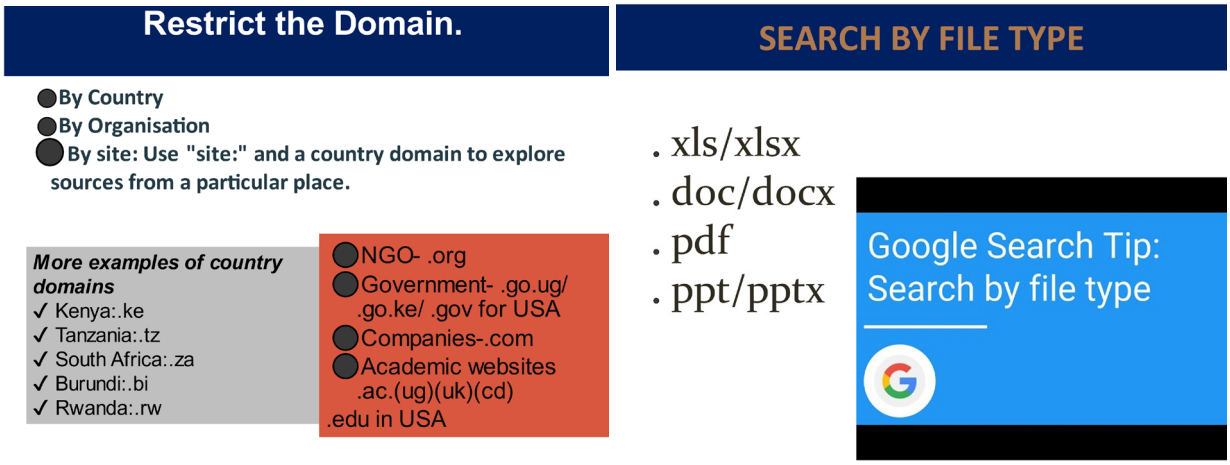
- **Add facts that you know or suspect**

Say the Jack Smith you are interested in is a missionary teacher in Uganda. You would add to your search bar: "Jack Smith" Uganda or perhaps "Jack Smith" Uganda lecturer which would return only pages where all those words occur.

- **Country-specific searches**

You may not be certain that Jack Smith still operates out of Uganda, but you are sure he is was for some time in Uganda and are interested in know which Uganda website might have information about him. Using the "site:" command, Google allows you to search only pages with a specific country domain designation. The Uganda domain designation is ".ug" while Kenya is ".ke" So you might type in the search bar: "Jack Smith" site:.ug which would return all Uganda pages containing the name Jack Smith. The domain designation for South Africa is .za, for Britain .uk Not sure of the country designation? Google: "domain by country"



- **Organisation-specific searches**

Many commercial websites end with .com; many NGO's, developmental organisations' sites and activist groups end with .org. So if you are researching wind turbines, and want the companies, you might use "wind turbines site: .com". If you want to find criticism about wind turbines, you might use "wind turbines site:.org". If you want data on activist groups in Uganda, you type "wind turbines site: .or.ug". if you need academic sies that have published abut turbines, you can type turbines site:.edu (for USA) or turbines site: .ac.ug (for academic sites in Uganda).

- **Use the net to find sources**

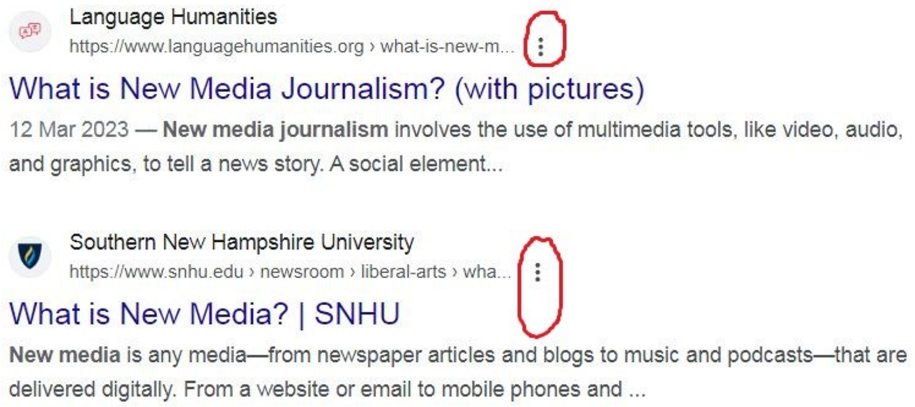
Drug smuggler John Smith may never have appeared on the net in that context (as an accused drug smuggler) so the next best thing is to find an expert on the drug trade in Switzerland who might have heard of John Smith and be able to give you more information. "drug smuggling in Switzerland" or "drug smuggling" site:.ch should give you access to newspaper or academic articles giving the names of such experts. You can then Google their names to find their telephone numbers or email addresses and make contact.

- **Using Google cache**

Web pages change or are shut down. You may get a result on Google and find the page has gone. Then click on the "cached" link on the specific result. Google saves a copy of the pages that it catalogues as it searches the web, and that is the cache version: the snapshot of the page as it was when Google's computer looked at it. That copy is often still available long after the original page has disappeared from the net. This is very useful for tracking companies and individuals who have 'disappeared': they often still exist in caches

Use Google cache

Can help to show information even on a deleted page `cache:` **" in front of the site address.**



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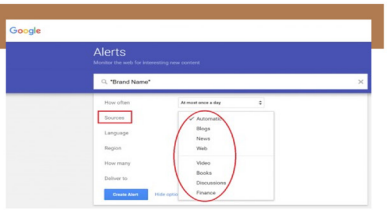
- **Custom range**

- **Google alerts**



Getting information from **SlideShare.**
https://www.slideshare.net/

Getting content from **Google scholar/academia.com**
https://scholar.google.com/

Voice-to-text search options

- **Voice search**
- **Audio books on sites like Audible,Librivox**
- **https://www.audible.com/**
- **https://librivox.org/**

17

- **Download long articles for later reading**

If you have limited opportunity to go online, then save pages that looks useful for background research so you can go through them carefully later.

- **Build up your own database in a structured searchable way**

When you save documents from the internet, or save transcripts of interviews or notes, do so in a way which will allow you to find information again easily, or your virtual desktop will end up like many teachers' actual desks: a vast, widely spread pile of assorted data where it is difficult to find anything at all, let alone quickly. There is a great free internet tool, called 'Google Desktop' that searches and lists your computer files for you. Simply key in 'Jack Smith' and the tool will give you a list of all the files you have saved, even many years back under you can't remember what name, with 'Jack Smith' in it.

Don't discount little words

Google-users frequently think words like "a" and "the" are inconsequential in search queries. Not so. For example, typing "Who" into Google yields the primary result of WHO: World Health Organization. Adding the article "a" gives you results for the movie Horton Hears a Who!, and replacing "a" with "the" provides links related to the band The Who. "Little words that you'd normally think of as stop words or words that might be extra turn out to make a big difference," Russell says.

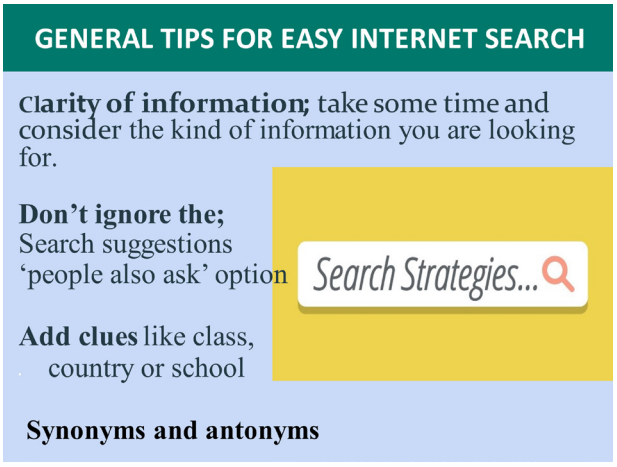
Be aware of word order

Word order matters for Google searchers. In some cases, it makes little difference. But in others, switching the order returns completely different results. For example, the search for "black and white" provides results related to the video game Black & White. But a search for "white and black" displays the web page for the retail company White House Black Market as the initial result. "When you're trying to formulate a query, think about not only what words to include, but the order in which they naturally come," Russell says.

Be specific with spaces

All it takes is one space to significantly modify a search. For example, one symbol that Google acknowledges in searches is the minus sign or the dash (-). This can be used to narrow your query by subtracting specific search terms. "Recipe -tomatoes" will provide recipes that don't include tomatoes. Correct spacing is crucial. There must be a space between the first word and the dash, and no space between the dash and the following word. Because of this, people using the dash sign to signify a range could unintentionally narrow their search. "Pre -post renaissance art" will remove "post" from all text results, but "pre-post renaissance art" will include pre- and post-renaissance art results.

- Look different source type: doc, xls, ppt
- Use Google news and create RSS feeds or bookmarks
- Bloggers: using technorati –a search tool for blogs
- Use Twitter (direct term search or using hastags
- Tools for handling data from databases
    - Spreadsheet; excel
    - Database; access
    - Mapping GIS



There are several tools to help u

- Calculations: averages
- Graphs: bar, line, pie
- Maps:
- Interactive graphs
- UNDP data by gapminder
- Statplanet https://tinyurl.com/ymyjbrmy

Remember:

- In journalism or teaching:
  - Graphs are analysis not illustrations
  - Cooperation between programmers, design and journalists important
  - Aim at better journalism; better storytelling, informing public
- What do you need?
  - knowledge about statistics
  - How to handle spreadsheets, graphs, maps
  - Interactivity using flash or other visualization softwares e.g. Google

Create your own data

- Do an online survey Using survey monkey, Using Google forms
- Maps: Google maps

Verify the sources of the results before you just copy the

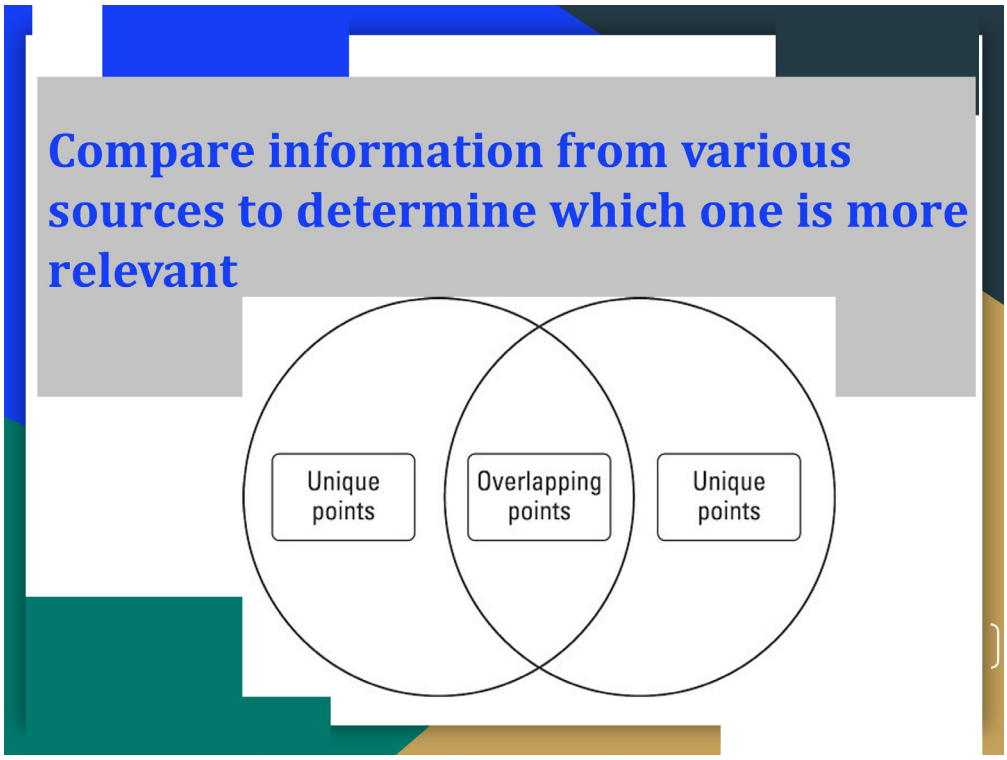
- Look closely at the url to ensure it is genuine
- Read the about and or contact page to see whether site is dependable
- Do a whois.com search to determine who owns the site

When evaluating Web pages, check to see:

- **Who's authoring** and publishing them. **Is the publisher a scholar** on that topic--or someone simply putting forth opinions with no substantiation?
- **If the writer unbiased**, or someone with an agenda?
- **If the writer list a bibliography or source or Web links list**, so you can do further research on your own, or independently verify information?
- **When the site was last updated.** A credible site should tell you this on the home page. **Currency is important**!

Credible sites should also prominently **list a contact phone number and/or e-mail address**. If they don't, be suspicious of the information. If they do, call or e-mail the listed contacts to verify the information or to ask additional questions, just as you would when reporting for print or broadcast outlets.

Remember to look at all information on the Internet with a critical eye, just as you would when evaluating information handed to you anonymously!



SEARCH ENGINE OPTIMISATION

If you plan to offer online courses or you as an individual teacher offering your content online, it is important you understand how search engines work and how to optimize your content for search engines so your content ranks in top search results. Search Engines like Google, Ask, Bing, Yahoo etc. help people find content they want. As you design a website and especially publish content, there are best practices that help your content rank well in search results.

Exercise: Find the top ranked websites in Uganda (or your specific country).

Search Engine Optimization

SEO is the practice of improving the visibility and ranking of a website or web page in search engine results pages (SERPs). The ultimate goal of SEO is to increase organic traffic to a website by optimizing the content, structure, and technical aspects of the site.

ELEMENTS OF GOOD OFF PAGESEO

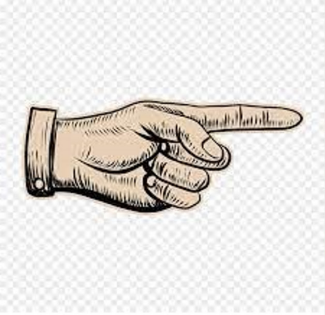
Link popularity:
It refers to the total number of links that point to a website.

The more high-quality links a website has, the more likely it is to rank well in search engine results pages (SERPs)

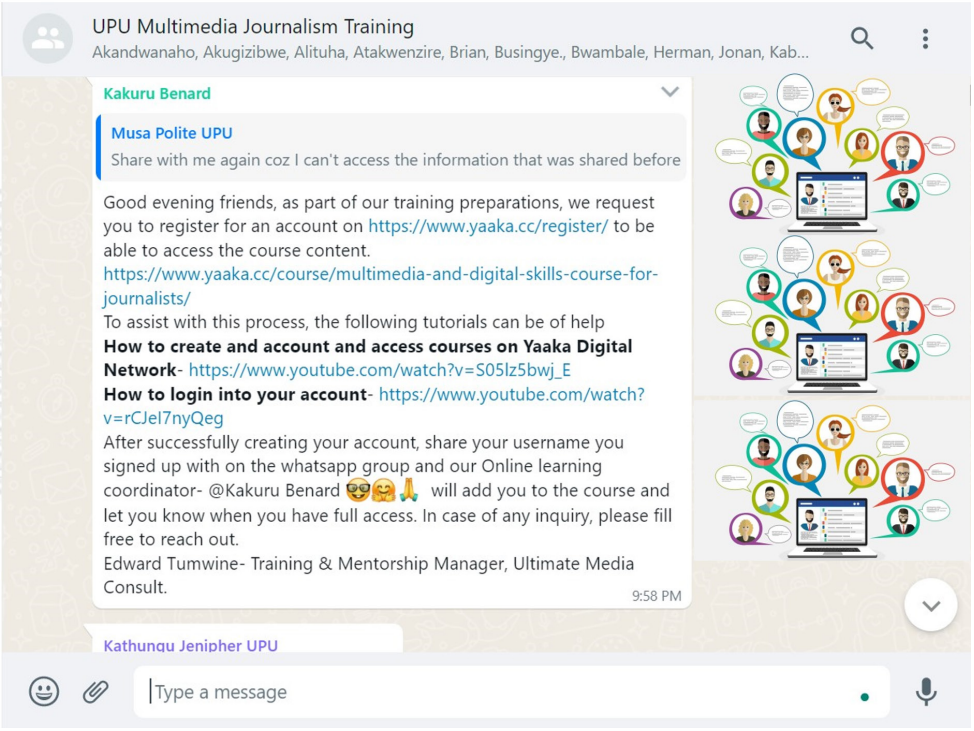
Link exchange:
Occurs when an agreement is made between two brands to trade links to boost SEO

The purpose of link exchange is to increase the link popularity of both websites

Posting to forums



Involves utilizing different forums and sharing your content there

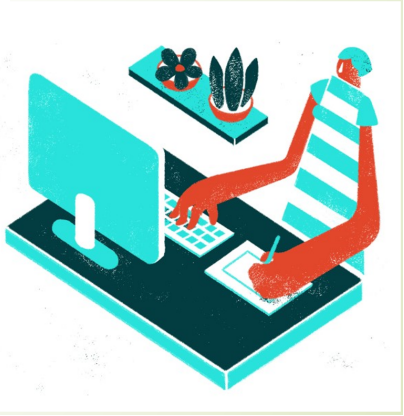


Link popularity

Link popularity can be improved through various SEO tactics, such as creating high-quality content that other websites want to link to, and engaging in social media marketing to increase the visibility of a website's content.

On-Page SEO

This is the practice of optimizing individual web pages in order to rank higher and earn more relevant traffic in search engines



ELEMENTS OF GOOD ON PAGE SEO

A keywordrich heading is a heading that contains relevant and important keywords related to the content of a web page.

1. Keyword rich heading
2. Use of tags and keywords in article
3. Use of sub headings (Preferably H2)
4. Use of multimedia in your story
5. Captioning photos and alternative text
6. Outbound and inbound linking
7. Have a featured image

KEYWORD RESEARCH TOOLS

Keyword research tools- like

- Ubersuggest,
- H-suppertool
- Google trends

Technical optimization

Technical optimization in SEO refers to the process of optimizing the technical aspects of a website to improve its visibility and ranking in search engine results pages (SERPs). Technical SEO can help search engines crawl, index, and understand a website's content more effectively, which can improve its chances of ranking higher in search results. some important technical SEO elements to consider include Site speed, Mobile optimization, SSL certificate, Site structure, XML sitemap, Schema markup.

Technical SEO

By addressing these technical SEO elements, you can improve your website's visibility and ranking in search results, which can lead to increased organic traffic and improved user Experience.

The goal of optimization is to improve the website's visibility and ranking in search results for relevant keywords, which can lead to increased traffic and engagement from users. It's important to note that optimization is an ongoing process, as search algorithms and user behaviors are constantly changing, and new competitors may enter the market. As such, it's important for website owners and SEO practitioners to stay up-to-date with the latest best practices and trends in the industry.

LIVE CLASSES, VIDEO CONFERENCING AND VIDEO STREAMING

Live classes

Live online classes are synchronous events organized in a live virtual meeting room where students and teachers meet together to communicate with voice, video, whiteboard.

Live online classes require students and instructors to be online at the same time. Meetings and lectures occur at the same hour. All attendees must be online and connected to the internet at that specific hour.

THIS VIDEO EXPLAINS HOW YOU CAN TAKE LIVE CLASSES ONLINE

https://tinyurl.com/4d7hnu39

Some online courses may also contain live online classes or meetings as part of the course activities. During such live classes the students can meet their instructor live over the internet to discuss different topics or problems.

Video conferencing

A video conference is a live, visual connection between two or more people residing in separate locations for the purpose of communication.

At its simplest, video conferencing provides the transmission of static images and text between two locations.

At its most sophisticated, it provides transmission of full-motion video images and high-quality audio between multiple locations.

https://tinyurl.com/46ypv45s

The components of a video conferencing system include:

- A network for data transfer, usually a high-speed broadband Internet connection, which uses similar technology as voice over Internet protocol (VoIP). Local area network (LAN) and integrated services digital network (ISDN) connections are occasionally used as well.
- Two or more video cameras or webcams that provide video input.
- Two or more microphones either located on the individual or within the device that provide audio input.
- A computer screen, monitor, TV or projector that can broadcast video output.
- Headphones, laptop speakers or professional speakers that can be used for audio output.
- Hardware or software based coding and decoding technology, called codecs, which can compress analog audio and video (AV) data into digital packets on the distributing end and then decompress the data at the endpoint.
- Acoustic echo cancellation (AEC) software which reduces audio delays and supports real time.

How video conferencing works

The video conferencing process can be split into two steps: compression and transfer.

During compression, the webcam and microphone capture analog AV input. The data collected is in the form of continuous waves of frequencies and amplitudes which represent the captured sounds, colors, brightness, depth and shades.

In order for this data to be transferred over a normal network, instead of requiring a network with massive bandwidth, codecs must be used to compress the data into digital packets, allowing the captured AV input to travel faster over broadband or Wi-Fi Internet.

During the transfer phase, the digitally compressed data is sent over the digital network to the receiving computer.

Once it reaches the endpoint, the codecs decompress the data and convert it back into analog audio and video, allowing the receiving screen and speakers to correctly view and hear the AV data.

Importance and benefits of video conferencing

Video conferencing is important because it joins people who would not normally be able to form a face-to-face connection.

In businesses, it can increase productivity amongst employees as well as provide an improved way of communicating and interacting with colleagues, partners and customers.

For businesses, the tangible benefits of video conferencing include lower travel costs especially for employee training and shortened project times as a result of improved communications among team members.

The intangible benefits of video conferencing include more efficient meetings with the exchange of non-verbal communications and a stronger sense of community among business contacts, both within and between companies, as well as with customers.

On a personal level, the face-to-face connection adds non-verbal communication to the exchange and allows participants to develop a stronger sense of familiarity with individuals they may never actually meet in person.

https://tinyurl.com/sp8behw4

Disadvantages of video conferencing

While video conferencing provides numerous benefits for businesses and individuals, it also possesses several disadvantages.

For example, video calling and conferencing requires a strict, high-speed Internet connection.

Only a strong Internet connection can guarantee that the voice audio and visual images will be reliably and smoothly communicated.

Any issues with bandwidth or Internet connectivity could cause the audio and visual displays to be interrupted or lost.

Video calling also still experiences severe audio latency, even with fast Internet connections. Conferences that experience audio latency might become frustrating or strained whereas an in-person meeting would have avoided this obstruction.

Another disadvantage is the steep cost of high-quality video conferencing systems.

While many companies adopt video conferencing services as a way to reduce business travel costs, they will still end up spending large amounts of money on a video conferencing system.

In addition to all the costly equipment and technology, companies will often also need to pay for the installation, deployment and maintenance of the system.

Video conferencing merchants

Consumer services like Apple's FaceTime, Google Meet and Microsoft's Skype have made video conferencing ubiquitous on desktops and mobile devices that have an embedded camera.

Other video conferencing vendors include:

- Zoom
- Webex
- Jesti
- Cisco
- Avaya
- Mitel
- LifeSize
- Logitech
- Konftel

- Jenne
- Poly
- West
- ScanSource
- RingCentral

Video Streaming

Video streaming is a type of media streaming in which the data from a video file is continuously delivered via the Internet to a remote user.

It allows a video to be viewed online without being downloaded on a host computer or device.

Video streaming works on data streaming principles, where all video file data is compressed and sent to a requesting device in small chunks.

Video streaming typically requires a compatible video player that connects with a remote server, which hosts a prerecorded or pre-stored media file or live feed.

The server uses specific algorithms to compress the media file or data for transfer over the network or Internet connection.

The size of each data stream depends on various factors, including actual file size, bandwidth speed and network latency.

In turn, the user or client player decompresses and displays the streamed data, allowing a user to begin viewing the file before the entire video data or file is received.

The seven streaming necessities

The seven streaming necessities that will give you the power to simulcast with multiple cameras, display on-screen graphics, and capture high-quality audio.

Laptop

While exact technical requirements vary depending on the software you use, almost any new laptop computer available today will work. Look for something with an Intel i7 CPU, at least 8GB of RAM, a solid-state hard drive (SSD) and as many USB ports as possible.

A desktop computer is also a good option if you don't need the portability a laptop provides.

Desktops typically have more USB ports and more options for expansion, both of which are great assets if you plan to level-up your streaming activities in the future.

Mobile phones are also increasingly providing capacity for live streaming of video.

Camera

For individual creators and small brands, the easiest and most cost-effective cameras to use are standard USB webcams.

A quick Google search will tell you which is the latest, greatest, and most popular camera for your live streaming needs.

If you're not broadcasting from your desk or stable surface which you can affix your webcam on, or if you're using a digital camera, you may also want to purchase a tripod.

Note: USB cameras don't typically come with a long cord. To position them in various places you may need a USB repeater extension cable. This has a built-in component that boosts the signal.

Many mobile phones these days come with good cameras that can support live streaming.

Microphone

Audio quality is one of the most important and most overlooked items in live streaming. Depending on your budget and streaming setup, there are a few different options to capture audio correctly.

If your stream involves people are sitting behind a desk or table a stationary setup in which people aren't moving around too much you can use condenser microphones with a tabletop stand.

These microphones are great because they don't pick up a lot of background noise.

Lapel microphones are another great option, especially if your stream is more dynamic than the stationary sit-and-chat setup.

These are little clip-on devices, and you've probably seen them on TV broadcasters.

You can get these microphones in wired and wireless options, which make them a great choice if your stream features people standing or moving around.

One thing to note, however, is that these microphones tend to pick up a lot more room noise.

If you plan to use microphones with a mixer, you'll need to make sure they feature an XLR or ¼ audio connector.

USB microphones will not work. You will also need audio cables to attach your microphones to your mixer/laptop, and these are sometimes sold separately.

Most smart phones come with good audio input and output capacity. However, it is a good idea to use headphones and or a microphone with a muffler to minimize picking of surrounding audio.

Audio Mixer

An audio mixer will allow you to use multiple microphones and other audio sources in your stream.

It also allows you to adjust each individual's microphone volume to ensure everyone is at the same level.

There are an endless number of mixer options for the modern streamer to consider. The biggest consideration for a beginner? How many inputs it has.

To determine how many inputs you need, estimate the number of people you may want to have on microphones at the same time if they are in the same room (co-instructors).

You should also look for a mixer that has a USB output, as this is the easiest way to get the audio to your computer.

This shouldn't worry you as a teacher as most modern streaming systems allow for different user types e.g. hosts, presenters/moderators and participants. You can add colleagues from wherever they are as moderators/presenters.

Software

The software is where the magic happens. This is what allows you take your multi-camera inputs and create a polished stream for broadcast, complete with scenes and transitions.

This is also where you can take your logo or other graphics and overlay it on the live video.

There are plenty of video streaming and video switching software options out there, both free and paid, each designed to meet a variety of different needs.

Before you go live, you'll need to select and configure one of these packages on your device(s)

Most options offer free trials, too! Make use of those when deciding which package is best for you. Think of a software that will be easy and affordable for you and the learners you are targeting.

Internet Access

You need a quality Internet connection with enough bandwidth to put out a stable live stream.

Once you have your connection, test the speed before you go live. While you can stream with less bandwidth, it's recommended that you maintain an upload speed between 2 and 5 Mbps. You can test the internet speed of your connect at www.speedtest.net or just type internet speed test in google.com

Streaming Channels

Where are you broadcasting to? Where do you want people to watch and react to your live stream?

Creators, teachers and live video marketers alike have many options to choose from, with the main channels being: YouTube Live, Facebook Live, Twitch, and Periscope, as well as your website.

Want to stream to multiple destinations but don't have the excess bandwidth or input capabilities to make it happen?

That's where Switchboard Cloud comes in. Switchboard Cloud is a one-input, kabillion-output platform that simultaneously sends your live stream to all the destinations you choose to broadcast on. Software such us OBS allow you to stream in more than one location at the same time.

Get the most out of your live video content, extend your reach, and maximize the number of potential viewers!

But for most teachers, remember you may need to sream to a controlled audience. Therefore this determines whether you choose Facebook groups over Facebook page, tools like Google meeting, Zoom or Skype over YouTube.

If your university or school runs a functional Learning Management System (LMS) like Moodle or Word Press, you can integrate live streaming software like Big Blue Button to enable you provide live classes within your online learning platform.

As we have already seen in platforms, it is important to provide learning materials and all learning activities within a managed framework (LMS) so you can ensure only students who should attend are attending, monitor, who has attended, as well as how to engage learners during live classes and after.

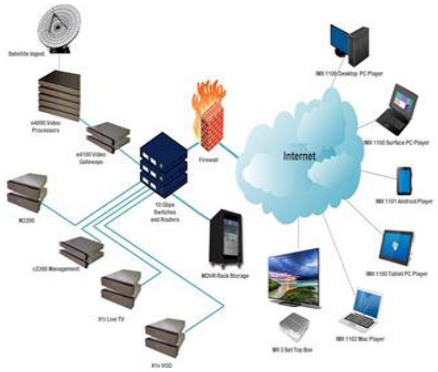
Live classes should ideally be part of the larger digital learning offering where content is availed in advance and relevant learning activities like demonstration of understanding and application of knowledge or subject practicals are done online. More about this in the unit on flipped classroom.

Why its important to Live Stream

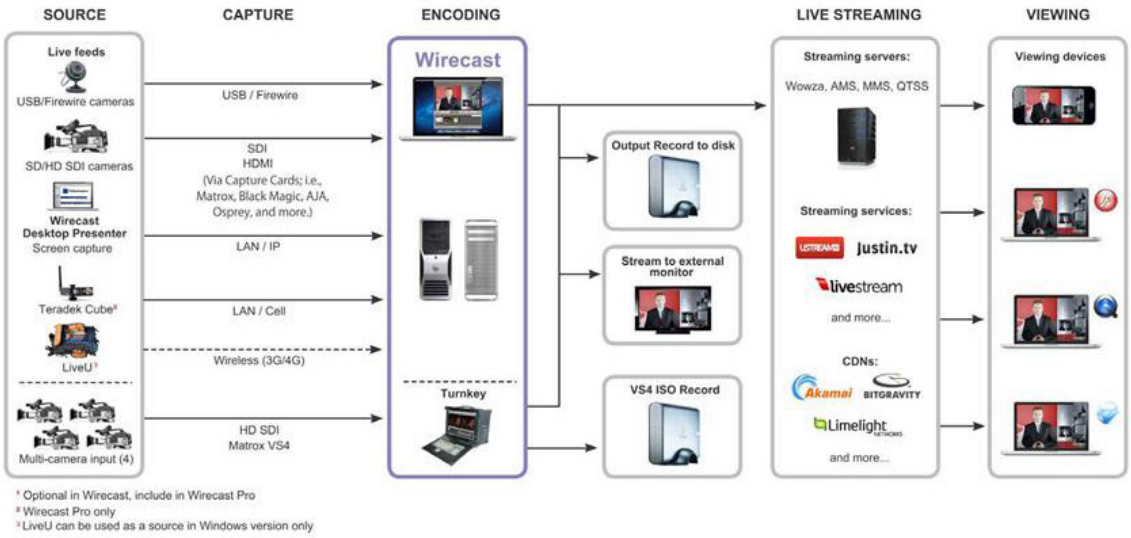
- **Live Video Creates Huge Engagement (since it** happen in real-time, utilizes FOMO (fear of missing out) hence creates more engagement).
- **Live Video Leverages Social Media Following.**
- **Live Video Humanizes Brands**
- **Live Video is Reusable**
- **Live Video is the new TV**

Types of Live Streams

- Webcast/Screencast
- • Single Camera (no switching)
- • Multi-Camera (switcher)
- • Live Linear



Live Streaming Workflow



[1] Optional in Wirecast, include in Wirecast Pro
[2] Wirecast Pro only
[3] LiveU can be used as a source in Windows version only

Live Streaming–Video Source

- Good Quality Camera
- Don't forget about audio!
- better balanced audio

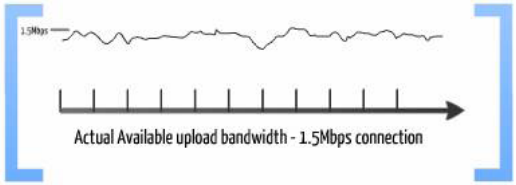
Acquisition

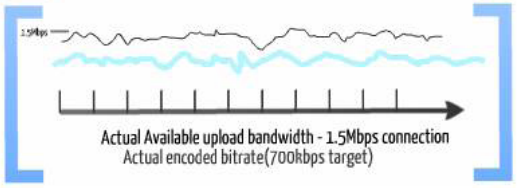
- Video Switcher or Directly capturing?
- Multiple source or single?
- Mix audio and video if possible

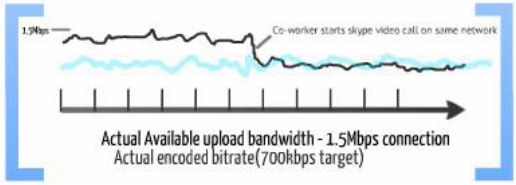
- Create single output or “broadcast”

Connectivity

- For an SD Stream 1.5Mbps upload bandwidth is needed
- For HD Streams 4Mbps+ is needed
- Available bandwidth will fluctuate so as a general rule, target bitrate should be set no higher than half of your available upload bandwidth.







Software

- OBS
- XSPLIT
- VMIX
- WIRECAST
- livestream

Services

- Facebook
- Twitter
- Youtube
- Google meeting
- Zoom
- GoToMeeting

Other Considerations

- Know your strengths Do what you can, outsource the rest
- •Many hands make for light work
- •Plan for bad things Not only plan, but actually run through fire drills
- "The" event is not the first time you've done everything
- •Broadcast Bandwidth –do not exceed about 50% of your connectivity
- •Redundancy, Redundancy, Redundancy Back up encode solution, backhaul, publish points, etc
- Record locally

- We have this full course on yaaka.cc if you want to dig deep into this course for organizing real events, But the most important thing is the reason why you're going live and are you adding value or you're going live for the sake because others are going live.

IMMERSIVE EDUCATIONAL CONTENT DEVELOPMENT & VIRTUAL REALITY

Immersive VR Education has gained a reputation for delivering outstanding virtual experiences over its short history such as Apollo 11 VR and Titanic VR.

What is Virtual Reality?

Virtual Reality is a simulated experience that places the user in a virtual environment that they can interact with.

A student of KIU testing out VR content during one of our trainings[/caption]

It allows users to visit imaginary worlds or places that may be impossible to visit in real life. There are two key characteristics of virtual reality that make it different: the ability to experience and interact.

This gives the user a sense of complete immersion within the simulation as it involves the senses.

It makes it more believable and engaging for the user. This considered, VR has been proven to a powerful resource that can aid conventional learning methods.

Virtual Reality in Education & Training

Virtual reality took its beginning in the entertainment area, but over time it got great attention and usage in the education sphere.

The main goal of Virtual Reality in education is to make studying process exciting and more effective.

VR simulations provide a deep understanding of the material by a learner with its further application in real life.

The benefits of VR in education and training are being discovered. Humans learn by interacting.

They derive and retain information from their environment. Virtual reality-based learning provides an immersive teaching method that allows users to interact with environments around them.

https://tinyurl.com/28ssvw7u

Memory retention increases when learning through interactivity. Abstract concepts or situations that no longer exist can be experienced through VR, opening up many possibilities that did not previously exist.

Despite all advantages, virtual reality is yet far from widespread implementation into education.

In spite the fact 97% of students would like to study some VR courses, only 23% of schools have tested the VR, and about 10% are planning to use it the next year or two.

The latest polls among the teachers show the following:

- **68%**want to use VR to supplement course for the better apprehension of educational material by the students;
- **72%**would like to use a VR simulation to reproduce real-life experience related to course content;
- **69%**are ready for virtual traveling to distant destinations (Great Chinese Wall or Stonehenge) or inaccessible locations, such as other planets and space;

- **42%**of 9-12 grades' teachers believe that using VR for college campuses tours can help teenagers make their choice of future university.

While most teachers consider that VR will benefit mainly science (82%), social studies (81%) and history (81%), researchers found the following trends.

What makes VR in education beneficial?

Virtual reality can be used to enhance student learning and engagement. VR education can transform the way educational content is delivered; it works on the premise of creating a virtual world real or imagined and allows users not only see it but also interact with it.

Being immersed in what you're learning motivates you to fully understand it. It'll require less cognitive load to process the information.

Here are just a few properties that make virtual reality in education so powerful.

Better sense of place

When students read about something, they often want to experience it. With VR, they aren't limited to word descriptions or book illustrations; they can explore the topic and see how things are put together.

Thanks to the feeling of presence VR provides, students can learn about a subject by living it.

It's easy to forget that VR experiences aren't real a body actually believes it's in a new place. This feeling engages the mind in a way that is remarkable.

Rather than reading about Rome, VR headsets let students be transported to Rome [/caption]

Scale learning experiences

Technologies such as science labs are amazing they allow students to understand how things work based on practical experience.

'A relatively small VR device can even act as a whole science lab.'

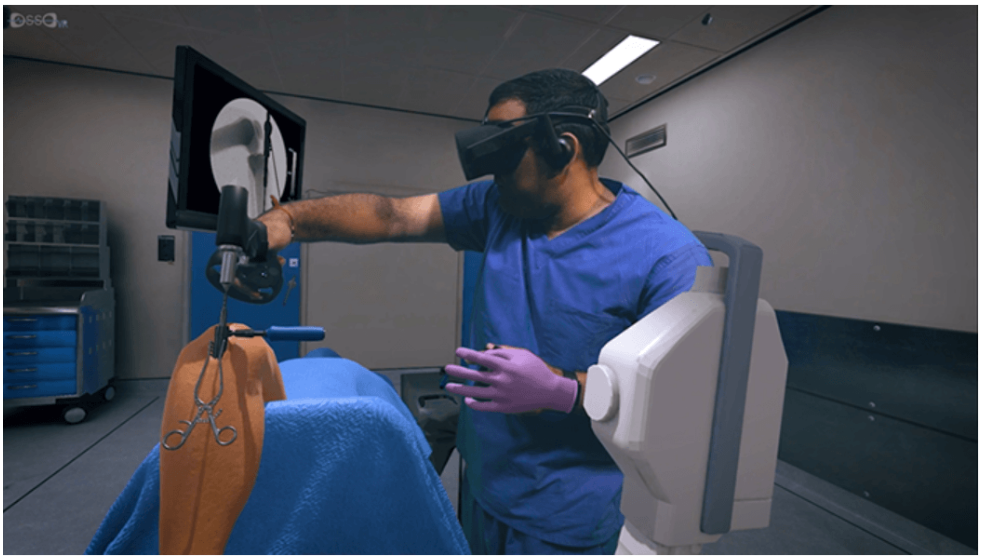
But such technologies are expensive and almost impossible to scale. They are also limited in the number of things they can do.

Learn by doing

It's a well-known fact that people learn best by doing; however, if you inspect modern education, you'll see how little learning actually happens by doing. Students are focused on reading instructions rather than using them in practice.

VR in education provides an experience anchor to the instruction. With VR education, learners are inspired to discover for themselves.

Students have an opportunity to learn by doing rather than passively reading.



A virtual medical lab where there's no danger of things going wrong [/caption]

Emotional reaction

Visceral reactions to what we are experiencing are fundamental to forming memories. VR in education makes it easy to engage students the whole time, making experiences memorable.

Develop creativity

Having virtual reality in education is useful not only for content consumption, but it's also great for content creation. By giving students powerful tools such as Tilt Brush, you help them boost their creativity.

Visual learning

A lot of people are visual learners — VR is really helpful for this group of learners. Instead of reading about things, students actually see the things they're learning about. Being able to visualize complex functions or mechanisms makes them easier to comprehend.

Categories of VR educational experiences

Where can we apply virtual reality in education? The answer is almost everywhere. VR creates an infinite set of possibilities that people can experience. Here are few types of experiences you can create with VR.

Virtual fields trips

VR technology can be used to engage students in topics related to geography, history, or literature by offering a deeply immersive senses of place and time.

Simply imagine geography lessons where you can visit any place on the globe this type of experience is much more enriching than just reading about it.

Google Expeditions is one good example of an app that's providing such an experience. Expedition is a library of field trips available for regular smartphone users.

Each trip is comprised of VR panoramas, and trips vary from the Great Wall of China to Mars.

People all over the world can visit places that are virtually impossible to visit in person.

Google piloted this app in hundreds of schools all over the world. The project was extremely successful, with Google taking more than 1 million students in 11 countries on expeditions.

Virtual Reality in Education [/caption]

High tech training

VR is a good solution for highly technical training fields like the military or the medical industry.

For example, the most significant challenge for medical students learning anatomy is understanding the body in three dimensions and how different systems fit together. VR education can help overcome this problem.

One good example is the VR system used by Mendel Grammar School in Opava City, Czech Republic, which helps students in biology classes learn about the anatomy of the eye.

The team working on this project employed a Leap Motion controller and specially-adapted Oculus Rift headsets to provide an innovative way of learning anatomy.

Virtual Reality experience [/caption]

Internships

Getting exposure to different careers is an essential part of the learning process. From early childhood, we dream about what we want to be when we grow up, and those dreams are usually inspired by the professionals in our lives. Often, we get this understanding through internships.

Another benefit of having virtual reality in education is its ability to help broaden students' exposure to careers. It improves people's ability to imagine themselves in others' shoes.

Career expeditions show what it's like to work in field students can explore a day in someone's career, see what person is studying, and understand what a person likes or doesn't like about their job. As a result, the experience becomes familiar to students.

Group learning

Some of the most important knowledge we gain doesn't come from what we hear from lecturers, but rather from collegiality and debate.

VR education gives the opportunity to make learning experiences social by allowing students to communicate with each other.

Using avatars and mapped facial expressions, people can come together to discuss, synthesize, and learn from one another.

Distance learning

VR allows us to bridge the gap between educators and learners. With VR, distance learning tools can put educators and students together in the same room with digital representations of themselves teachers can teleport into the VR world and guide students through their experiences.

Virtual Reality vs. Augmented Reality

One of the biggest confusions in the world of augmented reality is the difference between augmented reality and virtual reality.

Both are earning a lot of media attention and are promising tremendous growth.

So what is the difference between virtual reality vs. augmented reality?

What is Virtual Reality?

Virtual reality (VR) is an artificial, computer-generated simulation or recreation of a real life environment or situation.

It immerses the user by making them feel like they are experiencing the simulated reality firsthand, primarily by stimulating their vision and hearing.

VR is typically achieved by wearing a headset like Facebook's Oculus equipped with the technology, and is used prominently in two different ways:

- To create and enhance an imaginary reality for gaming, entertainment, and play (Such as video and computer games, or 3D movies, head-mounted display).

- To enhance training for real-life environments by creating a simulation of reality where people can practice beforehand (Such as flight simulators for pilots).

Virtual reality is possible through a coding language known as VRML (Virtual Reality Modeling Language) which can be used to create a series of images, and specify what types of interactions are possible for them.

What is Augmented Reality?

Augmented reality is an interactive experience of a real -world environment where the objects that reside in the real world are enhanced by computer

Augmented reality (AR) is a technology that layers computer-generated enhancements atop an existing reality in order to make it more meaningful through the ability to interact with it.

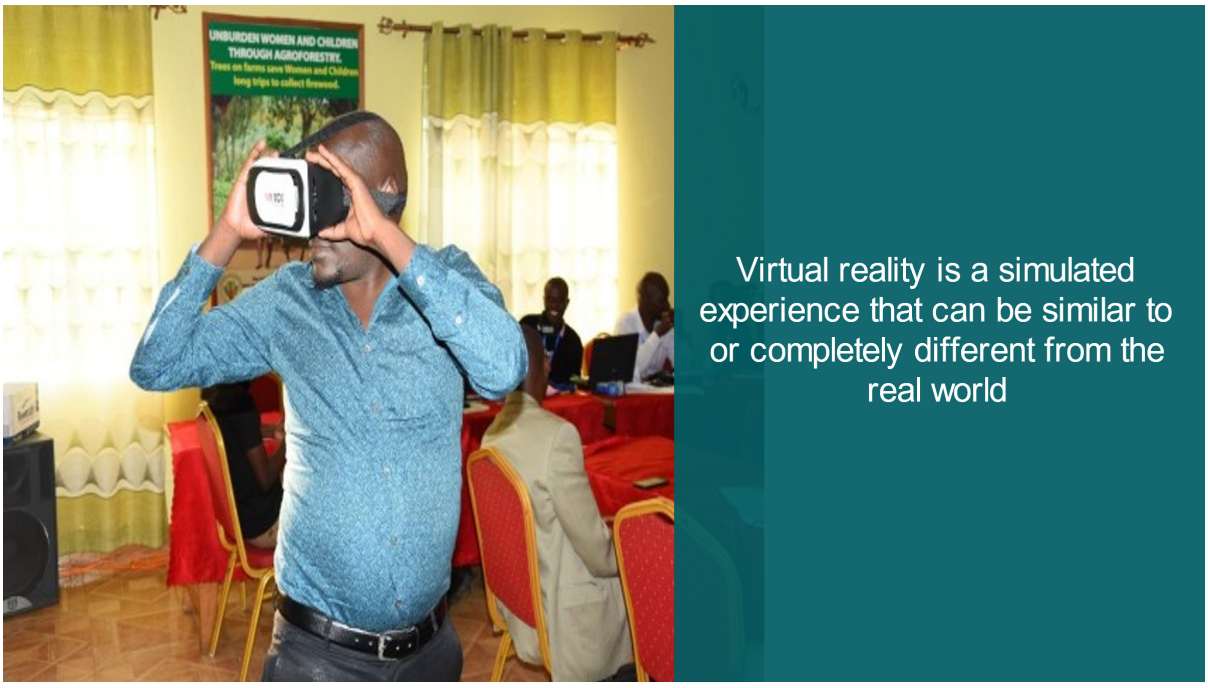
AR is developed into apps and used on mobile devices to blend digital components into the real world in such a way that they enhance one another, but can also be told apart easily.

AR technology is quickly coming into the mainstream. It is used to display score overlays on telecasted sports games and pop out 3D emails, photos or text messages on mobile devices. Leaders of the tech industry are also using AR to do amazing and revolutionary things with holograms and motion-activated commands.

Augmented Reality vs. Virtual Reality

Augmented reality and virtual reality are inverse reflections of one in another with what each technology seeks to accomplish and deliver for the user.

Virtual reality offers a digital recreation of a real-life setting, while augmented reality delivers virtual elements as an overlay to the real world.



How are Virtual Reality and Augmented Reality Similar?

Technology

Augmented and virtual realities both leverage some of the same types of technology, and they each exist to serve the user with an enhanced or enriched experience.

Entertainment

Both technologies enable experiences that are becoming more commonly expected and sought after for entertainment purposes.

While in the past they seemed merely a figment of a science fiction imagination, new artificial worlds come to life under the user's control, and deeper layers of interaction with the real world are also achievable.

Leading tech moguls are investing and developing new adaptations, improvements, and releasing more and more products and apps that support these technologies for increasingly savvy users.

Science and Medicine

Additionally, both virtual and augmented realities have great potential in changing the landscape of the medical field by making things such as remote surgeries a real possibility.

These technologies have been already been used to treat and heal psychological conditions such as Post Traumatic Stress Disorder (PTSD).

How do Augmented and Virtual Realities Differ?

Purpose

Augmented reality enhances experiences by adding virtual components such as digital images, graphics, or sensations as a new layer of interaction with the real world.

Contrastingly, virtual reality creates its own reality that is completely computer generated and driven.

Delivery Method

Virtual Reality is usually delivered to the user through a head-mounted or hand-held controller.

This equipment connects people to the virtual reality, and allows them to control and navigate their actions in an environment meant to simulate the real world.

Augmented reality is being used more and more in mobile devices such as laptops, smart phones, and tablets to change how the real world and digital images, graphics intersect and interact.

How do they work together?

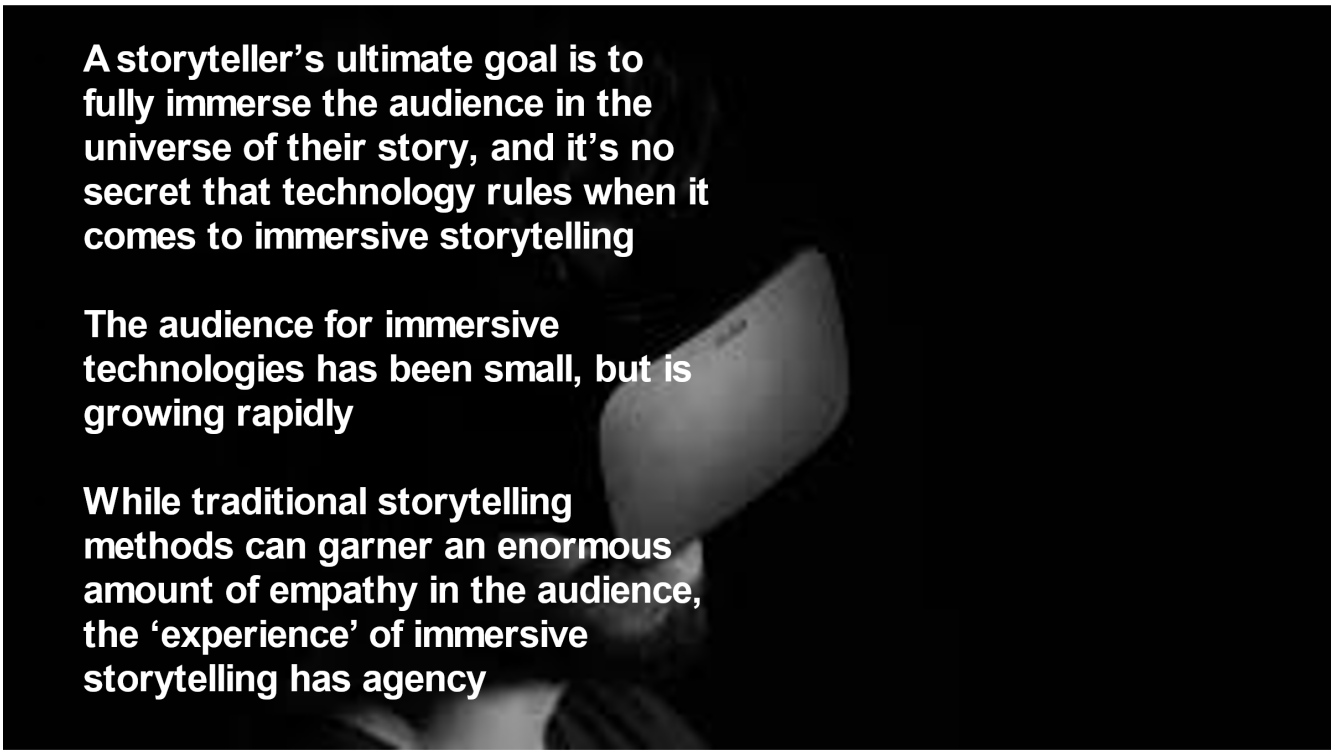
It is not always virtual reality vs. augmented reality they do not always operate independently of one another, and in fact are often blended together to generate an even more immersing experience.

For example, haptic feedback-which is the vibration and sensation added to interaction with graphics-is considered an augmentation.

However, it is commonly used within a virtual reality setting in order to make the experience more lifelike though touch.

Virtual reality and augmented reality are great examples of experiences and interactions fueled by the desire to become immersed in a simulated land for entertainment and play, or to add a new dimension of interaction between digital devices and the real world.

Alone or blended together, they are undoubtedly opening up worlds-both real and virtual alike.



"Storyliving" rather than "storytelling"

For the maker: Composing in spheres

- Depth matters: get the near field right – the rest follows
- Perspective plays a different role
- Inside out vs. a vanishing point through a frame

For the viewer: The power of 'being' the camera

- You the witness; you the character; you the editor

- Chimes with finding of *Google News Lab's report *Storyliving* (July 2017). "What makes VR distinct as a medium is that it conveys the sense that **the viewer is 'living' the story as opposed to being told it** ('storyliving' rather than 'storytelling')"

What's in it for the audience: close field 360 as a tool to tell community stories

- In 2017, signs of trend in conference discussions, in media competitions, and commissions for community stories to be told 360, and then distributed in community settings – sometimes in synced/cinema performances

Why it appeals

- Engaging new format to renew audience connection with news
- Lower costs of production and post-production makes this format affordable at community level
- Story of a neighbourhood; a school; an association; an ethnic group
- Strong on casual, incidental details that work well in spherical video

What's in it for audience: VR will be the audience's medium, not the author's...

- Community stories are distributed in community setting
- Encourage community to engage with stories and with news as a medium. Journalists learn from post-discussion with audience
- VR will prove to be the audience's medium – where the audience can explore in the sphere, and find new context – rather than the author's
- And in this medium they can live the story, rather than receive it; and by engaging they can judge the truth for themselves.
- And if you trust the audience to find the context, and see the abnormal in context of normal, you can help them care.

Tools For Creating Virtual Reality

https://tours.expeditionspro.com/

https://vr.youtube.com/

https://vimeo.com/channels/360vr

https://www.oculus.com/

TOOLS FOR CREATING Virtual Reality

https://roundme.com/

https://kuula.co/

https://www.google.com/streetview/

https://www.instantstreetview.com/

The concepts behind virtual reality are based upon theories about a long held human desire to escape the boundaries of the 'real world' by embracing cyberspace.

Once there we can interact with this virtual environment in a more naturalistic manner which will generate new forms of human-machine interaction.

THE ROLE OF A TEACHER IN BLENDED LEARNING

As part of emerging technologies in education and challenging work, teachers, tutors and learning facilitators are embracing blended learning models, a formal education program in which students learn, in part, through online delivery of content and, in part, in a brick-and-mortar instructional environment.

And as schools and institutions across the world work to move away from the "one-size-fits-all" traditional school model, more and more are moving toward personalized learning.

The benefits of blended learning are promising, but many people have questions, especially when it comes to the role of the teacher. Even some teachers themselves seem threatened, they are worried that this might render them less important in the teaching and learning process, but this is not the case.

But the presence of technology alone is no guarantee that students will succeed. Strong, effective blended learning doesn't just happen. It requires the work of thoughtful, engaged teachers who leverage the best of technology and face-to-face instruction to address the unique learning styles of their learners.

With new technologies, innovative practices, and students taking leadership in their own learning, the work of teachers looks a little bit different. But it's more important than ever and teachers are still needed.

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"Great knowledge is like fire and light. It is only useful if shared"- Bantu Proverb

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As an educator and someone who is working alongside teachers and facilitating learning to implement student-centered practices, there's one thing I know for sure: The role of the teacher is irreplaceable and extremely important in implementing personalized learning.

Globally, teachers are changing students' lives with the help of technology in blended learning classrooms. Teachers are knowledge facilitators, mentors, and coaches in these environments. They assess, analyze, and synthesize student work and data to develop unique learning plans for each student, while monitoring and working with small groups and entire classes. They identify learning opportunities for students, engaging them in complex activities and holding them to ever higher expectations.

These educators are "becoming true educational designers," for harnessing the power of these online tools to make their curriculum resonate with students. When educational technology is combined with strong, skilled teachers, it makes for a classroom where teachers are able to build powerful relationships and direct their attention where students need them most.

The model allows educators to use data and technology to enhance learning within the classroom, deepen relationships with their students, and empower their pupils to recognize their impact on a classroom community, all while creating personalized pathways for success.

Personalizing learning builds a strong classroom culture in which learning targets are transparent, environments are flexible, and instruction is tailored to meet each student where they are. Though practices differ from the traditional classroom, they enhance the role of the teacher in a unique way.

Teachers can get to know their students in a way that they never have before, building relationships that empower students to own their learning. Personalized learning requires educators to develop cultural competency and get to know their students: Whom do they consider family? Who lives in their home? What do they do after school? What are their interests? When, where, and how do they learn best? When teachers know their students well, they can help students better know themselves and become agents of their own learning.

Teachers also know their students better than anyone else in their school, and better than any computer, so they're ones who must thoughtfully shape the right experience for their pupils. Technology and innovative practices should just be used to help personalize a student's education.

A teacher in a personalized learning environment uses a variety of instructional methods and strategies that they determine jointly with individual students, based on needs, preferences, and interests. The teacher then acts as a facilitator, employing flexible pacing and differentiated assessment practices.

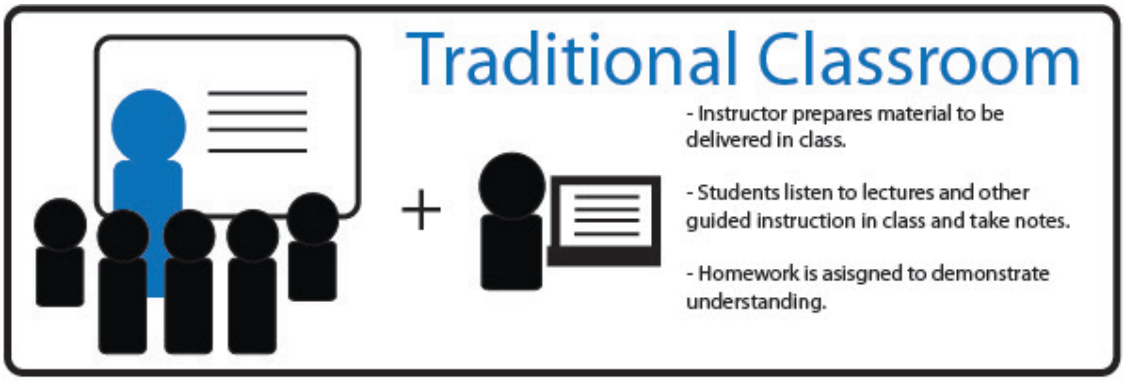
Here is a video on blended learning models

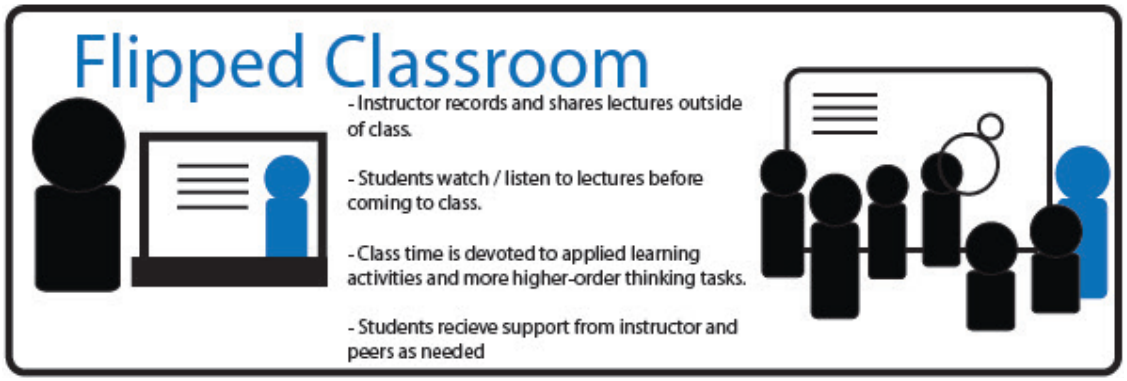
https://tinyurl.com/3842yxej and

Qr code

During this process, students are aware of the curriculum and what's expected of them. They know what they've mastered, what they're currently working on, and what they'll cover next. To accomplish this, teachers might use learning playlists, blended learning, or individual learning plans, relying on technology as a tool, *not* as the curriculum.

The idea of students choosing how they learn may sound like a daunting task, but many educators are already doing this in their traditional classrooms today. It isn't rocket science. But teachers in personalized-learning environments must be supported at the building and district levels. Only then can they reliably and consistently create classrooms where all kids can learn and thrive, where traditional barriers have been broken down, and where the learning process necessitates developing a positive relationship with students.





The popularity of blended learning is no surprise; it offers an alternative way to engage students with a remarkable array of learning experiences, particularly for students who struggle in traditional classrooms. It also gives teachers an opportunity to facilitate learning in innovative ways. What's more, research supports the conclusion that students can learn just as well from blended learning as from traditional classes.

Teachers can spend their time communicating, connecting, facilitating, providing feedback, and ultimately helping all students learn. Great teachers, equipped with great online learning tools, are changing the way students think about school, about their education, and about their lives.

You can also read: The Basics of Blended Instruction

https://tinyurl.com/5ymru5n7

&

https://tinyurl.com/fc2pzszj

How to flip the classroom **https://tinyurl.com/4m7deyud**

CHOOSING THE RIGHT LEARNING ACTIVITIES FOR YOUR STUDENTS

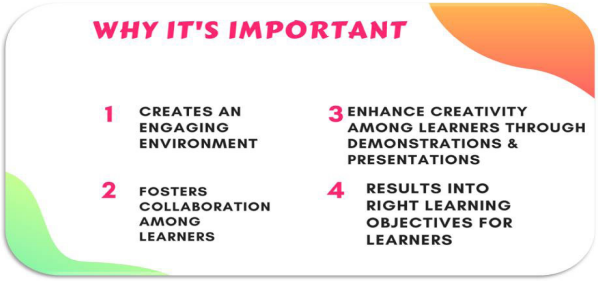
To help your students learn, you as a teacher (learning facilitator) need to develop the skill to offer creative learning activities to help your students hone the concepts and showcase their abilities through doing and presentation.

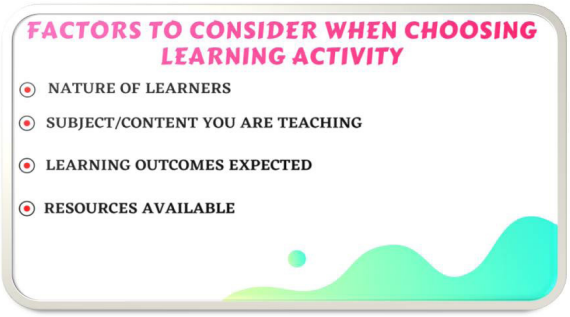
For every topic, it is recommended you include two to three learning activities or a variety where learners can choose one in case you have a big class.

The activities could therefore be done individually, in groups or as a whole class; but each of them must be aligned to the Unit /topic learning outcomes.

Please remember your students will be doing a number of other course units, so activities set should take into account the time students will have to cover your course. Too many tasks could frustrate your students instead of motivating them to learn and showcase.

Real world or authentic tasks that are relevant to students' lives are likely to be much more attractive and motivating to students than theoretical questions or activities. Keep in mind the Bloom's taxonomy because that will help you reflect on the level at which you expect your students to operate at.





Here is a list of some possible activities you could set for your students:

a) Journaling: Encouraging learners to write down what they have learned each lesson or week and marking that. This could take the form of blog articles or typed articles submitted to you as assignments.

b) Reading of an article and then the students respond to specific questions may be in a discussion forum

c) Consider Joint student projects. For example students can develop a video, song, map, drama skit on applications or learned concepts

d) Discussion Question Activities – You could set up discussion topics based on related problems to the concepts, in forums if your learning management system supports forums.

e) Students could be asked for Case studies for discussion from what they have learned to be presented at the next meeting

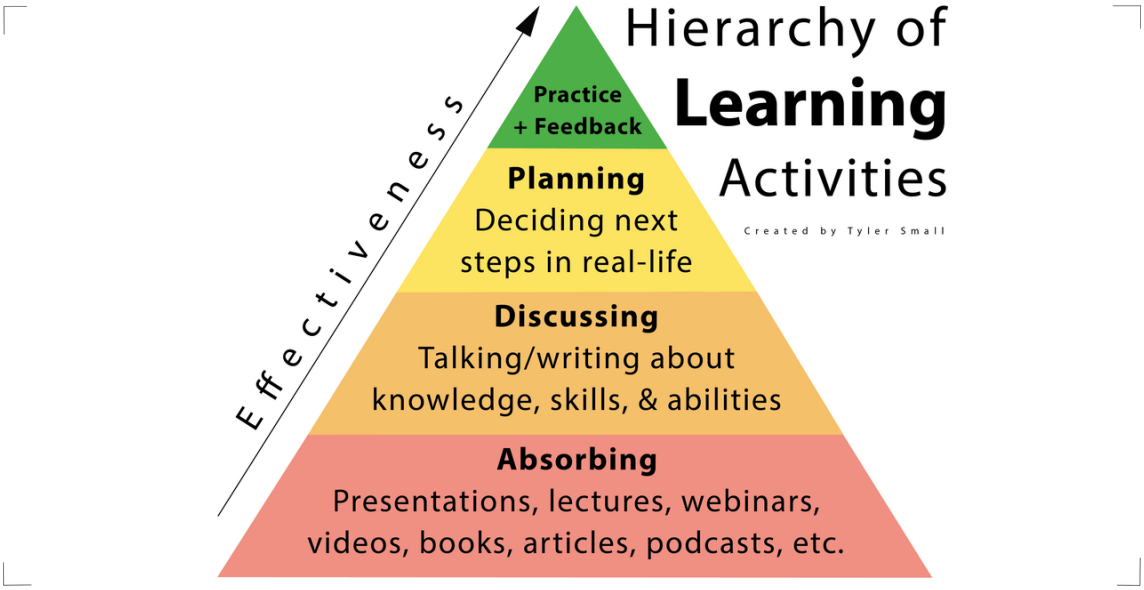
f) Live chats - but here you would have to come up with a clear task to be covered, a specific timeframe during which the chat will take place and when you will be available to moderate the chat

g) Watching a video – again, set questions that students should bear in mind as they watch the said video.

h) Practical tasks that they may need to carry out. However, if the practical requires complex or expensive equipment that the students are likely not to have, then perhaps this practical should be scheduled to take place during a face to face session.

i) Critiquing each other's work – you can ask students to work on something specific and then invite them to share these but to also critique each other.

Remember the choice of the activities will depend on your subject and the learning outcomes set.



What is bloom's taxonomy?

In one sentence, **Bloom's Taxonomy is a hierarchical ordering of cognitive skills that can**, among countless other uses, **help teachers teach and students learn**.

For example, Bloom's Taxonomy can be used to:

- create assessments
- plan lessons (see 249 Bloom's Taxonomy Verbs For Critical Thinking)
- evaluate the complexity of assignments
- design curriculum maps
- develop online courses
- plan project-based learning
- self-assessment

Brief History Of Bloom's Taxonomy Revisions

Bloom's Taxonomy was created by Benjamin Bloom in 1956, published as a kind of classification of learning outcomes and objectives that have, in the more than half-century since, been used for everything from framing digital tasks and evaluating apps to writing questions and assessments.

The original sequence of cognitive skills was Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. The framework was revised in 2001 by Lorin Anderson and David Krathwohl, yielding the **revised Bloom's Taxonomy**. The most significant change was the removal of 'Synthesis' and the addition of 'Creation' as the highest-level of Bloom's Taxonomy. And being at the highest level, the implication is that it's the most complex or demanding cognitive skill–or at least represents a kind of pinnacle for cognitive tasks.

How Bloom's Taxonomy Is Useful For Teachers

In a separate post, we're going to cover exactly how Bloom's can be used by teachers. There are many reasons for the popularity of Bloom's Taxonomy (that likely deserve an article of their own to explore). For now, it's clear that many educators love Bloom's because, among other virtues, it gives them a way to think about their teaching—and the subsequent learning of their students.

As mentioned above, the framework can be used to used to create assessments, evaluate the complexity of assignments, increase the rigor of a lesson, simplify an activity to help personalize learning, design a summative assessment, plan project-based learning, frame a group discussion, and more. Because it simply provides an order for cognitive behaviors, it can be applied to almost anything. (You can see one example here–one of our teaching materials that combined Bloom's Taxonomy with common digital tasks.)

The image above visually demonstrates the hierarchy of Bloom'hierarchymy, which is crucial because it is that structure that characterizes its use. There are six levels in Bloom's Taxonomy (the initialism *RUA2EC* may be useful to recall the levels).

The 6 Levels of Bloom's Taxonomy

1. The first level of Bloom's Taxonomy is to Remember.

Example activities at the Remembering level: memorize a poem, recall state capitals, remember math formulas

2. The second level of Bloom's Taxonomy is to Understand.

Example activities at the Understanding level: organize the animal kingdom based on a given framework, illustrate the difference between a rectangle and square, summarize the plot of a simple story

3. The third level of Bloom's Taxonomy is to Apply.

Example activities at the Application level: use a formula to solve a problem, select a design to meet a purpose, reconstruct the passage of a new law through a given government/system

4. The fourth level of Bloom's Taxonomy is to Analyze.

Example activities at the Analysis level: identify the 'parts of' democracy, explain how the steps of the scientific process work together, identify why a machine isn't working

5. The fifth level of Bloom's Taxonomy is to Evaluate.

Example activities at the Evaluation level: make a judgment regarding an ethical dilemma, interpret the significance of a given law of physics, illustrate the relative value of a technological innovation in a specific setting—a tool that helps recover topsoil farming, for example.

6. The sixth and final level of Bloom's taxonomy is to Create.

Example activities at the Creation level: design a new solution to an 'old' problem that honors/acknowledges the previous failures, delete the least useful arguments in a persuasive essay, write a poem based on a given theme and tone.

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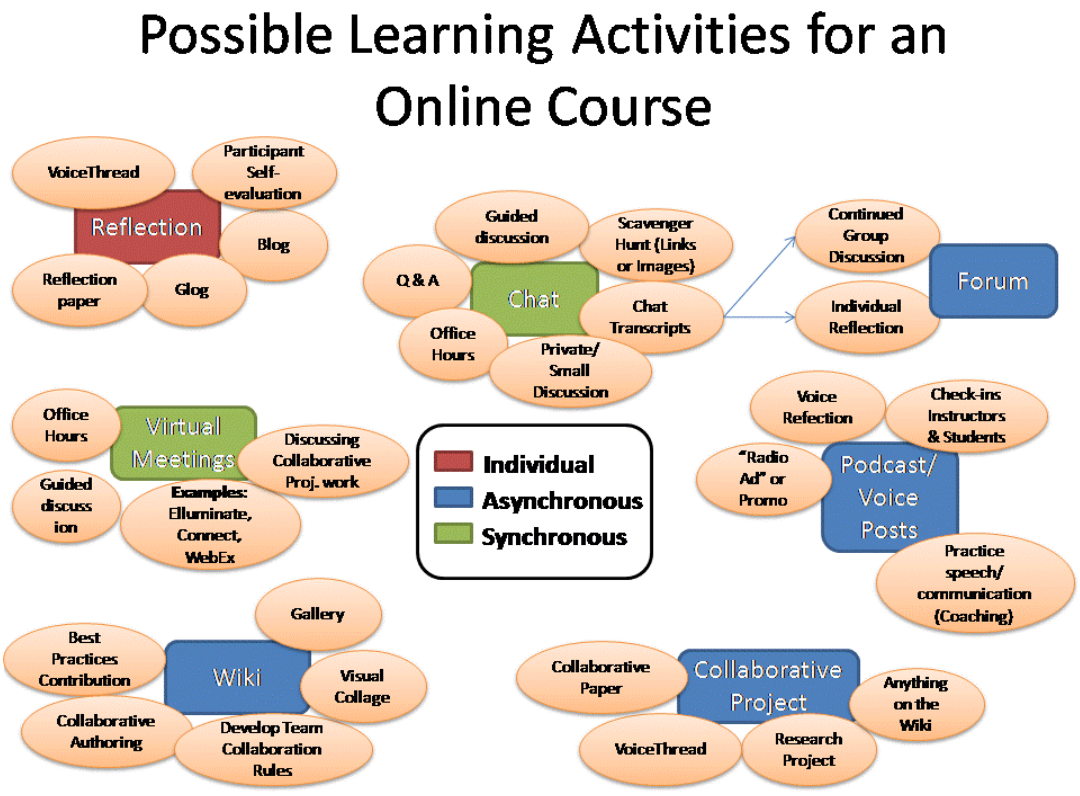

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TOOLS FOR AUTHORING INTERACTIVE LEARNING CONTENT

To effectively engage learners and provider better learning experiences, it is important to use or develop interactive learning content so learners can vary their usage or interact with the content and design as they consume/ study. From animated graphics, video animations to interactive video, we are seeing growing utilisation of interactive content development tools to power digital learning.

There are many 'cool' tools you can use like Adobe Captivate, Storyline and H5p. Some are paid for tools while some are free and offer varied levels of interactive content development and capabilities. Ensure you don't fall into the temptation of thinking that you have to use a lot of complicated online tools to provide opportunities for meaningful active learning. You can provide meaningful interaction with quite basic tools as long as they are well-structured and clearly support students in reaching learning outcomes.

While there are obviously arguments to be made in favor of some tools over others, it is more effective to **first** consider the experience you are trying to create for the student.

- What do you want the student to know and be able to do at the end of this activity?
- What is an appropriate and logical way to provide the student with an opportunity to practice this?
- In what ways can you add dynamic elements to the experience?

Consider leveraging the tools built into your institution's LMS like Groups, Forums, Course Activities, Live chats etc. A great student learning experience can be designed within a simple environment. But where possible engage with advanced tools like interactive video, though enabling question logic, individual learning paths, etc.

Social media services such as Pinterest, Instagram, Vine, YouTube, Facebook, and Twitter provide a wide array of tools that lecturers and teachers can leverage for

student activities and interactions. However, before you incorporate social media into your course, there are some things you need to consider.

1. Are you prepared to support students if they have technology issues?
2. If you want students to post publicly as part of an assignment, do you have a way for them to post under an alias or anonymously if they prefer?
3. Copyright and intellectual property policies may also need to be considered depending on the content of the assignment.

Social Media: Legal and Privacy Concerns From the IUB Center for Innovative Teaching and Learning provides additional, detailed information on using social media in teaching and learning.

E-learning software offers ready-made solutions to strategically design online courses and allow learners to procure them from anywhere. Such creative tools come loaded with all set of key features to accommodate a learner and a tutor on the same platform. One can also call them content management systems (CMS) with ancillary features to facilitate online teaching and learning.

What makes a good e-learning platform?

It is not easy to keep learners interested and proactively engaged in a learning process. To achieve the same, e-learning platforms must comply with some fundamental requirements to deliver an exceptionally interactive content.

They must also support smarter applications of innovative concepts like micro learning (in independent modules) to make the information more interactive.

With this in mind, active presence of following abilities is imperative for a capable e-learning platform:

- Design courses and activities on the platform with students as their focal point.
- Provide syllabus and course summary to show the big picture.
- Create lectures; add videos, audio, and PDF to fulfill course requirements.
- Include forms for formal and informal conversations.
- Submit individual and group feedback about courses and teachers.
- Set different prices for separate courses.
- Set coupon codes to offer discounts on the courses.
- Scale to accommodate evolving requirements of e-learning process.

6 tools to create great e-learning interactive content

Here's a list of six authoring tools that can develop e-learning modules and online teaching platforms of your own. Please note that the following tools necessarily provide one or all of the above-mentioned features:

1. Elucidat

Elucidat is an eLearning content authoring tool with prominent features like custom theming, ready-made templates, and other viable options for collaboration.

Eliminating the chief drawbacks of a flash-based software, it reliably uses HTML5 to make the contents load faster on computers, tablets and smartphones. It is positively a robust authoring tool for instantly starting an online learning platform with intuitive abilities.

Features that stand out:

- **Collaboration Tools:** Provides built-in features to submit feedback and communicate with other members on the platform.
- **Quick Deployment:** Using SCORM, MOOC and Tin Can, you can quickly publish your e-learning courses or export them to your existing learning management system (LMS).
- **Analytics:** Built-in analytics to track learners' progress, and get an insight into the course efficacy.

2. Adobe Captivate

Adobe Captivate represents a smart tool for designing mobile responsive e-learning platforms. With all files ideally located on the cloud, team members can give feedback and promptly make edits in the real-time. Captivate is very frequent in terms of official upgrades and enhancements as well.

Features that stand out:

- **Adobe Captivate Draft:** Provides a free iPad app that allows transformation of storyboards into interactive online courses. The app delivers numerous exclusive features like scenario branching, quiz slides and other multimedia tools.
- **Multimedia Integration:** Adobe Captivate in-houses an array of multimedia tools like HD screen recording, screen-casting, and audio synchronization.
- **Branch-Aware Quizzing:** This feature allows the platform to conduct assessment quizzes as soon as a learner completes a module.
- **Geo-Location Support**: Utilizes geolocation tracking to provide personalized courses and course materials according to the learner's location.

3. PinLearn

Pinlearn is an e-learning authoring tool with high scalability and greater flexibility. It can plot an effortless way towards a ready-to-launch EdTech platform, that too without coding.

The software is best suited for all those ambitious entrepreneurs who want to launch an online learning platform like Udemy and Coursera, but cannot code one.

Features that stand out:

- **Mobile friendly:** Comes with a complete package of apps for Android and iOS.
- **Tutor dashboard and analytics: D**ynamic admin panel capable of designing, running, and tracking courses using built-in analytics and SEO features.
- **Multiple payment gateways:** Comes integrated with multiple payment gateways for paying after enrolling to the courses.
- **Extensive Course Management:** Extensive features to create courses, add course goal, create text and video lectures. One can also add audio, PDF, and course summary.
- **Submit a review:** Learners can give ratings and submit reviews about the learning process.
- **Coupon Management for discounts:** Gives flexibility to launch marketing campaigns by offering discount coupons to the learners.

4. Articulate Storyline:

Articulate Storyline offers a Windows-based application that is extremely similar to that of Microsoft's PowerPoint. It requires you to obtain some necessary skills and competencies to author a highly tailored and engaging course content.

Nevertheless, by doing so, it additionally provides an absolute control over the theming of your pages and slides. In spite of being a little tricky, Articulate presents a remarkably flexible architecture in uniquely adapting to branding and customization needs.

Standing out features:

- **Video Encoding:** Allows video without compression for uploading even the high-quality video files.
- **Auto recovery:** In case you face a system-crash, the auto recovery would retrieve the unsaved work instantly.
- **Dockable panes and windows:** This feature allows an instant utilization of multiple monitors while working. You can see your stage on one monitor while working with other tools on extra monitor.

- **Text Formatting and Control:** Provides better control over the text formatting by adding native storyline text to the buttons and labels.

5. Gomo

Gomo is a cloud-based e-learning authoring tool that can construct and host online learning platforms with absolute ease. Embedment of HTML5 facilitates seamless browsing of courses on any device, screen size, or orientation.

Gomo also empowers you to efficiently create, repurpose and track video contents using built-in features like screen capture, auto-captions and direct auto-translation.

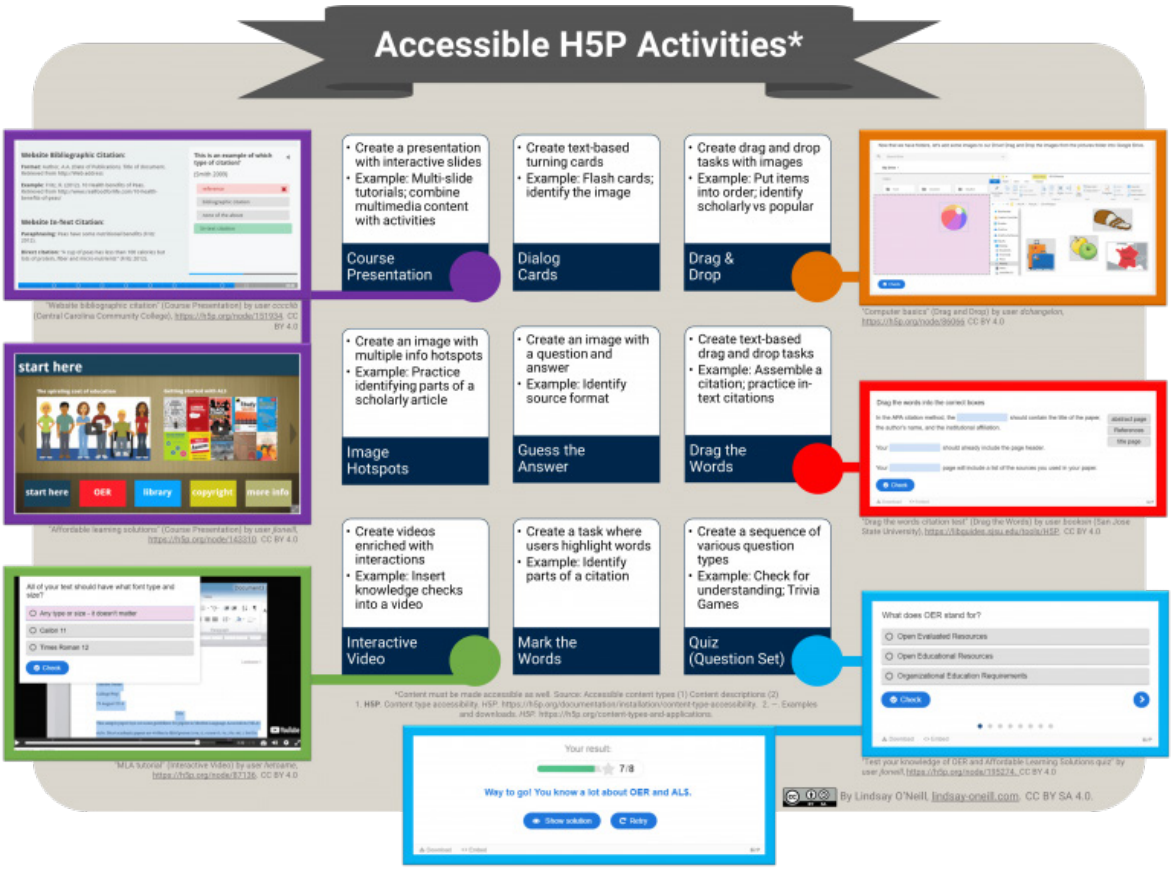
Standing out features:

- **PowerPoint Conversion:** Provides easy options for exporting and converting the courses into PowerPoint presentations.
- **Test / Quiz Creation:** You can create tests and quizzes to assess a learner›s growth during the course duration.
- **Embedded Multimedia tools:** Built-in tools for multi-media operations like importing animation, images and audio files. Moreover, advance operations like voice-over dubbing, audio and image editing are also possible.
- **Mobile friendly courses:** Courses designed on Gomo possess higher adaptability on mobile devices due to HTML 5 UI.

6. H5P

This is an HTML5-based interactive video content type allowing users to add multiple choice and fill in the blank questions, pop-up text and other types of interactions to their videos using only a web browser. Make your videos more engaging with H5P and interactive video in publishing systems like Canvas, Brightspace, Blackboard, Moodle and WordPress.

Videos may be enriched with interactivities like explanations, extra pictures, tables, Fill in the Blank and multiple choice questions. Quiz questions support adaptivity, meaning that you can jump to another part of the video based on the user's input. Interactive summaries can be added at the end of the video. Interactive videos are created and edited using the H5P authoring tool in a standard web browser. Learn how to create Interactive videos in this tutorial.



Who should use these tools?

1. If you are an education institution or an entrepreneur, you can implement these tools to start your own online teaching platform and invite other tutors and students to profit from it.

2. If you are alecturer, teacher or tutor, you can score some good earning by designing your own courses, rather than giving up commissions to the third-party platforms.

Gone are the days when only a tech-savvy person could think of launching an online business. For instance, now, one does not need to be a coder to develop an online learning platform of his/her own.

The turnkey solutions like e-learning authoring tools have come as swifter and economical options, as weighed with coding one from the scratch.

You can enjoy focusing on the business growth while wisely leaving the coding part to the people who are experts in it.

Note that good tools are LTI compliant.

Learning Tools Interoperability (LTI) is a standard that allows a sort of "plug-and-play" integration of learning tools with learning management systems. It provides standard ways of launching a 3rd-party learning tool from inside your LMS, providing information to the learning tool about which student from which course is accessing

it, and, where appropriate, allowing the learning tool to send a grade back to your LMS Gradebook.

Some other tools to use

Adaptive mind -https://www.adaptedmind.com/? for interactive mathematics lessons

Zoom.us (Videoconferencing, video capture, and screen capture)

- Pros – integration with Canvas; HD quality video; allows up to 100 simultaneous video participants in normal mode, up to 1000 in webinar mode; full-featured apps for iOS and Android; ability to mix computers, mobile devices, and video conferencing rooms in one meeting; simple recording of sessions; full-featured collaborative whiteboards and screen sharing; breakout rooms.
- Cons – Pro accounts are needed for anything beyond a basic 40 minute meeting room
- Accessibility – still some issues with color contrast and video user interface

DropThought (Instant feedback)

- Pros – Provides an instant feedback platform that allows students to give real-time, anonymous feedback throughout the course on specific items, free, can be inserted as a module element
- Cons – No LTI, Instructor interface is a bit awkward, Drop Thought assigns user id and password which can't be changed.
- Accessibility – Accessible

Voice Thread (Visual presentations with discussion)

- Pros – Create discussions around many kinds of artifacts (videos, images, documents, power points) using audio, video, or text commenting, Canvas integration, flexible commenting options, easy to use, is app
- Cons – difficult to manage in large courses, free at basic level but pro level is needed for many useful tools
- Accessibility – Voice Thread Universal provides an accessible interface through which users with disabilities can view and comment on voice threads. Voice threads cannot be created using the Voice Thread Universal interface.

Piazza (Discussion and problem solving)

- Pros – Wiki-like discussion forum that supports anonymous posts; excellent for STEM discipline problem-solving, lightweight Q&A; code support; equation editor; Canvas integration, free

- Cons – Sometimes students don't understand why they need to go to a different tool for discussion
- **Quizlet** (flash cards)
  - Pros – Make matching-style study aids; easy to make your own or search for pre-existing; integrates with Canvas through the rich text editor; mobile friendly, free basic account
  - Cons – Only one kind of question (presented multiple ways), not accessible
- **VideoAnt** (video annotation)
  - Pros – Free, video annotation, simple interface
  - Cons – No LTI, limited to text annotation, accessibility under determination
- **VideoScribe** (animated presentations)
  - Pros – Easy to build hand-drawn whiteboard-style presentations with voiceover, good sized collection of pre-made assets, relatively inexpensive subscription provides cloud storage to access your work from any computer, has iPad app
  - Cons – No LTI, if you want additional animatable images they must be .svg files (which can be made in Adobe Illustrator which you can download free from IUWare), not free
- **LucidChart** (diagramming/concept mapping)
  - Pros – Powerful cloud-based mindmapping and diagram creation, free educational account, collaborative online creation and editing, free basic account

Cons – No LTI, not accessible for individuals with vision and some motor impairments

Camtasia by Techsmith (Screen capture and video editing tool)

- Pros – Powerful screen capture and editing, educational discount pricing <$200
- Cons – No LTI, interactions like quizzes must use the Camtasia player which is not accessible, no enterprise support, not free to IU

Additional Open digital educational tools for interactive online teaching and learning

- Animoto – Gives students the ability to make a short, 30-second share video of what they learned in a given lesson.
- AnswerGarden – A tool for online brainstorming or polling, educators can use this real-time tool to see student feedback on questions.
- The Answer Pad – Allows teachers to capture data from students using the web or the app and is touted as being ideal for the flipped or blended classroom.
- AudioNote – A combination of a voice recorder and notepad that captures both audio and notes for student collaboration.

- Backchannel Chat – This site offers a teacher-moderated version of Twitter. An extension of the in-the-moment conversation might be to capture the chat, create a tag cloud, and see what surfaces as a focus of the conversation.
- Biblionasium – This online, safe, and simple book network allows teachers to view books students have read (a digital reading log), create reading challenges for students, and track progress. Students also can review and recommend books to their peers on the site.
- Binumi – Powering cloud-based video platforms for the world's most forward-thinking organisations
- BookSnap – While currently this app is only available for iOS, it provides a digital way for learners to interact with text and with other learners.
- Buncee – A creation and presentation tool that helps students and teachers visualize, communicate, and engage with classroom concepts and ideas.
- Chatzy – Use Chatzy to support backchannel conversations in a private setting. These live chats make great companions to classroom discussion, provide exit tickets, or keep a discussion going after the class is over.
- ClassKick – This app allows teachers to post assignments for students, so both the teacher and peers can provide feedback on the assignment. Students can monitor their progress and work.
- ClassPulse – A mobile and web app that increases student engagement outside of the classroom by creating a more collaborative environment.
- ClassVR – Virtual environment for primary school students
- Coggle – A mind-mapping tool designed to understand student thinking.
- Conceptboard – This software facilitates team collaboration in a visual format– similar to mind-mapping, but using visual and textual inputs. Compatible on tablets and PCs, Conceptboard can work from multiple devices.
- Crowdsignal – Quick and easy way to create online polls, quizzes, and questions. Students can use smartphones, tablets, and computers to provide their answers, and information can be culled for reports.
- Dotstorming – A whiteboard app that allows digital sticky notes to be posted and voted on. This tool is best for generating class discussion and brainstorming on different topics and questions.
- Educreations Interactive Whiteboard – A whiteboard app that provides students the tool to share understanding and comprehension.
- Edmodo – An interactive learning platform where students and teachers can collaboratively solve questions.
- Edulastic – Allows teachers to create standards-aligned assessments quickly and get instant feedback from students to adjust learning.
- eSurvey Creator – A tool that allows teachers to quickly and easily build

questionnaires and surveys. There is a free option but it's for a limited period of time.

- Expeditions – Google Expeditions is an immersive education app that allows teachers and students to explore the world through over 1000 virtual-reality (VR) and 100 augmented-reality (AR) tours. You can swim with sharks, visit outer space, and more without leaving the classroom.
- Five Card Flickr– Designed to foster visual thinking, this tool uses the tag feature from photos in Flickr.
- Flipgrid – This tool has been recently updated. Students can use 15-second to 5-minute videos to respond to prompts; teachers and peers can provide feedback.
- ForAllRubrics – This software is free for all teachers and allows you to import, create, and score rubrics on your iPad, tablet, or smartphone. You can collect data offline with no internet access, compute scores automatically, and print or save the rubrics as a PDF or spreadsheet.
- Formative – This online, all-student response system provides teachers the opportunity to assign activities to students, receive the results in real time, and then provide immediate feedback to students.
- FreeOnlineSurveys – Allows teachers to create surveys, quizzes, forms, and polls quickly and easily.
- Google Forms – A Google Drive app that allows you to create documents that students can collaborate on in real time using smartphones, tablets, and laptops.
- GoSoapBox – Free for less than 30 students, this all-student response system works with the Bring Your Own Device (BYOD) model, so no charge for a clicker. One of the most intriguing features for me is the Confusion Meter.
- iBrainstorm – An iPad app that allows students to collaborate on projects using a stylus or their finger on screen.
- Kahoot – A game-based classroom response system, where teachers can create quizzes using internet content.
- Kaizena – An online tool for providing students with real-time feedback on their digitally-uploaded work. Teachers can highlight or speak to give verbal feedback and attach teacher-created, reusable resources to student work.
- Lino – A virtual corkboard of sticky notes so students can provide questions or comments on their learning. These can be used like exit tickets or during the course of a lesson.
- Mentimeter – Allows you to use mobile phones or tablets to vote on any question a teacher asks, increasing student engagement.
- Micropoll – A great tool for quickly creating polls and analyzing responses. Polls can be embedded into websites as well.

- Naiku – Teachers can easily and quickly create quizzes that students can answer using their mobile devices. Great for checking for understanding before and after a lesson.
- Nearpod – This tool is nice in that you can not only gather evidence of student learning, like an all-student response system, but you can also create differentiated lessons based on the data you collected. The basic version (30 students or less) is free.
- Newsela – A great collection of online resources and articles.
- Obsurvey – Create surveys, polls, and questionnaires quickly and easily.
- Padlet – Provides an essentially blank canvas for students to create and design collaborative projects. Great for brainstorming.
- Pear Deck – Plan and build interactive presentations that students can participate in via their smart device. Limited free usage, and it offers unique question types.
- Peergrade – A platform that allows teachers to create assignments and upload rubrics. Students upload work and are anonymously assigned peer work to review according the rubric.
- Piazza – A platform that allows teachers to upload lectures, assignments, and homework; pose and respond to student questions; and poll students about class content. This tool is better suited for older students as it mimics post-secondary class instructional formats.
- Pick Me! – An easy to use app for an iPod, iPad, or iPhone that facilitates random student selection. Can be organized by class for convenience.
- Pixton – Free comic storyboard.
- PlayPosit – An interactive video and assessment tool that allows teachers to add formative assessment features (pauses and questions) to survey what students know about the topic. Teachers choose from a library of video content from popular sites such as YouTube, Vimeo, and others.
- Plickers – Allows teachers to collect real-time formative assessment data without the need for student devices. Perfect for the one-device classroom.
- Poll Everywhere – Teachers can create a feedback poll or ask questions. Students respond in various ways, and teachers see the results in real-time. With open-ended questions, you can capture data and spin up tag clouds to aggregate response. There is a limit to the number of users.
- Pollmaker – A popular polling tool that has some unique features, such as allowing multiple answers to one question.
- ProProfs – Build and test knowledge with quick quizzes, polls, and surveys.
- The Queue – Free educational chat tool that mirrors Twitter and allows teachers

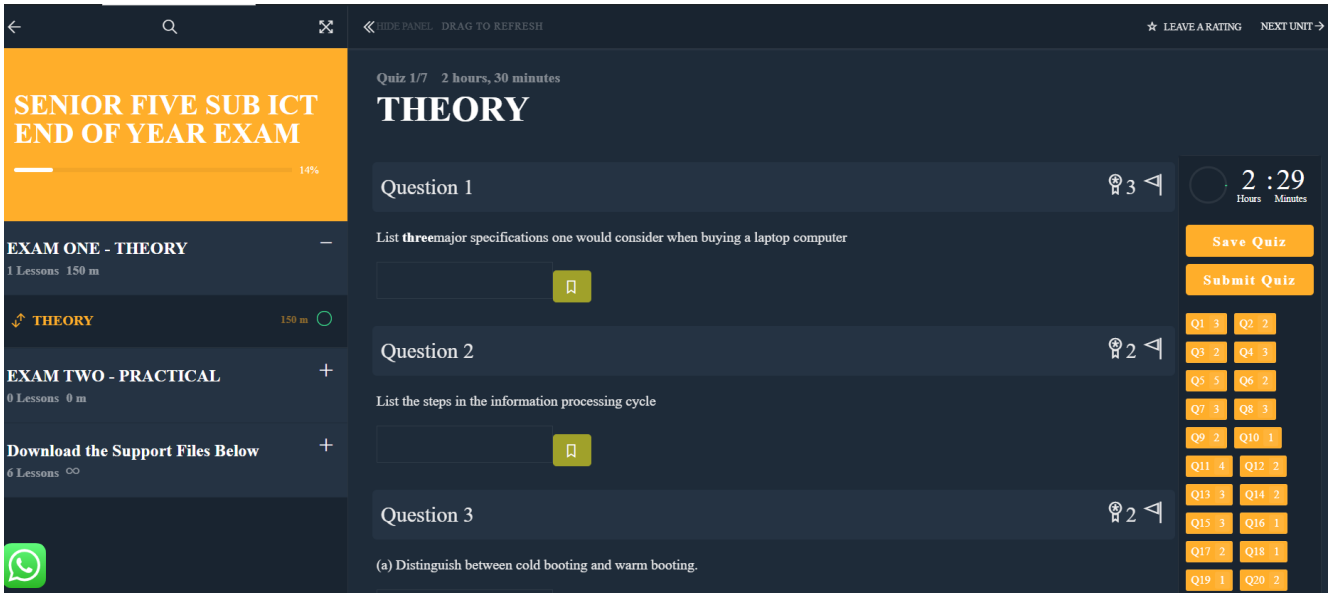
to post questions and students to respond via the thread. Students can respond via text or video, and the tool allows "journeys" in which teachers introduce a topic via video and connect students to participating resources. Great for gathering formative assessment data at the beginning, middle, or end of units.

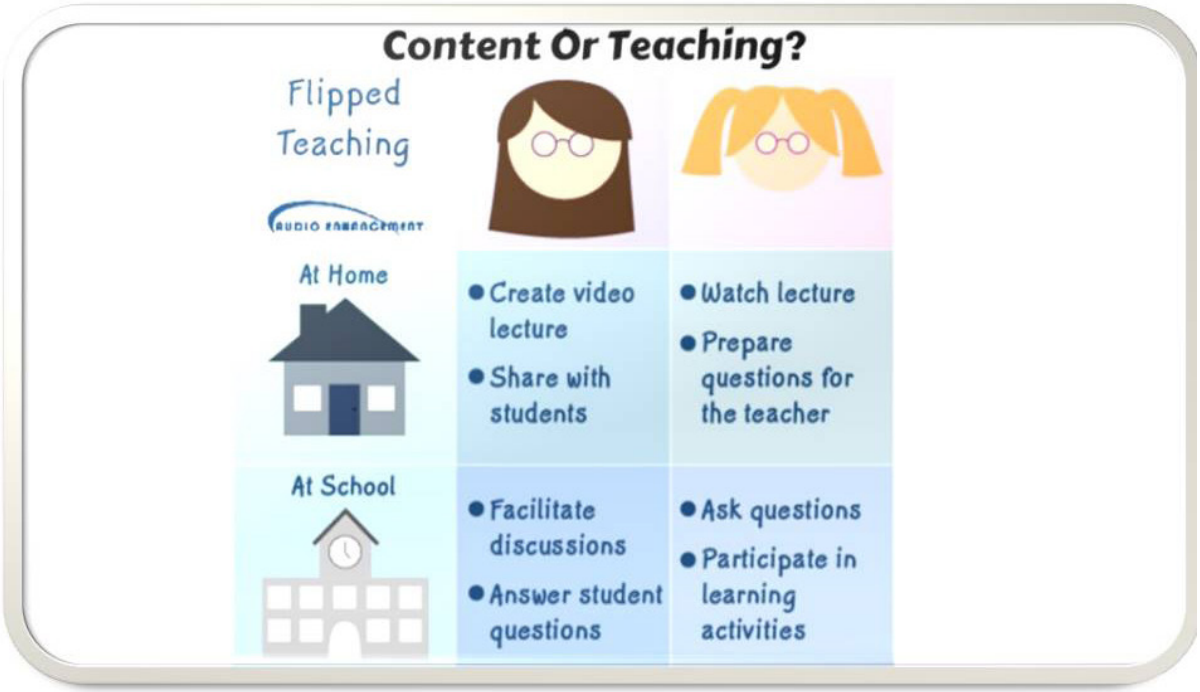
- ThingLink – An interactive panel, where a picture or a video is a canvas with linked hot spots.
- Quia – Teachers can create games, quizzes, surveys, and more, and access a database of existing quizzes from other educators.
- Quick Key Mobile Grading App – Helps teachers with accurate marking, instant grading, and immediate feedback for better student engagement.
- QuickVoice Recorder – Another free voice recording app for the iPhone or iPad that allows you to record classes, discussions, or other project audio files. You can sync your recordings to your computer easily for use in presentations.
- Quizalize – A great tool that allows teachers to easily create quizzes and homework for students. Teachers can then see how the students did and identify areas for improvement.
- Quizlet – Create flashcards, tests, quizzes, and study games that are engaging and accessible online and via a mobile device.
- Quizizz – Interesting assessment forms.
- RabbleBrowser – An iPad app that allows a leader to facilitate a collaborative browsing experience.
- Random Name/Word Picker – This tool allows the teacher to input a class list and facilitates random name picking. You can also add a list of keywords and use the tool to have the class prompt a student to guess the word by providing definitions.
- RealtimeBoard – Teachers can invite students and collaborate with the whole class in real-time.
- Remind – A free tool that allows teachers to text students and stay in touch with parents. A great 'check for understanding' tool that's easy to use.
- Seesaw – This tool helps teachers improve parent communication and makes formative assessment easy, while students can use the platform to document their learning.
- ShowMe Interactive Whiteboard – Another whiteboard tool that students and teachers can use to check understanding.
- Socrative – Exercises and games that engage students using smartphones, laptops, and tablets.
- Sparkpost – This app from Adobe allows teachers to add graphics and visuals to exit tickets.
- Spiral – A quick tool that gives teachers access to formative assessment feedback.

- SurveyMonkey – Teachers can create and deliver online polls and surveys.
- SurveyPlanet – Another survey creation tool that teachers can use to gauge student learning.
- Tagxedo – A tag cloud generator that allows you to examine student consensus and facilitate dialogue.
- Telegami - A mobile app that lets you create and share a quick animated Gami video.
- Triventy – A free quiz game platform that allows teachers to create quizzes students take in real-time. These live quizzes provide teachers with real-time data on student understanding of classroom concepts. Students need individual devices to respond to quiz questions (compatible with mobile devices and laptops).
- Typeform – A poll creation tool that lets teachers add in graphical elements.
- Verso – Described as a feedback tool, this app allows teachers to set up learning using a URL. Space is provided for directions. Students download the app and input their responses to the assignment. They can then post their comments and respond to the comments of others. The teacher can group responses and check engagement levels.
- Visme – Free infographic software.
- Vocaroo – A free service that allows users to create audio recordings without the need for software. You can easily embed the recording into slide shows, presentations, or websites. Great for collaborative group work and presentations.
- VoiceThread – Allows you to create and share conversations on documents, diagrams, videos, pictures, or almost anything. This facilitates collaborative student discussion and work.
- Voxer – Consider using this voice recording tool as a way to let students listen and self assess their ideas and assignments. You can send recordings to parents, so they can hear how their students are doing, let students chat about their work, or provide feedback to students.
- WeVideo – An online video editor.
- Wiser – Interactive blended worksheets.
- Wordables – The Word Cloud Guessing Game. This app allows you to elicit evidence of learning or determine background knowledge about a topic. These word clouds are pictures composed of a cloud of smaller words that form a clue to the topic.
- WordArt – This word cloud generator has an added feature that allows the user to make each word an active link to connect to a website you determine.
- Wordle – Generates tag clouds from any entered text to help aggregate responses and facilitate discussion.

- WordSalad – This app generates word clouds from the text you provide, and they can be exported and shared.
- XMind – A mind-mapping software for use on computers and laptops.
- Yacapaca! – Allows teachers to create and assign quizzes with ease.
- Zoho Survey – Teachers can create surveys that students can access and take using a mobile devices. Teachers can see results in real-time.
- Zotero – A personal research assistant.

Interactive learning elements on www.yaaka.cc





GUIDE TO PRODUCING EFFECTIVE EDUCATIONAL VIDEOS

DP: Guide to producing effective educational videos

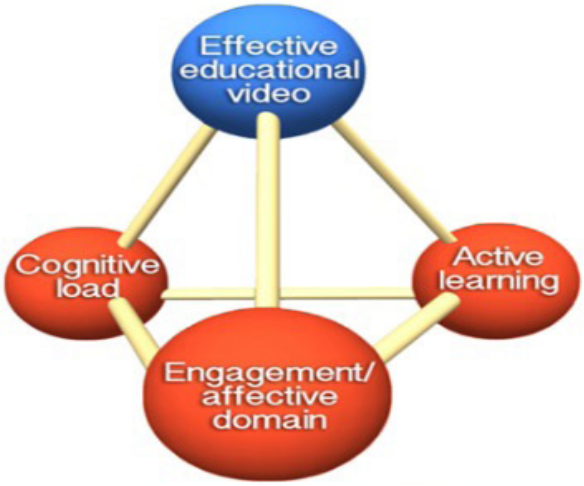
By Cynthia J. Brame, CFT Assistant Director, Vanderbilt University

Cite this guide: Brame, C.J. (2015). Effective educational videos. Retrieved [todaysdate] from http://cft.vanderbilt.edu/guides-sub-pages/effective-educational-videos/.

Video has become an important part of higher education. It is integrated as part of traditional courses, serves as a cornerstone of many blended courses, and is often the main information delivery mechanism in MOOCs.

Several meta-analyses have shown that technology can enhance learning (e.g., Schmid et al., 2014), and multiple studies have shown that video, specifically, can be a highly effective educational tool (e.g., Kay, 2012; Allen and Smith, 2012; Lloyd and Robertson, 2012; Rackaway, 2012; Hsin and Cigas, 2013). In order for video to serve as a productive part of a learning experience, however, it is important for the instructor to consider three elements for video design and implementation:

- **Cognitive load**
- **Non-cognitive elements that impact engagement**
- **Features that promote active learning**



Together, these considerations provide a solid base for the development and use of video as an effective educational tool.

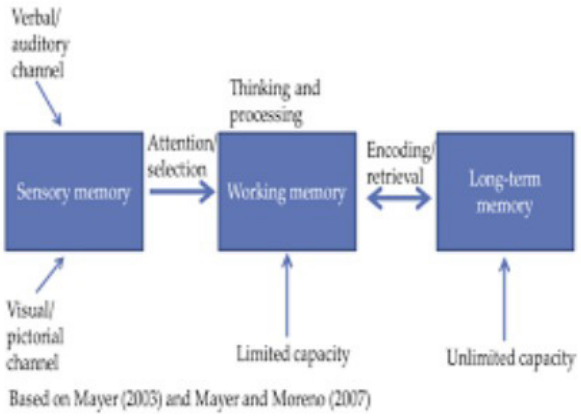
Cognitive load

One of the primary considerations when constructing educational materials, including video, is cognitive load. Cognitive Load Theory, initially articulated by Sweller and colleagues (1988, 1989, 1994), suggests that memory has several components (see the figure).

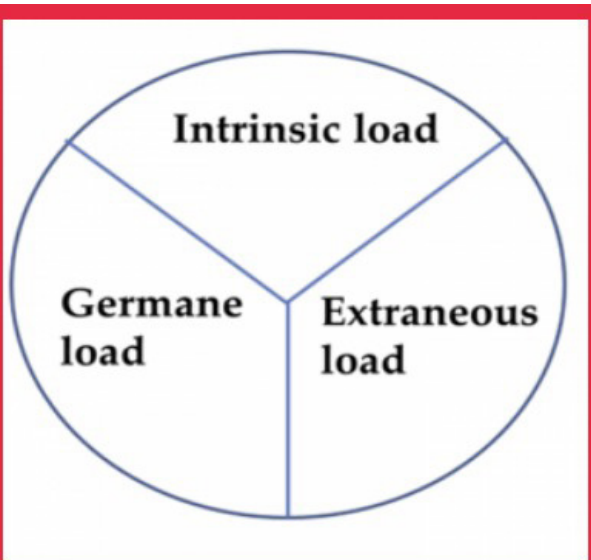
Sensory memory is transient, collecting information from the environment. Information from sensory memory may be selected for temporary storage and processing in working memory which has very limited capacity.

This processing is a prerequisite for encoding into long-term memory, which has virtually unlimited capacity.

Because working memory is very limited, the learner must be selective about what information from sensory memory to pay attention to during the learning process, an observation that has important implications for creating educational materials.



Based on Mayer (2003) and Mayer and Moreno (2007)



Based on this model of memory, Cognitive Load Theory suggests that any learning experience has three components (see the figure). The first of these is intrinsic load, which is inherent to the subject under study and is determined in part by the degrees of connectivity within the subject.

The common example given to illustrate a subject with low intrinsic load is a word pair (e.g., blue = azul), whereas grammar is a subject with a high intrinsic load due to its many levels of connectivity and conditional relationships.

The second component of any learning experience is germane load, which is the level of cognitive activity necessary to reach the desired learning outcome- e.g., to make the comparisons, do the analysis, elucidate the steps necessary to master the lesson.

The ultimate goal of these activities is for the learner to incorporate the subject under study into a schema of richly connected ideas.

The third component of a learning experience is extraneous load, which is cognitive effort that does not help the learner toward the desired learning outcome. It is often characterized as load that arises from a poorly designed lesson (e.g., confusing instructions, extra information), but may also be load that arises due to stereotype threat or imposter syndrome.

These concepts are more fully articulated and to some extent critiqued in an excellent review by de Jong (2010). These definitions have implications for design of educational materials and experiences.

Specifically, instructors should seek to minimize extraneous cognitive load and should consider the intrinsic cognitive load of the subject when constructing learning experiences, carefully structuring them when the material has high intrinsic load.

Because working memory has a limited capacity, and information must be processed by working memory to be encoded in long term memory, it's important to prompt working memory to accept, process, and send to long-term memory only the most crucial information (Ibrahim et al., 2012).

Recommendations

These theories give rise to several recommendations about educational videos. Based on the premise that effective learning experiences minimize extraneous cognitive load, optimize germane cognitive load, and manage intrinsic cognitive lead, four effective practices emerge:

Signaling
Segmenting
Weeding
Matching modality

Signaling, which is also known as cueing (deKoning et al., 2009), is the use of on-screen text or symbols to highlight important information.

For example, signaling may be provided by the appearance of two or three key words (e.g., Mayer and Johnson, 2008; Ibrahim et al., 2012), a change in color or contrast (e.g., deKoning et al., 2009), or a symbol that draws attention to a region of a screen (e.g., an arrow; deKoning et al., 2009).

By highlighting the key information, it helps direct learner attention, thus targeting particular elements of the video for processing in the working memory.

This can reduce *extraneous load* by helping novice learners with the task of determining which elements within a complex tool are important, and it can also increase *germane load* by emphasizing the *organization* of and *connections* within the information.

Mayer and Moreno (2003) and deKoning et al. (2009) have shown that this approach improves students ability to *retain* and *transfer* new knowledge from animations, and Ibrahim et al. (2012) have shown that these effects extend to video.

Segmenting is the chunking of information to allow learners to engage with small pieces of new information as well as to give them control over the flow of new information.

As such, it manages intrinsic load and can also increase germane load by emphasizing the structure of the information. Segmenting can be accomplished both by making shorter videos and by including "click forward" pauses within a video, such as using YouTube Annotate or HapYak to provide students with a question and prompting them to click forward after completion.

Both types of segmenting have been shown to be important for student engagement with videos (Guo et al., 2014; Zhang et al., 2005), and learning from video (Ibrahim 2012; Zhang et al., 2006).

Weeding is the elimination of interesting but extraneous information from the video, that is, information that does not contribute to the learning goal.

For example, music, complex backgrounds, or extra features within an animation require the learner to judge whether he should be paying attention to them, which increases extraneous load and can reduce learning. Importantly, information that increases extraneous load changes as the learner moves from novice toward expert status.

That is, information that may be extraneous for a novice learner may actually be helpful for a more expert-like learner, while information that is essential for a novice may serve as an already-known distraction for an expert.

Thus, it's important that the instructor consider her learners when weeding educational videos, including information that is necessary for their processing but eliminating information that they don't need to reach the learning goal and that may overload their working memory. Ibrahim (2012) has shown that this treatment can improve retention and transfer of new information from video.

Matching modality is the process of using both the audio/verbal channel and the visual/pictorial channel to convey new information, fitting the particular type of information to the most appropriate channel.

For example, showing an animation of a process on screen while narrating it uses both channels to elucidate the process, thus giving the learner dual and complementary streams of information to highlight features that should be processed in working memory.

In contrast, showing the animation while also showing printed text uses only the visual channel and thus overloads this channel and impedes learning (Mayer and Moreno, 2003).

In another example, using a "talking head" video to explain a complex process makes productive use only of the verbal channel (because watching the speaker does not convey additional information), whereas a Khan-style tutorial that provides symbolic sketches to illustrate the verbal explanation uses both channels to give complementary information.

Using both channels to convey appropriate and complementary information has been shown to increase students' retention and ability to transfer information (Mayer and Moreno, 2003) and to increase student engagement with videos (Thomson et al., 2014; Guo et al., 2014).

The table below gives a brief summary of how and why to use these practices.

Process	Effect on cognitive load	Examples
Signaling: Highlighting important information	Can reduce extraneous load Can enhance germane load	Keywords on screen highlighting important elements Changes in color or contrast to emphasize organization of information Changes in color or contrast to emphasize relationships within information Brief out-of-video text explaining purpose and context for video (e.g., learning objective for video)
Segmenting: Chunking the information	Manages intrinsic load Can enhance germane load	Short videos (6 minutes or less) Chapters or click-forward questions within videos
Weeding: Eliminating extraneous information	Reduces extraneous load	Eliminating music Eliminating complex backgrounds
Matching modality: Using the auditory and visual channels to convey complementary information	Can enhance germane load	Khan-style tutorial videos that illustrate and explain phenomena Narrated animations

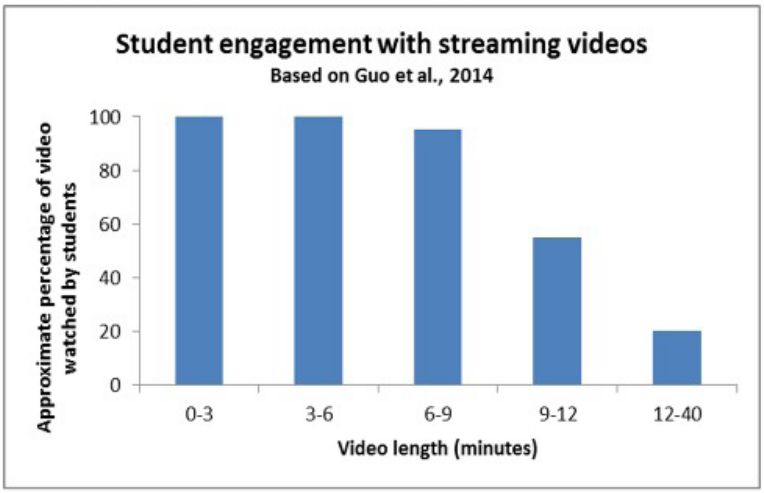
Student engagement

One of the most important aspects of creating educational videos is to include elements that help promote student engagement. If students don't watch the videos, they can't learn from them.

Lessons on promoting student engagement derive from earlier research on multimedia instruction as well as more recent work on videos used within MOOCs.

Keep it short. Guo and colleagues examined the length of time students watched streaming videos within four edX MOOCs, analyzing results from 6.9 million video watching sessions (2014).

They observed that the median engagement time for videos less than six minutes long was close to 100%–that is, students tended to watch the whole video (although there are significant outliers; see the paper for more complete information).



As videos lengthened, however, student engagement dropped off, such that the median engagement time with 9-12 minute videos was ~50% and the median engagement time with 12-40 minute videos was ~20%. In fact, the maximum median engagement time for a video *of any length* was six minutes. Making videos longer than 6-9 minutes is therefore likely to be wasted effort.

Active learning

To help students get the most out of an educational video, it's important to provide tools to help them process the information and to monitor their own understanding. There are multiple ways to do this effectively.

- **Use guiding questions**. Lawson and colleagues examined the impact of guiding questions on students' learning from a video about social psychology in an introductory psychology class (2006). Building on work from Kreiner (1997), they had students in some sections of the course watch the video with no special instructions, while students in other sections of the course were provided with eight guiding questions to consider while watching. The students who answered the guiding questions while watching the video scored significantly higher on a later test.
-

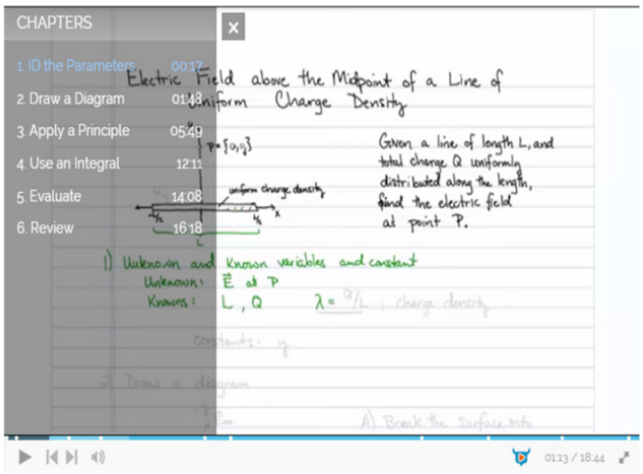
Use a conversational style. Called the personalization principle by Richard Meyer, the use of conversational rather than formal language during multimedia instruction has been shown to have a large effect on students' learning, perhaps because a conversational style encourages students to develop sense of social partnership with the narrator that leads to greater engagement and effort (Meyer, 2008).

Speak relatively quickly and with enthusiasm. In their study examining student engagement with MOOC videos, Guo and colleagues observed that student engagement was dependent on the narrator's speaking rate, with student engagement increasing as speaking rate increased (2014). It can be tempting for video narrators to speak slowly to help ensure that students grasp important ideas, but including in-video questions , "chapters", and speed control can give students control over this feature—and increasing narrator speed appears to promote student interest.

Make sure the material feels like it is for these students in this class. One of the benefits for instructors in creating educational videos is the ability to reuse them for other classes and other semesters. When reusing videos, it's important to package them with text outside the video to contextualize them for the particular class for which they are being used. Further, it's important to create them for the type of environment in which they will be used. Guo and colleagues examined student engagement with MOOC videos that were created by chopping up videotaped lectures that had been presented in a face-to-face class (Guo et al., 2014). Student engagement was significantly less than when lectures were created with the MOOC environment in mind.

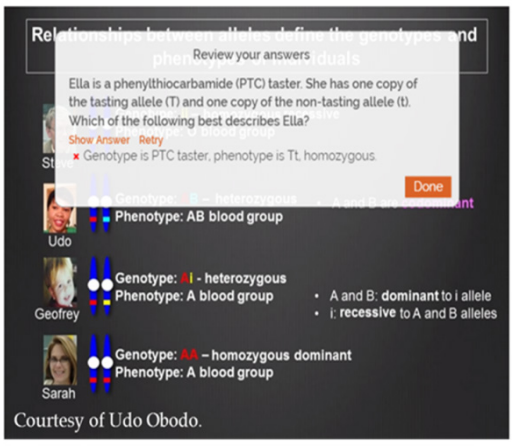
Match modality. While this consideration is important for managing cognitive load, it is also relevant to promoting student engagement. When telling a story, it can be very effective to show the storyteller's face or to show an animation of the story (see Jay Clayton example: https://class.coursera.org/onlinegames-003/lecture). When solving a problem, Khan academy-style videos are particularly helpful, showing students step-by-step with narration how to work through the problem (Guo et al., 2014). When teaching about an invisible phenomenon, it can be helpful to provide an illustration. In each case, providing visual elements that add to the lesson can not only promote student understanding but also engagement with the lesson

Use interactive features that give students control. Zhang and colleagues compared the impact of interactive and non-interactive video on students learning in a computer science course (2006). Students who were able to control movement through the video, selecting important sections to review and moving backwards when desired, demonstrated better achievement of learning outcomes and greater satisfaction. One simple way to achieve this level of interactivity is by using YouTube Annotate, HapYak, or another tool to introduce labeled "chapters" into a video. This not only has the benefit of giving students control, but also can demonstrate the organization, increasing the germane load of the lesson.



Courtesy of Ty McCleery

- **Integrate questions into the video**. Tools like HapYak can allow instructors to incorporate questions directly into video and to give feedback based on student response. Vural compared the effect of video with embedded questions to interactive video without embedded questions in pre-service teachers, finding that the embedded questions improved the students' performance on subsequent quizzes (2013).



Courtesy of Udo Obodo.

- **Make video part of a larger homework assignment**. Faizan Zubair and Mary Keithly are each part of theBOLD Fellows program at Vanderbilt University, in which graduate students develop online learning materials for incorporation into a faculty mentor's course. Faizan developed videos on that were embedded in a larger homework assignment in Paul Laibinis' Chemical Engineering class, and found that students valued the videos and that the videos improved students' understanding of difficult concepts when compared to a semester when the videos were not used in conjunction with the homework. Mary worked with Kathy Friedman to develop videos and follow-up questions to serve as pre-class preparation in a genetics class. Although there was no apparent change to learning outcomes in the class, students valued the videos and post-video questions as learning tools and thought that they were effective for promoting student understanding.

The important thing to keep in mind is that watching a video can be a passive experience, much as reading can be. To make the most of our educational videos, we need to help students do the processing and self-evaluation that will lead to the learning we want to see. The particular way you do this should be guided by goals of the course and the norms of your discipline.

Summary

Videos can be an effective tool in your teaching tool kit. When incorporating videos into a lesson, it's important to keep in mind the three key components of cognitive load, elements that impact engagement, and elements that promote active learning. Luckily, consideration of these elements converges on a few recommendations:

- Keep videos brief and targeted on learning goals.
- Use audio and visual elements to convey appropriate parts of an explanation; make them complementary rather than redundant.
- Use signaling to highlight important ideas or concepts.
- Use a conversational, enthusiastic style to enhance engagement.
- Embed videos in a context of active learning by using guiding questions, interactive elements, or associated homework assignments.

KEY ISSUES IN DIGITAL PEDAGOGY AND BLENDED LEARNING

Having looked at what digital pedagogy is and ins't, how to implement digital pedagogy and practically exploring a variety of tools to use in digital pedagogy, we need to discuss the key issues to consider in digital pedagogy and blended learning. We present some below.

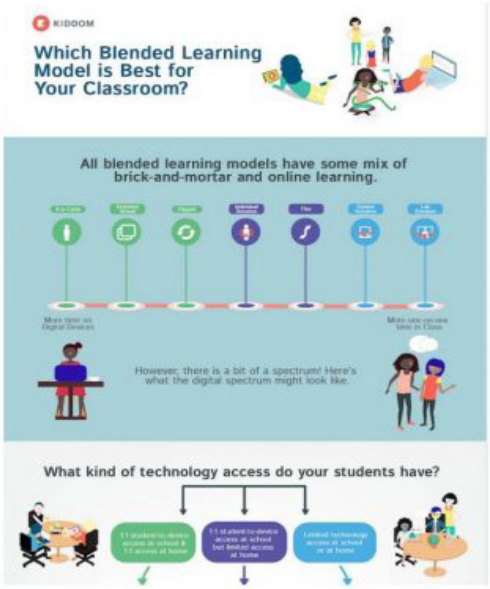
Get the interactive presentation https://prezi.com/i/26ictbb0rrz1/

Beyond the talking

Many governments, education institutions and educators are showing interest in and discussing adoption of digital and blended learning approaches. The issues listed below are some of of what needs to be thought about in relation to effectiveness, efficiency and sustainability

Access

How much access to do your target students have to internet and digital devices? How able are they to access the learning materials and assessments in the format you have provided them" Multimedia content content pages or simple text and image pages for low bandwidth? MP4 or 3gp as well? Interactive video?



What is your role as a teacher

Are you prepared and ready to continue growing the role of the teacher in facilitating learning? Technology is not and cannot replace the teacher who is knowledgeable about utilising ICTs to power their teaching and facilitation more useful learning

Digital Tools

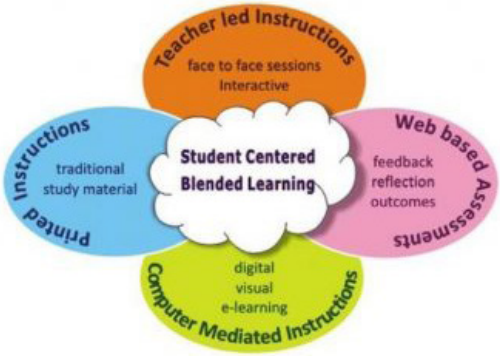
What is your strategy on digital gadgets? Why Desktop Computers, Laptop computers, tablets or phones? Do you buy available gadgets or custom order the learning gadgets from manufacturers?

Which Policy

What are the institutional policies relating to digital teaching and learning? Do you have functional computer laboratories, support for digital content production? Do you focus on labs or require learners to have their own digital devices? How much support is available for professional development of teachers?

Content or Teaching

Taking teaching beyond content delivery: Knowledge and information access is no longer limited to teachers. Technology has revolutionarised content development, access and delivery. Teachers must rethink their value beyond providing content to facilitating learning



Whose content on your device or platform

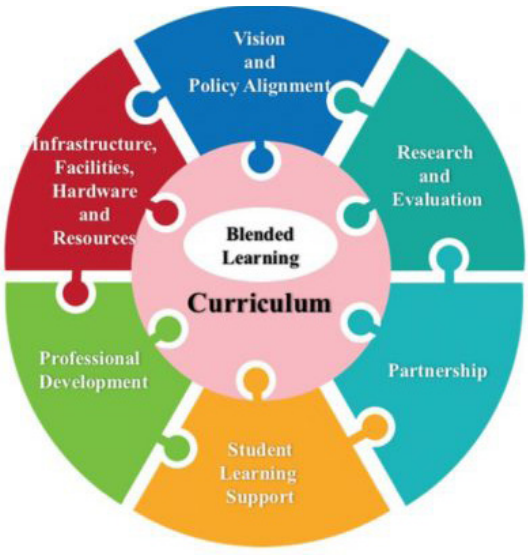
Are you as a teacher creating content or just sharing readily available content by others? How relevant is the content you are offering? Are you offering as is or curating it? Are doing or planning to do your own tutorials? Are your video tutorials of you talking or of the content?

Engaging Learners

The right digital pedagogy is focused on learners. How are you involving and engaging learners in content preparation, delivery and discussion? What kind of learning activities are you using to achieve desired learning outcomes. How are you capturing learner feedback, ensuring continuous interactions between learners and learners as well as learners and teachers?

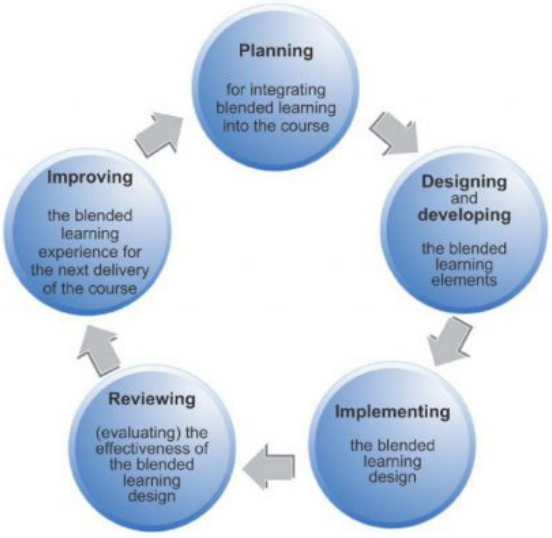
Tracking learners

Are you able to track learners' access to learning content, time spent, activities undertaken or just providing access to content? How are you managing learning, regulating access to content and tracking usage? How are you undertaking learner Evaluation and grading? How are you ensuring transparency of learner participation and achievement?



Driven by who

The right digital pedagogy is focused on learners. How are you involving and engaging learners in content preparation, delivery and discussion? What kind of learning activities are you using to achieve desired learning outcomes. How are you capturing learner feedback, ensuring continuous interactions between learners and learners as well as learners and teachers?



Sustainability

How sustainable is your current digital learning effort? Are you raising revenue or about to? Are you seeking grants or charging learners? What is your monetisation model? Waiting on the government? Waiting on your

Internet Costs

There are arguments that most people in rural area cannot access internet or it is very expensive for them. What is your approach to this? Are you assuming everyone can access internet? Are you waiting for everyone to access internet or starting with those who can?

Issues we need to consider in our Digital Learning and Blended learning strategies[/ caption]

What is Digital pedagogy to you

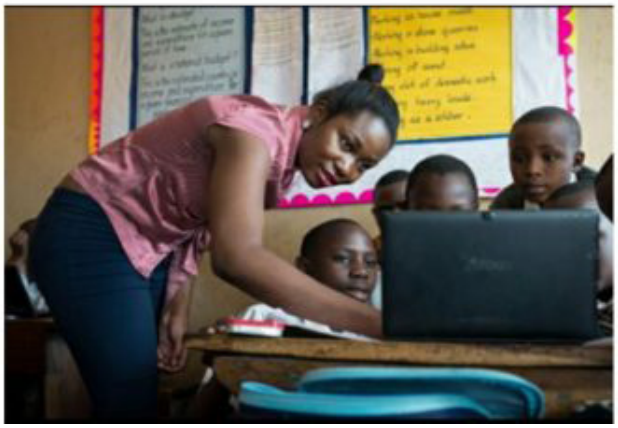
Is it putting videos tutorials on YouTube, notes on website, sending downloads on Google drive, inputting content in Learning Management System? Digital teaching and learning lies in the activities you design to engage learners to display their understanding of content and its application

BLENDED LEARNING

Read more on: Blended Learning: Finding the right learning mix for your organisation t.ly/s4aC

Online?

Is your digital learning accessible online on the web or only to learners emails? How are you enabling anywhere anytime any device access? Do learners only learn from your platform or other platforms and tools as well



Offline?

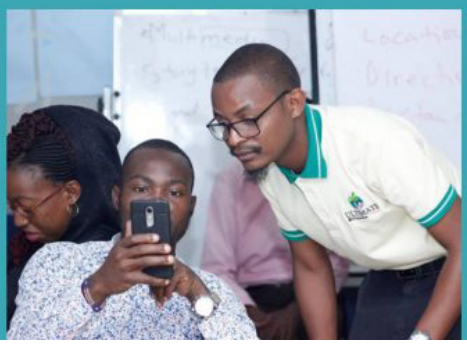
How are you circumventing internet access challenges like availability, reliability and cost? Is you materials available offline? On CDs, DVDs, Memory cards, flash disks, full platform offline or downloadable materials?

Lab based

Is your digital learning focused on teaching and learning in school or computer lab? Howe many computers are there? how well can they handle modern digital learning softewares? how often is the laboratory open? how well or often are computers serviced?

Mobile Device?

Is your digital and blended learning accessible on mobile devices by your learners? Do you allow these mobile devices in your class? How many learners have the devices? How are you tapping the mobiles to increase collaboration and engagement of learners?



Drip Feed

Trainers and education institutions need to decide whether they are availing education content based on drip feed, where learners access the different topic one step at a time as determined by the teacher or institutions. There are some concerned about some learners being ahead of others.

Self paced

OR is the institution going to offer self paced learning where any learner can join and finalise a course at their own time and pace, with custom individual learning paths and grading?

Managing virtual classes

Does you digital training strategy involve live online classes? How are you ensuring as many or all attend? What happens when learners dodge or are unable to attend? Is it possible for learners to access what they missed in the live class or to revise it?

Watch the video below to appreciate more the issues in digital and deep learning

https://tinyurl.com/budpeczr

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What We Know About Educational Technology Effectiveness in Schools

By Mary Burns

Few innovations have generated such excitement and idealism—and such disappointment and cynicism—as information and communication technology in education. The noise around 'educational technology' is as cacophonous and contradictory as ever.

- Four decades after the introduction of computers in schools.
- Three decades after the first 1:1 computing programme was launched in Australia.
- Two decades after the appearance of virtual schools.
- Roughly a decade after the dawn of tablets.
- Now, as parts of the globe tentatively and anxiously emerge from the worst pandemic in over a century.

To wit: Computers are cast as an expensive boondoggle that do nothing to aid learning, yet tablets proliferate across schools in Asia and Sub-Saharan Africa. Online learning promises equity of access to learning for all the world's students, yet during COVID 19, online learning generally benefited the 'easiest to reach'—students from wealthy families and communities in wealthy countries—thus exacerbating educational inequities.

Educational technology can help students improve reading, math, and writing skills, yet it has failed to deliver consistent learning results. 'Successful 'technology interventions often fail to reproduce similar results in different—or even similar—contexts.

Educational Technology Research

The research base has traditionally done little to quiet this clamour. Evidence around the effectiveness of technology for improved learning can be described as falling into one of three categories: *success* (sometimes); *failure* (broadly), or no *significant difference* (generally) (Tamim et al., 2011; Spezia, 2010; McEwan, 2015; Kizilcec et al., 2020; Angrist and Lavy, 2002; Fuchs and Wößmann, 2005; Pedró, 2012; Burns, 2013a).

Competing narratives and inconsistent research findings on educational technology raise genuine concerns, but the picture they paint is incomplete. Amidst the noise around educational technology, the signal has grown stronger over the last few years, and our understanding of technology has begun to come into clearer focus.

This is due to multiple factors:

- The maturation and increased prevalence of educational technology, thus allowing for studies with adequate power and longitudinal data
- The accumulation of years of intensive experiences using a variety of technologies for a variety of educational purposes, thereby contributing to shared and applied knowledge about 'best practices'
- Increasing demands for rigorous, evidence-based research by donors, governments, and educational organisations, culminating in the creation of entities such as the EdTech Hub and the open access Learning Technology Directory by the International Society of Technology in Education.

These developments should continue to paint a fuller picture of the kinds of accommodations and conditions that must be in place for technology's promise and potential to be fulfilled. And they should help to further document technology's diffuse educational benefits as well the many challenges associated with its effective implementation and integration for improved teaching and learning.

What Do We Know?

Here is what we *do* know about educational technology: We know that that in terms of learning, students are more likely to learn with technology than without it, particularly at-risk learners (Tamim et al., 2011; Bebell and Kay, 2010; Silvernail and MLTI Research and Evaluation Team, 2011; Major and Francis, 2020; Darling-Hammond, Zielezinski and Goldman, 2014).

We know that if students in the Global South cannot use technology as frequently and in similar ways as their peers in wealthy countries, they will be left behind in terms of educational and professional opportunities (MasterCard Foundation, 2020).

We know also that technology's problems and successes are rarely due to technology alone—they are more often created by decisions and practices that are political, educational, financial, human, and institutional. Many educational systems attempt to use technology to overcome existing constraints in the education system (De Melo et al., 2014).

Yet we know that technology *ipso facto* cannot fix poor teaching and modernise outdated curricula that emphasise lower order thinking skills and the assessments that measure them.

Educational Technology Can Have Impact

However, technology can be an important component of educational improvement when it is part of a carefully designed and implemented programme of whole system reform (Culp, Honey and Mandinach, 2005). We do know that for many of the world's teachers and students, the lack of access to a cellular network, an internet signal, or a digital device has been tantamount to a lack of access to education.

And we know that technology, because of its ability to scale, can make attainment of Sustainable Development Goal 4 (SDG4)—'ensur(ing) inclusive and equitable quality education and promot(ing) lifelong learning opportunities for all '(United Nations Department of Economic and Social Affairs, 2021)—far more possible than it would be without technology.

As the UNESCO Global Education Monitoring Report Think Piece will repeatedly emphasise, educational technology is a highly complex intervention. As such, more than many interventions, it demands much from the education systems that seek to deploy it:

- It demands access to infrastructure, including sufficient electrical voltage; telecommunications infrastructure; secure spaces; and functioning, reliable equipment.
- It demands that government policymakers understand the affordances and challenges associated with educational technology and the array of inputs that must be in place, so they treat technology as a support, not as a saviour or as a silver bullet.
- It requires that policymakers and decisionmakers be as savvy as the educational technology companies pushing their digital 'solutions' to educational problems, lest they waste limited financial resources that could otherwise be better invested in different interventions.
- It requires teachers who understand the conceptual underpinnings of a piece of software and know how to use, design for, and teach through and with a variety of technologies, as well as have the skills to change dominant instructional paradigms to capitalise on the benefits of technology for instruction and assessment.
- It calls for students who have the literacies, habits of mind, and behaviours to be successful participants in their own technology-based learning experiences.

Given that technology is such a highly complex intervention, the research issues around technology are also complex. Education systems are noisy. As an example, even for educational interventions in the Global South that do not involve technology, effect sizes for changes in learning generally tend to be small to moderate (Evans and Yuan, 2020).

Despite this, and despite its ubiquity, complexity, utility, and heterogeneity, technology's many concrete, non-measurable critical functions have been distilled to one indicator—student learning outcomes as measured on test scores.

Student Test Score Problems

This is problematic for several reasons. Technology has manifold direct and indirect educational and personal benefits that may not lend themselves to empirical measurements, but that makes them no less valuable. The research questions asked about technology may be formulated in ways that fail to consider the complexity and contingencies associated with education and thus may not be answerable (Pedró, 2012).

The diversity of technologies used in a particular setting may make it difficult to attribute specific outcomes to particular interventions, and there may be no normative expectations for improvement over time in student achievement as a result of technology use (Hill et al., 2008).

However, the absence of evidence may not necessarily equal evidence of absence. Focusing on one data point—student test scores—is an insufficient measure of student learning in its fuller sense (E. Morris, personal interview, July, 2021; Spaull and Taylor, 2015). It may not give policymakers and planners the answers they need to make the decisions to drive investment and procurement.

The danger is 'the baby and the bathwater' syndrome—that donors and governments may jettison funding technology in schools, not because of issues with technology *per se*, but because of decades of 'unproductive' attempts to isolate the effects of technology as an independent variable.

Technology is often a Rorschach test for the understanding and misunderstanding, the biases and desires of governments, private enterprise, donor agencies, and the education system itself. Although technology can support instruction, it is not a pedagogy.

And while computer programmes and apps can teach students basic skills such as multiplication tables, they cannot cultivate empathy or kindness in students. No amount of technology in the world can fix curricula that emphasise rote learning.

No amount of technology can compensate for teachers who are poorly prepared, poorly paid, or poorly motivated. Technology cannot improve education on its own, but education cannot be improved without technology.

A lightly edited overview of the UNESCO Global Education Monitoring Report Think Piece by Mary Burns, a senior technology and teacher professional development specialist based at Education Development Center

GETTING ROYALTY FREE MEDIA AND KEY DIGITAL LEARNING RESOURCES

Remember in digital communication we operate with the mindset that there are other knowledgeable and well intentioned people who have produced wonderful useful resources that you can utilise in your digital works.

There are many freely available resources including photos, graphics, audio, video or even templates that you can use in your digital learning provisions.

On most sites like www.youtube.com, www.vimeo.com, www.soundcloud.com or searching generally on Google for media to use, you need to embed the media as is so that it reflects the original owner's location on the web.

In general Google search, you can filter to ensure you get only media that is freely available (royalty free). But not all publishers know how to provide for copyright of their digital content.

Copyright refers to protection granted to authors, artists and other creators for their literary and artistic creations, generally referred to as "works". Unless content on the web indicates it is free for you to use, seek permission from the author.

Types of Rights

- Note that much as a given media can be free, it may have its rights of usage managed (Rights managed)
- **Free to use or share**: Allows you to copy or redistribute a given if the content remains unchanged.
- **Free to use share or modify**: Allows you to copy, modify, or redistribute in ways specified in the license.
- **Commercially**: If you want content for commercial use, be sure to select an option that includes the word "commercially."
- **It's not yours**. Although not all media have been "officially" copyrighted, at creation the work has immediately become copyrighted and the owner is the only person with a legal right to distribute, replicate, or display the work.

The safer practice is embedding directly to their website or url. The best is to use resources well known to provide images sound and videos you can re-use without infringing on copyright like these below:

Tool	URL	QR Code
Unsplash	https://unsplash.com/	
Pexels	https://tinyurl.com/47mm8hk3	
Pixabay	https://pixabay.com/	
Videvo	https://www.videvo.net	
https://www.bensound.com/		
https://tunetank.com/		
https://mixkit.co/free-stock-music/		
https://tinyurl.com/mw8wx276		
https://taketones.com/		
https://www.free-stock-music.com/		
https://tinyurl.com/49vuujm7		
https://freemusicarchive.org/		

Tool	URL	QR Code
https://audiojungle.net/		
https://tinyurl.com/4ppa6k37		
https://www.audiolibrary.com.co/		
https://www.pexels.com/videos/		
https://www.videvo.net/		
https://pixabay.com/videos/		
https://mixkit.co/free-stock-video/		
https://coverr.co/		
https://mazwai.com/		
https://www.videezy.com/		
https://tinyurl.com/mrxmzn6d		

Tool	URL	QR Code
	https://tinyurl.com/bdfc8cac	
	https://tinyurl.com/57kwzwwb	
	https://www.vidsplay.com/	
	https://www.shutterstock.com/video	
	https://www.videezy.com/	
	https://www.lifeofvids.com/	
	https://tinyurl.com/bdeax69x	
	https://tinyurl.com/545s5euk	
	https://dareful.com/	

You can browse the following at your own time as our key learning resources (references) for this course https://tinyurl.com/3y8t872f

https://tinyurl.com/y965c7t8	
https://tinyurl.com/3bvdnpma	
MERLOT https://tinyurl.com/kcshba63	
MIT https://ocw.mit.edu/	
BC Open Textbooks https://tinyurl.com/n62k4erd	
Open Learn https://www.open.edu/openlearn/	
Learning canvas https://tinyurl.com/mwhvsnnu	
UNESCO digital pedagogies for a better world https://tinyurl.com/mwhvsnnu	
Five Steps to creating an educational channel on Youtube https://tinyurl.com/38x3bpth	
Moodle LMS https://www.moodle.org	
Moodle LMS https://www.moodle.com/lms	
Code of conduct for online teachers and learners https://tinyurl.com/2r4yabsw	

DIGITAL LEARNING ASSIGNMENTS

One of the key issues in digital learning is how to assess learning when engaging blended learning or purely online learning. Assessment can be for individual learners in terms of measuring whether they are achieving learning outcomes as per course outline, or generally for a whole school or district on whether there are improved learning outcomes as a result of engaging digital media tools, platforms and practices. For most digital learning assessments at different levels, assignments have been found to be the most appropriate form of assessment.

Digital media assignments provide students an opportunity to demonstrate their learning of course content through the creation of multimedia learning objects using such formats as video, audio, still images and text. Assignments include the creation of short video documentaries, digital stories, audio and enhanced podcasts, digital essays, and other types of multimedia presentations. Students present their ideas for peer and/or instructor critique, research and integrate primary and secondary resources, reflect upon and communicate their perspective on what they have learned, and use the appropriate tools to structure their assignments.

EXAMPLES OF DIGITAL MEDIA ASSIGNMENTS

VIDEOS ON ENVIRONMENTAL ISSUES AND SUSTAINABILITY – THOMAS EGGERT

Thomas Eggert is a Senior Lecturer in the School of Business and the Environmental Assistance Coordinator for the Wisconsin Department of Natural Resources. He had his students teach middle school classes about environmental issues and sustainability, first without the use of digital media, and then incorporating videos into the class. This assignment was valuable to his students both technically and substantively. Technically, students needed to develop the skills necessary to record and edit the video. Additionally, they needed to learn how to develop a story that was both entertaining and educational. Substantively, students needed to understand their content well and learn how to communicate it effectively to reach their intended audience. His students enjoyed creating digital media assignments and thought it was an effective way to teach middle school students.

ONLINE MAGAZINE – KATHLEEN CULVER

Kathleen Culver is an Assistant Professor in Journalism and Mass Communication. Her class of 20 undergraduates spent a semester working in teams to create an online magazine called Curb (www.curbonline.com). The magazine featured various sources of digital media that included audio, video, slideshows, and timelines. While her students mainly pursue careers in professional communication, she felt the skills and satisfaction they received from these types of assignments were invaluable. Working with digital media assignments helped students become adaptable and analytical.

Having these skills can help lawyers as much as it can help journalists. Through her experience, Culver found that lessons in new tools helped foster students' creativity when using traditional tools. These skills were transferable with other assignments, such as writing research papers, and traditional skills were transferable with digital media assignments.

METHODS OF GOOD PRACTICE

The resulting methods of good practice can help in the planning and integration of digital media assignments in a course.

Assign students to work on projects in small groups to promote studentto-student interaction and to build collaboration skills.

Provide training and support resources to help students learn new multimedia tools and software. Ensure these resources are available to students at the time of greatest need during the development process.

Educate students about the resources and methods for acquiring digital assets, as well as the ethical and legal issues related to using these materials in their projects.

Address a real problem to increase motivation and to provide students with the opportunity to share their projects with an audience outside the course to obtain authentic feedback (rather than a strictly classroom audience).

Additionally, the following points should be considered before starting a digital media assignment.

Meet with a learning technology consultant early in the design process for the assignment.

Study different examples of digital media assignments to understand and recognize the ways in which others have presented information in a multimodal format.

Develop a digital media assignment before assigning one to students. This will help identify the knowledge and skills students will demonstrate through their digital media assignment.

Identify and recommend specific technologies students should use for their assignment.

When selecting technologies, build on technologies that are familiar to students.

Remember that students can overestimate their technical abilities. Help them assess their level of expertise with the technologies being used.

Identify campus digital media equipment checkout, support, and training resources for students.

Develop and share the rubric to be used to evaluate their digital media assignment.

Help students understand the amount of time required to complete a digital media assignment.

Implement check-in phases of a project to guide students through a thoughtful process (i.e., storyboarding, script writing, rough draft, critique and feedback, and final due date).

Provide students with small, low-risk activities prior to giving them an official digital media assignment to give them an opportunity to practice and develop communication and media literacy skills.

Provide in-class time for students to work on their digital media assignment.

ROAD MAP TO SUCCESS

The following framework helps consultants and instructors think broadly about the assignment objectives and address important pedagogical issues such as:

integrating research into the assignment;
scheduling time with subject librarians or technology trainers; and
teaching critical legal issues such as copyright and sharing one's work with the public.
Use the following checklist to keep projects and consultations on track.

RE:SEARCH

Students seek primary and secondary sources.
Students collect and create appropriate digital assets for the assignment.
Students integrate information from the course.
Students and instructors have opportunities to work with library staff.

RE:FLECT

Students integrate course work with challenging problems that extend beyond the classroom.

Students communicate their ideas, perspectives, and emotions in creative ways.

Students articulate what they are learning using media. Re:construct

Students and instructors develop a process for planning, producing, revising, and delivering a media assignment.

Students integrate various forms of media and apply a range of skills to demonstrate their learning. · Students build new knowledge and understanding of the course content.

RE:VIEW

Instructor creates criteria to assess the media assignment.

Students go through an iterative process to develop their assignment.

Students receive feedback from the instructor and/or other students in the course.

Students learn to critique in a constructive manner.

RE:LEASE

Students share their work for public viewing and reuse.

Students get Creative Commons license for their work.

Students and instructors improve their understanding of copyright issues.

GRADING DIGITAL MEDIA ASSIGNMENTS

Digital media assignments can be challenging to assess, especially if students are working in a group. The following is a list of suggestions to consider in the development of a grading rubric.

Identify key course learning objectives, learning outcomes, and skills that are developed through the digital media assignment.

If applicable, determine whether students will receive a group grade, individual grades, or a combination of the two.

Solicit feedback from students on how the assignment should be graded.

Consider ways to assess projects on the following: clarity of ideas and details, overall organization, effective use of language, voice and audience, and technical competence.

Identify logical phases for the development of the assignment (i.e., storyboarding, script writing, rough draft, critique and feedback, and final due date).

Provide and/or facilitate feedback sessions for projects at each phase of the assignment.

Evaluate the quality of the resulting media by reviewing items such as length, pacing, appropriate use of visual and/or aural transitions, clean edits, and video quality.

Consider the use of journals and team feedback for student reflection on the assignment to assess the collaborative creative process.

Grade the process used in the creation of the digital media assignment, as well as the product itself.

DIGITAL SECURITY & SAFETY FOR LEARNERS ONLINE

By encouraging digital learning and pushing for its benefits, we inevitably attract some of the ills associated with interacting on the internet and being interconnected globally. Being "always on" can be great, as it can help young people learn and connect with others more easily than you ever did as a child. However, like any communication tool, it does have its downsides. All adults in a child's life have the responsibility to teach them about internet safety. As their teacher, though, you're in a unique position to help them. Here's a guide by Mary Walton on how you can teach kids about using the internet more safely.

CREATE A SCHOOL POLICY, AND HAVE STUDENTS SIGN IT

The first thing you'll need to do is create a school policy about internet usage. Lay everything out in clear, easy-to-understand terms. Describe how you expect the students to use the internet, what they should avoid and how they should communicate with others online. Then, share this policy with students and require them to sign in before using IT facilities at school. Having a policy will help pupils understand how seriously they should be taking their online safety.

TEACH STUDENTS ABOUT ONLINE PRIVACY

Kids these days often know better than to share passwords or their addresses online; however, there are new threats that they may not understand. Take the time to have a conversation with your students about how their favorite sites and apps store their information. Do they know that Snapchat, for example, keeps messages on a server for 30 days?

CREATE AN EFFECTIVE CYBERBULLYING REPORTING SYSTEM

"Cyberbullying is a common problem that nearly every school is dealing with," says educational expert Janet Moran from Elite Assignment Help. "You need to be able to support your students when it happens and educate them on the correct way to use the internet. Create a good reporting system that both students and parents can use to report cyberbullying, and follow through on any reports that you get."

GET STUDENTS INVOLVED

When you're creating new technology usage guidelines or introducing new hardware or software, ask students for their input. They're much more likely to work with you if they feel as though have some ownership of the process. They can also inform you of devices, apps and programs that you may not have known about.

KEEP UP WITH TECHNOLOGY

Teens often turn to their friends for advice online because they may feel more comfortable talking to peers or think their parents and other adults are unaware of the

current technology landscape. Keep yourself up to date about online developments, and make sure that students can come to you about any concerns they have. The more you know, the more you can help.

PROVIDE RESOURCES TO STUDENTS

There's lots of educational services out there, but not all of them are trustworthy. Research educational resources before recommending or using them to make sure others have had a positive experience from a security, online safety and privacy perspective.

KNOW THE LAWS ON SEXTING

Sexting (sharing sexually explicit messages) has become a real problem, and there have been many instances in which private photos and messages have been shared more publicly than the senders had originally intended. Look into the laws on sexting, and ensure the whole school staff know what to do if they discover evidence of it in your school. Then, talk openly and honestly with students and parents about it. Give the students the information on the law, and ask their parents to discuss with them. Teens are much less likely to engage in risky behavior if their parents are open with them.

BLOCKING SITES WON'T FIX EVERYTHING

It's a good idea to block risky sites at school, but that won't stop students trying to access them. Talk about why the sites being blocked, and educate the students on better ways to use the internet. The more knowledge they have, the less vulnerable to risk they'll be.

These tips will help you keep your students safe and educate them about how to use the internet. Put them to use and keep your school safer online.

Internet Safety

The internet is a valuable tool. Unfortunately, predators, identity thieves, and other bad actors online may try to cause harm. In order to be safe online, it is important to be aware of potential hazards.

Resources for teachers and parents/guardians:

Personal Safety

Cyber Safety by InformED is a kid-friendly, interactive guide to staying safe on the Internet that addresses common pitfalls. https://tinyurl.com/2p8rbe5t

Stay Safe Online from the National Cyber Security Alliance contains information on staying safe online, online safety basics, theft, fraud, and cybercrime, key accounts and devices, and managing your privacy. https://tinyurl.com/2z4nfmbe

Common Sense Media's Privacy and Internet Safety resources for parents/guardians includes articles and topics organized by their child's age. https://tinyurl.com/2wtw76sa

OnGuardOnline from the Federal Trade Commission has online security tips and resources https://tinyurl.com/w4u6a25b

Internet Safety for Kids from GCFGlobal has tips and strategies to keep kids safe from hackers, predators, and cyberbullies https://tinyurl.com/46r8a8rf

Responsible Internet Use

Google Digital Literacy and Citizenship Curriculum with iKeepSafe is an interactive, discussion filled curriculum that educators can use in the classroom to teach what it means to be a responsible digital citizen https://tinyurl.com/26f97mn4

How To Be A Good Digital Parent by Family Online Safety Institute is a comprehensive toolkit designed to teach parents and other caregivers to confidently navigate the web with their kids https://tinyurl.com/3hzdasvh

Online Safety by Microsoft has information and tips about internet safety and work to prevent and combat online bullying and harassment

InCtrl by TeachInCtrl is a series of free standards-based lessons that teach key digital citizenship concepts for students in 4th-8th grade.

Be Internet Awesome by Google is an online Safety curriculum that teaches kids the fundamentals of digital citizenship and safety through an online adventure called Interland

Digital Citizenship Curriculum by Common Sense Education has K-12 interactive lessons and activities to address timely topics and prepare students to take ownership of their digital lives.

Personal safety for young learners

Safe Online Surfing from the FBI is a fun, informative program that educates students in third to eighteen grade on the essentials of online security https://sos.fbi.gov/en/

Faux Paw the Techno Cat by iKeepSafe are fun books, e-books, and videos that teach rules to promote the safe and healthy use of digital devices https://tinyurl.com/4r6ezt5m

NetSmartzKids has videos, games, and activities that teach children about online safety with NetSmartz characters https://tinyurl.com/mvv4wapn

Cyber Safety by InformED is an interactive guide to staying safe on the Internet that addresses common pitfalls https://tinyurl.com/2p8rbe5t

Responsible Internet Use

Kids can play their way to being Internet Awesome with Interland, an online adventure that puts the key lessons of digital safety into hands-on practice with four challenging games.

Recognizing Scams

Sometimes, it can be difficult to determine the validity of an online registration form, retail space, or other request for personal identifying information. It is essential to err on the side of caution and only share personal identifying information when the source is legitimate.

Resources for teachers and parents/guardians:

Online Safety by USAGov has information about online safety and security, Internet fraud, and phishing and vishing.

Common Credit Card Scams by GCFGlobal outlines the different types of credit card scams and what can be done to lessen the risks of having your information stolen.

Security and Privacy

While some internet dangers—like scams cyberbullying—are visible and direct, other dangers—like privacy and security breaches—can happen without the user's immediate knowledge. Anti-virus software and other security measures can provide broad protection.

Resources for adults (teachers and parents/guardians):

Anti-Virus Software

Antivirus Software Buying Guide by Consumer Reports outlines the different types of antivirus software, computer safekeeping features, and tips and safety measures for shopping.

What to Look for in an Antivirus Software by Kaspersky outlines the factors to consider when choosing antivirus software and includes common pitfalls and recommendations.

Security Strategies

Families' Guide to Privacy Rights from Commonsense Media provides resources for families to learn more about privacy and security.

Online Security by the Federal Trade Commission has information on how to protect your computer, your information, and your online files.

Keep your computer secure at home by Microsoft outlines ways to help reduce your online risk when you use your computer at home.

What is Targeted Advertising? by GCFGlobal contains information on targeted advertising, including how it works, invasion of privacy, and how to stop the advertisements.

Comparitech completed a study on apps on Google Play and whether they meet the Children's Online Privacy Protection Act (COPPA) rules.

MONITORING DISTANCE EDUCATION

There are four key elements in monitoring and assessing distance education or online learning efforts. A lot digital education efforts are being undertaken with little or no monitoring so as to gather best practices that can aid more purposeful adoption on digital learning. We therefore need professionals who are skilled and knowledgeable in monitoring digital education projects.

Here are guidelines sourced from Monitoring and Evaluation of ICTs in Education projects, Infodev https://tinyurl.com/mr4yfjxz

Availability: to what extent are distance education materials offered?

A great way to understand availability is to develop a detailed skills taxonomy, which maps the available content to the curriculum. This identifies which topics are taught, which learning outcomes are covered, how many content items exist and the content items' format.

Access: can students access the materials on offer?

For example, when Teach for Pakistan (TfP) wanted to understand how students were able to access resources they began by making announcements at mosques and gathering contact information from local shopkeepers in an effort to reach learners. Once they had student contact details they conducted phone surveys to better understand their preferred access mechanisms.

Usage: are learners engaging with the materials offered?

In Mali, a set of phone surveys showed that some children were listening to radio lessons that were not appropriate for their age, and some caregivers did not know lessons only took 30 minutes a day. The results of the phone surveys were used to adjust the radio lessons.

Learning: are learners actually learning?

This measures how well learners are grasping content. In Botswana, learning is monitored through assessments over the phone. The surveys showed that primary school children learning numeracy learned best through a combination of SMS messages and phone calls.

Applying the Practice

After analysing the elements of distance learning, we explored how to effectively monitor distance education in Bangladesh. We zoomed in on three dimensions in monitoring distance learning: What to collect, How to collect it, and How to use it.

What to collect

Data collected from a sample of the community rather than each individual child is faster and more cost-effective and will allow you to assess the efficacy of a distance education programme.

How to collect

Many tools can be used to collect data. Tools like community-based assessments, third-party data, SMS surveys, phone surveys, and online quizzes are all ways to collect data.

Recommendations

The brief concludes with a set of nine recommendations for monitoring distance education in Bangladesh. We will leave you with four of these recommendations which we think are equally applicable to all countries delivering distance education programmes.

1. Determine what data is required to make strategic decisions

Not all data are helpful and some data cannot realistically be collected. Before countries begin to gather data, they should identify what specific data is required to make decisions.

2. Use all relevant data but be aware of limitations

With schools closed, obtaining data is difficult. We need to make sure we make the most use of any data that we get our hands on to inform decision making. However, data sets have limitations. They can be incomplete or biased towards a certain group. Limitations cannot be avoided, but we need to be transparent and make decision makers aware of them.

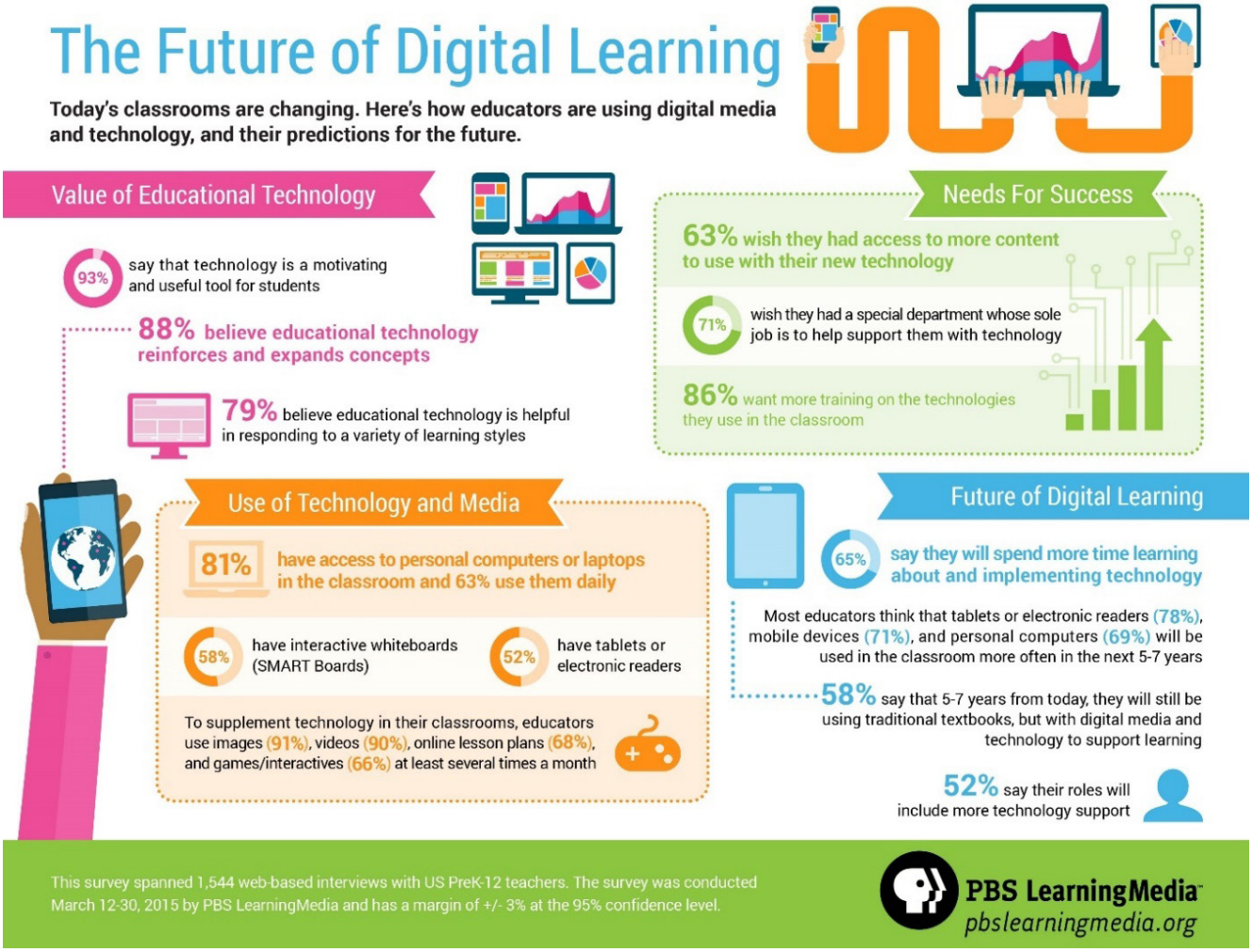
3. Think beyond traditional data collection approaches

Traditional data collection takes time and is costly. In the current situation, countries need to move quickly to collect data fast. Using a variety of novel approaches can help gather information quickly and will paint a more complete picture of reality, allowing crucial decisions to be made fast.

4. Leverage cross-sectoral synergies for monitoring

Education actors are not the only ones looking to quickly gain access to data to inform decision making. Actors across a wide range of sectors are all in need of up-to-date insights to inform decision making. There is the potential for education actors

to create economies of scale by collaborating with personnel from other sectors with similar aims,



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1Mayer and Moreno talk about essential processing, incidental processing, and representational holding as rough equivalents of germane load, extraneous load, and intrinsic load.

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About this Publication

Effective Digital Pedagogy offers helpful knowledge and practical skills to teachers, lecturers, tutors, teaching professionals & trainers of trainees in facilitating digital learning. It is meant to help you as an instructor transform how you approach and think about teaching using available ICT for education tools in order to amplify learning and develop your own digital learning materials, improve your content access & interactivity while keeping your value in the education cycle at the top level.

New 'Digital' Pedagogies have emerged which have shifted the focus of education away from teaching to learning, content delivery to interaction, face-to-face towards an online, interactive, constructionist pedagogy, which can be led by the student, as much as the teacher. This publication inspires you to develop the mind-set, skills and knowledge to create digital hybrid courses rich with digital content for subjects you are already qualified in, as well as student engagement and mentoring suitable for the 21st century learner- with good pedagogical considerations. The publication shows the way for better provision of relevant content in video, audio, text, graphics, animations and or relevant virtual reality that will make teaching and learning of related content interactive and interesting among the learners.

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