



COMMONWEALTH *of* LEARNING

**Report on  
Technology-Enabled Learning  
Competency Framework for  
Teachers in Zambia**



**Report on  
Technology-Enabled Learning  
Competency Framework for  
Teachers in Zambia**

**With a Focus on  
Non-IT Trained Teachers**



COMMONWEALTH *of* LEARNING

The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning and distance education knowledge, resources and technologies.

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This report has been prepared collaboratively with input from several individuals. It was initially conceptualised by Dr Evode Mukama, Adviser: Teacher Education COL, and it was developed by the Teaching Council of Zambia.

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## Preface

The Report on Technology-Enabled Learning Competency Framework for Teachers in Zambia addresses the imperative of adapting to 21st-century education demands. Amidst the rise of technology-driven learning environments, this framework emerges as a response to evolving pedagogical landscapes. Acknowledging ICT's transformative potential in education, Zambia's Ministry of General Education seeks innovation through technology-enabled learning. Yet, teacher competencies in this realm remain uneven. The Teaching Council of Zambia intervenes to uplift teachers' continuous professional development through technology. Thus, this framework outlines vital knowledge, skills and attitudes, nurturing digital literacy and technological adeptness. Aligned with an international model designed by UNESCO and Zambia's context, the framework standardises competencies, offers guidance, fosters teacher professional growth and bridges digital disparities, ultimately enhancing education quality.



# THE TEACHING COUNCIL OF ZAMBIA



## Technology-Enabled Learning Competency Framework For Teachers In Zambia



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## Abbreviations

CDC	Curriculum Development Centre
CFT	Competency Framework for Teachers
COL	Commonwealth of Learning
ECE	early childhood education
ICT	information and communication technologies
ODL	open distance learning
OER	open educational resources
KA	knowledge acquisition
LAN	local area network
MOE	Ministry of Education
MOGE	Ministry of General Education
NDP	National Development Plan
PAN	personal area network
SDG	Sustainable Development Goal
SPTP	Standards of Practice for the Teaching Profession
TCZ	Teaching Council of Zambia
TEL	technology-enabled learning
TESS	Teacher Education and Specialised Service
TSC	Teaching Service Commission
UNESCO	United Nations Educational, Scientific and Cultural Organization
WAN	wide area network

## Glossary

<b>Communication</b>	<p>Teachers facilitate learning in which learners communicate when they:</p> <ul style="list-style-type: none"> <li>• articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills in a variety of forms and contexts</li> <li>• listen effectively to decipher meaning, including knowledge, values, attitudes and intentions</li> <li>• use communication skills and tools for a range of purposes (e.g., to inform, instruct, motivate and persuade)</li> <li>• know how to judge the effectiveness of digital communication tools and assess their impact</li> <li>• communicate effectively in diverse environments</li> </ul>
<b>Competencies</b>	<p>A complex set consisting of knowledge, skills, practice, values and attitudes required for successful performance in a particular role or task in a given context. Competencies are often used in the context of education, where they are used to describe the expected level of proficiency or mastery in a specific area.</p>
<b>Credentials</b>	<p>Credentials refer to the qualifications, achievements and certifications that demonstrate an individual’s knowledge, skills and expertise in a particular field or area of study. Credentials can take many forms, including degrees, diplomas, licences, certifications and professional designations. Thus, a credential can be a piece of any document that details a qualification, competence or authority issued to an individual by a third party with a relevant or de facto authority or assumed competence to do so.</p>
<b>Digital literacy</b>	<p>Digital literacy refers to the ability to use, understand and evaluate digital technologies, tools and resources effectively. It includes a range of skills, such as the ability to navigate digital devices, access and use digital information, communicate and collaborate online, and create digital content.</p>
<b>Digital learning</b>	<p>Any learning or teaching activity that effectively uses digital tools and resources to strengthen a learner’s learning experience. Digital learning can take many forms, such as:</p> <p><b>E-learning:</b> using online resources such as video lectures, digital textbooks, open educational resources, interactive quizzes and discussion forums to support learning.</p> <p><b>Blended learning:</b> combining traditional classroom instruction with digital learning activities and resources.</p> <p><b>Flipped learning:</b> inverting the traditional classroom model by having students learn content online before coming to class to apply and reinforce their understanding.</p> <p><b>Mobile learning:</b> using mobile devices such as smartphones and tablets to support learning and provide access to educational content.</p> <p><b>Game-based learning:</b> using games and simulations to engage learners and support the acquisition of knowledge and skills.</p>

<b>Open educational resources</b>	<p>According to UNESCO, open educational resources (OER) are teaching, learning and research materials in any medium that reside in the public domain or have been released under an open licence that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions.</p> <p>OER include a wide range of educational materials, such as textbooks, course materials, syllabi, videos, assessments and software. These resources are openly licensed, meaning they can be freely access, used, modified and shared by anyone, without requiring payment or permission from the copyright owner.</p>
<b>Education leader</b>	An education section, department or institution administrator. This category of leaders may comprise provincial education officers, district board secretaries, directors, college principals, vice principals, head teachers, deputy head teachers, heads of department and senior teachers.
<b>ICT</b>	Information and communication technologies, including computers, laptops, tablets and cell phones but also at times including a wider spectrum of devices for gathering, storing and communicating information. Note that learning with technology involves more than information and communication, and the term “digital tools and resources” is therefore preferred in this Framework for Teachers.
<b>Lifelong learning</b>	Lifelong learning refers to the ongoing, voluntary and self-motivated pursuit of knowledge and skills acquisition throughout one’s life. It involves a continuous process of acquiring new knowledge, developing new skills, and adapting to new situations, both personally and professionally.
<b>MOOC</b>	MOOC stands for massive open online course. It is an online course aimed at unlimited participation and open access via the Internet. MOOCs typically provide pre-recorded video lectures, interactive online discussion forums, and assignments to be completed by participants. MOOCs are often free of charge and do not require any prerequisites or prior qualifications.
<b>Pedagogy</b>	Pedagogy is concerned with understanding how learners acquire knowledge and skills, and how teachers can facilitate that process. It considers the learning needs, interests and abilities of individual learners, and aims to create an environment that is supportive, engaging and effective in promoting learning.
<b>Teacher continuous professional development</b>	<p>Teacher continuous professional development (CPD) refers to the ongoing process of learning and development that teachers engage in throughout their careers. It involves a range of activities and experiences designed to enhance their knowledge, skills and effectiveness as educators.</p> <p>CPD for teachers can take many forms, such as attending workshops, conferences and seminars, participating in online courses, engaging in peer coaching, mentoring and pursuing further qualifications and certifications. It is often tailored to the specific needs and interests of individual teachers, based on their subject areas, teaching level and professional goals.</p>
<b>Soft skills</b>	<p>Soft skills refer to a set of personal attributes and interpersonal abilities that enable individuals to work effectively with others, communicate clearly, and navigate complex social situations. Soft skills are often intangible and difficult to measure but are essential in promoting success in the workplace and beyond.</p> <p>Soft skills encompass a wide range of abilities, such as communication, collaboration, adaptability, creativity, emotional intelligence and leadership.</p>

<b>Teacher</b>	A teacher is a professional who is responsible for facilitating the learning of students in a structured and organised environment. Teachers use their knowledge, skills and expertise to create a safe and supportive classroom environment where students can develop their intellectual, social and emotional capabilities. The role of a teacher involves planning and delivering lessons, assessing student progress, providing feedback and support and managing classroom behaviour.
<b>Teacher educator</b>	<p>A teacher educator is a professional responsible for preparing and supporting future and current teachers in their roles as educators. Teacher educators work in a range of settings, including universities, colleges and teacher training institutions, and their role involves a range of responsibilities.</p> <p>Teacher educators are responsible for designing and delivering teacher education programmes that provide future and current teachers with the knowledge, skills and competencies they need to be effective educators. They work to develop curricula, design instructional materials, and deliver training and workshops to help teachers improve their teaching practice.</p>

# 1. Introduction

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Information and communication technologies need to be seen as an essential aspect of 21st teaching's cultural toolkit in the century, affording new and transformative models of development that extend the nature and reach of teacher learning wherever it takes place. (Leach, 2005, p. 2)

The development of a Technology-Enabled Learning Competency Framework for Teachers in Zambia comes at a time when the transformation of traditional learning spaces into technology-enabled learning spaces is necessary to cater to the changing needs of 21<sup>st</sup>-century teachers, teacher educators and learners and to support changes in pedagogical practices in response to these changing needs. Mtanga et al. (2012, p. 2) state that the Zambian government recognises the strategic role ICT can play in improving the quality of education. Mtanga et al. refer to the Ministry of Education's draft ICT policy for education, whose vision is "to contribute towards reaching innovative and lifelong education and training through provision of ICT infrastructure to education institutions, content development, curriculum integration, teacher training, distance education, administration and support services as well as finance" (Ministry of Education, 2007). Current trends indicate the ICT industry in Zambia is a dynamic and growing sector, playing an increasingly important role in the country's economy with the introduction of broadband and mobile Internet and the government's efforts to promote the ICT sector.

However, the teachers' competencies to integrate ICT into their teaching and learning programmes are not as widespread as would be expected. This assumption needs to be validated with a survey that can provide more accurate estimates and indicate the challenges teachers generally face in the online registration process. Hence, the Teaching Council of Zambia (TCZ) has initiated several interventions to bring the competencies of teachers to a level that can ensure they are kept abreast of the most recent technological and pedagogical methodologies available. It is in this spirit that this Technology-Enabled Learning (TEL) Competency Framework for Teachers (CFT) in Zambia has been developed.

To this end, this TEL CFT suggests some guidelines and standards that define the necessary knowledge, skills and attitudes teachers should demonstrate to effectively integrate technology into their teaching practices. In other words, this framework will help teachers acquire and improve their digital literacy, technological skills and proficiency so they can effectively use technology as a pedagogical tool for improving student learning outcomes in their classrooms.

In light of the UNESCO Competency Framework for Teachers, Version 3, and frameworks of other countries, including Rwanda and South Africa, this TEL CFT focuses on the teachers' contexts and needs in Zambia. Therefore, **the objectives** of this TEL CFT in Zambia are defined as follows:

**Standardising the digital competencies** that teachers should demonstrate across the country.

**Providing a clear and comprehensive set of guidelines** for teachers to follow when integrating technology into their teaching practices.

**Encouraging professional development and lifelong learning** among teachers

by identifying areas where they need to improve their digital skills.

**Supporting schools and educational institutions** in their efforts to improve the quality of education by promoting the effective use of technology in teaching and learning.

**Helping to bridge the digital divide** by ensuring that all teachers have the necessary skills and knowledge to use technology effectively in their teaching, regardless of their socio-economic background or prior experience with technology.

## 2. The CFT & Continuous Professional Development

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Various challenges in Zambia can be identified by closely examining the indicators related to TEL practice. UNESCO (2021) points out that in 2017, only 36% of Zambia's schools had electricity, 6% had the Internet and 85% had computers. The UNESCO Institute of Statistics (UIS, 2020) goes deeper and reveals that in 2012, the learner-to-computer ratio for pedagogical purposes in primary schools in Zambia was more than 500 to 1, the highest ratio in the world. According to the UIS (2020), the pupil-teacher ratio in Zambia's secondary schools is 145 to 1. Only 5% and 15% of primary and secondary schools, respectively, use computer-assisted instruction.

The most important challenge is to figure out how the TCZ will create innovative solutions that can support the delivery of continuous professional development (CPD) courses to a large number of teachers from remote, low-tech learning environments. Providing and accessing CPD courses under such conditions is one aspect on which the TEL CFT will focus.

In addition to the overall challenges experienced in relation to technology in Zambia, it is important at this juncture to note that the TCZ has also been confronted with specific challenges since its establishment. The TCZ was established in 2013 to ensure that all individuals who are trained as teachers — those employed as teachers, teacher educators, education leaders such as head teachers and deputy head teachers, senior teachers, and heads of education departments in public or private learning institutions such as early education centres, primary and secondary schools, as well as colleges of education — are registered, as the law requires. This also includes all those individuals seeking to be employed. Registration is evidenced by a teacher registration certificate issued by the TCZ.

Individuals need to apply for practising certificates (commonly referred to as a practising license) according to their class of membership, on the basis of their teaching qualifications. For teacher educators and education administrators, this includes their teaching experience. Thereafter, each practitioner is expected to renew their individual practising certificate every three years, on the basis of accrued school-based CPD credit points for each cycle. Furthermore, each practitioner is expected to adhere to the provisions of the Code of Ethics for the Teaching Profession, a Statutory Instrument issued in 2018 as a subsidiary law alongside the Teaching Profession Act. These provisions are:

- (a) to be registered so that one has a teacher registration certificate
- (b) to be in possession of a valid practising certificate
- (c) to take part in continuing professional development activities to accrue the required credit points for renewing the practising certificate
- (d) to adhere to the provisions of the Code of Ethics for the Teaching Profession.

The impact of noncompliance arises when the individual cannot be employed due to non-registration and is not allowed to practice in either public or private learning institutions. Greater impact occurs for those in employment, where an individual shall be prosecuted and, if convicted, the individual shall be imprisoned for a duration not exceeding three years or be fined 3,000 penalty units or both. This is provided for in Part 3, Section 26 of the Teaching Profession Act No. 5 of 2013 and several other sections of the Act.

Non-compliance is mainly due to circumstances often beyond an individual's control:

- The majority of teachers have very little knowledge of the law governing education in Zambia, so they are unaware of the consequences of failing to adhere to the provisions.
- TCZ has automated 98% of the services that it offers to teachers for registering, applying for practising certificates, and renewing their certification, including managing their CPD credit points. However, it has been estimated from experience on the ground that close to 60% of the teachers are not sufficiently trained in technology to effectively access the TCZ's registration system and therefore cannot access these services. Individuals may need to rely on third-party help at internet cafés. Teachers in remote areas have even more difficulty accessing TCZ online services, as these places often have low or no connectivity.

One way of addressing these challenges was for the TCZ to receive technical, financial and human resources to start resolving the underlying factors relating to non-compliance. Through collaboration with the Commonwealth of Learning (COL), the TCZ is able to focus on:

- developing a TEL policy that will guide the development of digital skills
- establishing a learning platform that will facilitate teachers' access to relevant CPD courses aimed at enhancing compliance
- digitalising subject content related to the TCZ legal framework that will create greater awareness of the legal provisions that govern the profession, as well as enhance institutional management competencies that will facilitate better compliance levels among teachers

In 1996, Zambia's then Ministry of Education issued a National Policy on Education, titled "Educating Our Future" (MOE, 1996), in which it expressed the determination to improve the standards and quality of the teaching profession. One of the strategies to achieve this improvement has been to implement appropriate CPD activities at all levels of the education system. In this connection, the MOE created Education Support Teams and Teachers' Resource Centres around the country to support the management and implementation of CPD activities.

In line with the MOE's strategy to promote CPD, the TCZ was created "to secure a disciplined, competent and dedicated teaching profession providing quality education" (TCZ, 2021). Thus, the TCZ is mandated to ensure that all teachers engage in compulsory CPD activities and programmes.

To implement the CPD regulatory policy, the TCZ envisions building the capacity of all provincial, district, zonal and institutional education administrators in the management, procedures and processes of the CPD system. The TCZ plans also to set up an online teacher tracking system to monitor the teachers' CPD activities. To reach teachers in remote areas and allow them to participate in relevant CPD activities anytime and anywhere, distance learning techniques such as modular studies, videos and online courses have been included as modes of CPD delivery, in addition to traditional classroom lectures. The point is to offer teachers opportunities for flexible and self-directed study they can undertake at their convenience.

Consistent with the Continuing Professional Development Policy, especially its statement on leveraging open, distance and technology-enabled learning to increase the number of qualified teachers in Zambia, the TCZ developed this TEL CFT. Its beneficiaries will be mainly teachers, teacher educators, and school leaders, along with curriculum subject designers and specialists.

### 3. Technology and Education

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It is important for teachers to integrate technology with educational practices because technology transforms the way we learn and access information, offering the potential to make education more personalised, accessible and efficient. Teachers thus need proficiency in using a variety of digital tools and platforms.

Below are the current trends impacting the future of education, with some suggestions for how teachers can prepare for them:

- (a) **Personalised and adaptive learning:** Technology is enabling the creation of learning experiences tailored to the individual needs, interests and learning styles of each student. To prepare for this future, humans should be open to new and innovative learning approaches and be willing to embrace technology as a tool for enhancing education.
- (b) **Collaborative learning:** The future of education is likely to place a greater emphasis on collaboration and teamwork, as these skills are increasingly valued in the workplace. To prepare, humans should focus on developing their communication and collaboration skills, as well as their ability to work effectively in a team.
- (c) **Blended learning:** A blend of online and in-person learning is becoming increasingly popular as a way to provide students with flexible, customisable learning experiences. To prepare, humans should be comfortable with both online and in-person learning and be able to adapt to different learning environments.
- (d) **Lifelong learning:** It is important for individuals to continuously learn and adapt to new situations throughout their lives. To prepare, humans should embrace a growth mindset and be proactive in seeking out opportunities for learning and personal development.
- (e) **The integration of technology:** Technology will continue to play a central role in the future of education, and it will be important for individuals to be proficient in using a variety of digital tools and platforms. To prepare, humans should make an effort to stay up to date with emerging technologies and be willing to learn new skills as needed.
- (f) **Increased emphasis on experiential learning:** The traditional model of education, where students primarily learn through lectures and textbooks, is giving way to a more hands-on, experiential approach. It is important for individuals to be able to apply their knowledge and skills in real-world settings and learn through doing. To prepare, humans should seek out opportunities for hands-on learning, such as internships, apprenticeships and other experiential programs.
- (g) **The growing importance of soft skills:** While technical skills will always be important, there is an increasing recognition of the value of soft skills, such as problem solving, communication and leadership. To prepare, humans should focus on developing their soft skills and be proactive in seeking out opportunities to practise and demonstrate them.
- (h) **The role of AI in education:** Artificial intelligence is likely to play a greater role in education, both as a tool for delivering personalised and adaptive learning experiences and as a subject of study in its own right. To prepare, humans should be open to learning about AI and its potential applications in education, and willing to consider how they can use AI to improve their own teaching and learning.

## 4. Using the UNESCO ICT CFT, Version 3

This framework for teachers in Zambia views digital learning as a more modern expression of “ICT integration,” which is itself a broader concept than “IT skills.” Key to achieving the framework’s goals are the educator’s competencies in planning and facilitating digital learning, which will form the basis of a teacher’s needs analysis and planning for professional development in digital learning. Teachers wishing to more effectively achieve curricular aims and objectives will seek competence in digital learning in three key areas: Professional Growth, Curriculum Focus and Leadership.

Table 1 provides an overview of different teacher ICT competencies, organised according to levels and aspects as outlined in the UNESCO ICT CFT (version 3).

**Table 1: Overview of ICT competencies for teachers (UNESCO ICT CFT, version 3)**

Area of Educational Focus	Learning Levels		
	Knowledge Acquisition (KA)	Knowledge Deepening (KD)	Knowledge Creation (KC)
<b>Understanding ICT in Education</b>	Policy Understanding	Policy Application	Policy Innovation
<b>Curriculum and Assessment</b>	Basic Knowledge	Knowledge Application	Knowledge Society Skills
<b>Pedagogy</b>	ICT-Enhanced Teaching	Complex Problem Solving	Self-management
<b>Application of Digital Skills</b>	Application	Infusion	Transformation
<b>Organisation and Administration</b>	Standard Classroom	Collaborative Groups	Learning Organisations
<b>Teacher Professional Learning</b>	Digital Literacy	Networking	Teacher as Innovator

Based on the levels and aspects of the ICT competencies in Table 1, and comparing these to the current competencies of teachers in Zambia, a number of development modules have been identified and prioritised. Our quest to understand the need for teacher professional development in ICT was widely discussed. The challenges teachers in Zambia confront in terms of TEL were highlighted and thoroughly considered when developing the framework. We explore the following:

- new competencies that aim to build capacity
- benchmarking performance indicators
- assessment modality

### What new competencies will help build teacher capacity?

We cast a wide net in our efforts to answer these questions, drawing on existing theory and practice, and building on similar frameworks already created in other countries, such as Rwanda and South Africa. Discussions around the levels of current teacher competencies in Zambia highlighted a need to begin with basic courses, such as acquiring ICT competencies in general, even before introducing an ICT policy. It must be noted that a CFT is based on the local situation and

context within each country, and this is well reflected in the CFT for Zambia.

## Benchmarking performance indicators

Institutions can apply COL's *Benchmarking Toolkit for Technology-Enabled Learning* (Sankey & Mishra, 2019) to their current practice to make improvements across a range of performance areas. The process of setting benchmarks is not dissimilar to standards formation. Benchmarks are generally the result of a consensus-forming process and are created through consultation with subject experts in the sector and/or other stakeholders who recognise the need for a benchmark and its subsequent application to the sector (International Organization for Standardization, 2010).

The Standards of Practice for the Teaching Profession (SPTP) in Zambia is a policy document developed by the Ministry of Education through a wider consultation with different key stakeholders, such as the Teaching Service Commission and the TCZ, with technical and financial support from UNESCO. This policy was finalised and launched in December 2019. The policy sets out benchmarks for teachers, teacher educators and education leaders, targeting classroom teachers, college lecturers, teacher unions, education leaders in institutions of learning, teaching service agencies such as the TCZ and Teaching Service Commission, as well as the Higher Education Authority, the Zambia Qualifications Authority, the Examinations Council of Zambia, and Ministry of General Education (MOGE) directorates, among others (MOGE, 2019).

In Zambia, the Standards of Practice for the Teaching Profession are used to monitor teachers' practice in terms of knowledge, skills and competencies in handling the diverse learning needs of learners. They are also a guide to programme development for institutions that prepare teachers and gauge the quality of training programmes. This policy document is a resource for promoting agreement on the attributes of quality teaching and educational leadership, and expectations of the teaching profession. It is further an instrument to guide performance management for the respective education practitioners. As such, it is a useful document for effectively regulating the profession and enhancing education quality (MOGE, 2019).

## Assessment Modality

The assessment of teachers' competencies will be anchored in a collective understanding of the ICT competencies required by all teachers in Zambia. The assessment instruments will focus on linking teachers' knowledge of ICT with their teaching and learning.

The adopted criteria for assessment will be based on teachers demonstrating the following:

- practical performance and not just theoretical knowledge
- blending acquired ICT skills with pedagogies in various subject areas
- scoring high on the agreed performance indicators
- improved appreciation of ICT

It is envisaged that this assessment will provide the means by which good teaching can be identified for awarding credit points, which form the basis for the renewal of practising certificates, as well as teacher promotions and improved learner performance.

## 5. Alignment of the TCZ’s TEL CFT & UNESCO Version 3.0

The UNESCO ICT CFT, shown in Figure 1,<sup>1</sup> provides a framework around which a common core syllabus can be created, and the Teaching Council of Zambia has benchmarked its programme for the continuous development of teachers to develop modules that are pertinent to the needs of the teachers in Zambia. The UNESCO ICT CFT can be used to develop learning materials sharable at a global level, provides a basic set of competencies that encourage teachers to integrate ICT into their teaching, and extends teachers’ professional development so they are conversant with basic ICT skills, understand online learning environments and are encouraged to access open-source online learning courses. It is designed to advance teacher skills in pedagogy, collaboration and school innovation using ICT, and it harmonises different views and vocabulary regarding the uses of ICT in teacher education.

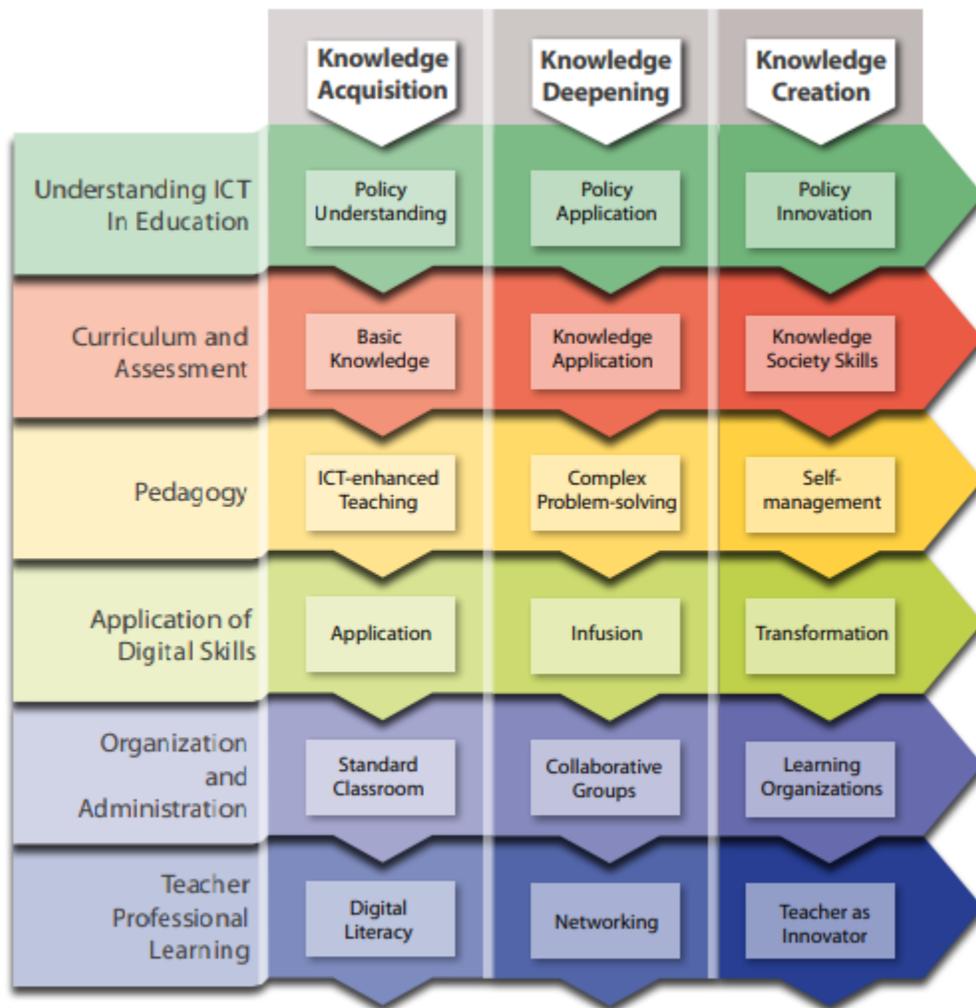


Figure 1: UNESCO ICT CFT version 3.

<sup>1</sup> <https://unesdoc.unesco.org/ark:/48223/pf0000265721>

The modules contained in the Zambian CFT framework are aligned to key competencies identified by the stakeholder groups invited to deliberate on the professional development of teachers over the next ten years. The UNESCO ICT CFT is not prescriptive in how the teacher ICT competencies are achieved; while it does suggest approaches, course designers are free to develop courses that respond to local conditions to produce students who have the desired ICT competencies. This provides the TCZ with sufficient room to structure mandatory CPD courses that are relevant and applicable to immediate, intermediate and long-term requirements.

The modules create a learning pathway from basic ICT skills to the advanced application and integration of ICT into the school curriculum:

Module 1: Understanding Basic ICT

Module 2: Using E-portfolios to Create an Online Learning Environment

Module 3: Understanding ICT in the Education Policy Environment in Zambia

Module 4: Developing and Using Open Educational Resources

Module 5: Creating an Online Learning Environment

Module 6: Facilitating Online Learning

Module 7: Creating Learner-Centred Lessons

Module 8: ICT Resources and Tools to Support Teaching and Learning

Module 9: Creating Digital Content

Module 10: Using Assistive Technology to Support Inclusive and Special Needs Education

Table 2 shows the alignment of the TEL CFT in Zambia with the UNESCO ICT CFT, Version 3. The TEL CFT modules are listed, along with their respective unit competencies. Each module is aligned with specific objectives from the UNESCO ICT CFT. For example, Module 1 focuses on understanding ICT in supporting teaching and learning, aligning with UNESCO’s objectives related to choosing appropriate ICT solutions to support students’ acquisition of subject knowledge. Module 2 is about using e-portfolios to create an online learning environment, which aligns with UNESCO’s objectives of using digital tools to track and evaluate student contributions to learning in the knowledge community and helping students reflect on their own learning. The other modules are also aligned with various UNESCO objectives, covering topics such as ICT in education policy, open educational resources, online learning, creating learner-centred lessons, using ICT resources and tools, creating digital content, and using assistive technology for inclusive and special needs education. The alignment ensures that the TEL CFT modules address key ICT competencies outlined by UNESCO.

**Table 2: Alignment of TEL CFT with UNESCO ICT CFT version 3**

TCZ TEL CFT Module	Unit Competency: Teachers can ...	UNESCO ICT CFT v3 Alignment with Objective Codes
Module 1: Understanding Basic ICT	Make appropriate ICT choices to support specific teaching and learning methodologies.	KA.3.a. Choose appropriate ICT solutions in teaching to support students’ acquisition of subject knowledge; and KA.3.b.c.
Module 2: Using E-portfolios to Create an	Use e-portfolios to achieve learning outcomes.	KC.4.c. Use digital tools to track and evaluate student contributions to learning

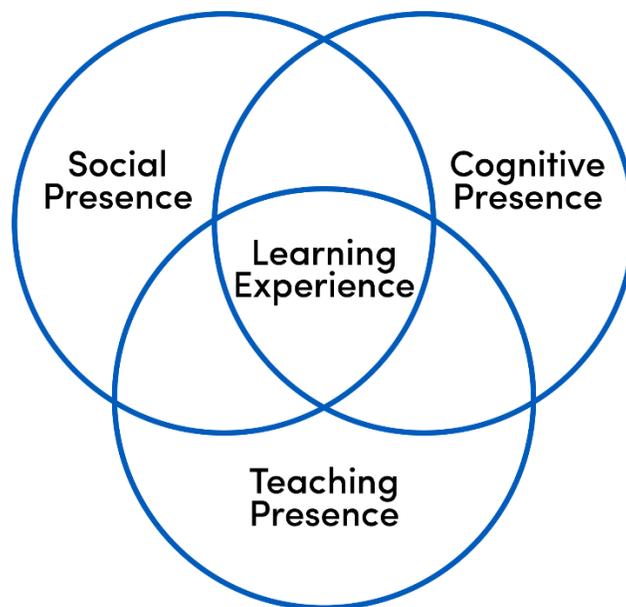
Online Learning Environment		in the knowledge community. KC.3.e. Help students reflect on their own learning. KC 4 a, b.
Module 3: Understanding ICT in the Education Policy Environment in Zambia	Use ICT in education policy and strategies appropriately to identify how policy implementation is shaping teaching and learning practices. Identify the principles of using ICT in education in a safe and accessible manner.	KD.1.a. Apply principles of ICT in education as expressed in policy in their own teaching. KD.2.a. Use ICT appropriately to achieve curriculum standards.
Module 4: Developing and Using Open Educational Resources	Demonstrate the ability to develop and use open educational resources.	KC.3.b. Design online materials and activities that engage students in collaborative, problem-solving research. KC 4 a, b KC.6.e. License and distribute their original teaching resources as OER.
Module 5: Creating an Online Learning Environment	Use digital tools to support online collaboration between students and members of the knowledge community. Track and evaluate student contributions to learning in the knowledge community.	KC.4.a. Create an online learning environment to support pervasive learning. KC.4.c. Use digital tools to track and evaluate student contributions to learning in the knowledge community.
Module 6: Facilitating Online Learning	Create an online learning environment that goes beyond the traditional classroom.	KC.3.c. Help students design project plans and activities that engage them in collaborative, problem-solving research or artistic creation. KC.4.b, c
Module 7: Creating Learner-Centred Lessons	Design activities that put learners first and engage them in autonomous, collaborative and problem-solving research or artistic creation.	KC.3.c. Help students design project plans and activities that engage them in collaborative, problem-solving research or artistic creation.
Module 8: ICT Resources and Tools to Support Teaching and Learning	Use ICT resources and tools to support teaching, learning and assessment activities.	KC.3.b. Design online materials and activities that engage students in collaborative, problem-solving research.
Module 9: Creating Digital Content	Identify forms of digital content for use in class.	KC.3.c. Help students design project plans and activities that engage them in collaborative, problem-solving research or artistic creation.
Module 10: Using Assistive Technology to Support Inclusive and Special Needs Education	Identify and use technology tools that can support students with disabilities. Organize assistive technologies and tools in different learning environments so that students with disabilities will have access to them.	KD.4.g. Source and evaluate digital tools to support students with disabilities and sociolinguistic minorities, and ensure gender equality in the delivery of education.

## 6. Digital Learning Change Frame

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Generally, a change frame for competency development refers to a set of principles and practices that organisations can use to adapt their existing competency development frameworks to meet changing needs and workforce requirements. In the new digital era, it is important for teachers to adapt to the changing needs in the classroom and therefore ensure they have the necessary skills and competencies to do so.

The TEL CFT in Zambia is inspired by the Community of Inquiry (CoI) model. This theoretical framework provides guidance for understanding and facilitating successful online learning experiences. Developed by D. Randy Garrison, Terry Anderson and Walter Archer in 2000, the model is based on the idea that meaningful learning in online environments occurs through the interaction of three essential elements, referred to as the three presences:<sup>2</sup>



**Figure 2: Learning experience through a Community of Inquiry.**

- 1 **Cognitive Presence:** This refers to the intellectual and learning-related activities that take place in an online learning community. It involves activities such as critical thinking, problem solving and knowledge construction. Cognitive presence is fostered through activities like online discussions, debates and collaborative projects. The goal is to encourage active, meaningful engagement with the course content and promote higher-order thinking.
- 2 **Social Presence:** Social presence refers to the degree of connectedness and sense of community among participants in an online learning environment. It involves creating a supportive and interactive atmosphere where learners feel comfortable expressing themselves, sharing their ideas and building relationships. Social presence is facilitated through various means, including icebreaker activities, group discussions and peer interaction.

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<sup>2</sup> <https://www.buffalo.edu/catt/develop/teach/learning-environments/community-of-inquiry.html>

- 3 Teaching Presence:** Teaching presence encompasses the design, facilitation and direction provided by the instructor or course facilitator in an online learning setting. It involves the instructional strategies, course structure and overall learning environment created by the instructor to support and guide learners effectively. Teaching presence is crucial for setting clear learning objectives, providing feedback and ensuring that the learning process is well-organised and purposeful.

The three presences of the Community of Inquiry model are interconnected and mutually supportive. A successful online learning experience depends on the balance and synergy between these presences. When cognitive, social and teaching presences are effectively integrated, they create a vibrant and engaging learning community, leading to improved learning outcomes and a positive online learning experience.

Educators and instructional designers can use the Community of Inquiry model to design and facilitate online courses that foster active learning, promote collaboration and create a sense of community among learners, thereby enhancing the overall online learning experience.

## 7. Monitoring and Evaluation

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A monitoring and evaluation (M&E) system involves processes, standards, strategies, plans, indicators, reporting lines and accountability specifications. While monitoring the implementation of the ICT CFT framework, key challenges can be noted and strategies to address them can be developed. Monitoring involves collecting, analysing and reporting data on inputs, activities, outputs, outcomes, impacts and external factors to support the effective management and achievement of aims.

**Evaluation** is a time-bound and periodic exercise that seeks to provide credible and useful information to answer specific questions in order to guide decision making by policy makers and managers. Evaluation may assess relevance, efficiency, effectiveness, impact and sustainability. An indicator is defined as a quantitative or qualitative variable that allows the verification of changes produced by a development intervention relative to what was planned. In other words, an indicator is a variable used to assess the achievement of results in relation to the stated goals/objectives. The objectives of indicators are intended to measure progress and achievements; clarify consistency between activities, outputs, outcomes and goals; ensure legitimacy and accountability to all stakeholders by demonstrating progress; and assess project/programme and staff performance.

**Inputs** are all the resources that contribute to the production of service delivery outputs. These are what we use to do the work.

**Means of verification or measurement** are the sources of information serving as evidence that an objective has been achieved in terms of the relevant performance indicator. This information must be reliable and publicly assessable and can be derived from primary and secondary sources.

**Measurable objectives** encompass specific formulations of intended outcomes and performance indicators towards achieving a strategic objective. A measurable objective is normally at the sub-programme level.

## Monitoring & Evaluation (M&E) for the TEL Teacher Competency Framework in Zambia

	<b>Definition</b> What is to be achieved?	<b>Indicator</b> How is it calculated?	<b>Baseline</b> What is the current situation?	<b>Activities</b> What actions will be taken?	<b>Inputs</b> What resources will be required?	<b>Frequency</b> How often will it be measured?	<b>Responsibility</b> Who will measure it?	<b>Reporting</b> Where will it be reported?
<b>Goal 10 years</b>	Competent teachers in the use of technology to enhance teaching and learning	At least 150,000 competent in all 8 modules	15,000 teachers training in at least 4 modules	<ul style="list-style-type: none"> <li>▪ Development of new modules</li> <li>▪ M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>▪ Financial resources</li> <li>▪ Human resources</li> <li>▪ Basic ICT infrastructure</li> <li>▪ Motor vehicles</li> </ul>	Annually	Joint working group appointed from the MOGE and TCZ	Permanent Secretary and the TCZ Council
<b>Intermediate Outcomes 5 years</b>	Teachers trained in 4 modules	150,000 teachers completed at least 4 modules	150,000 with one module completed	<ul style="list-style-type: none"> <li>▪ Sensitisation</li> <li>▪ Development of 8 modules</li> </ul>	<ul style="list-style-type: none"> <li>▪ Financial resources</li> <li>▪ Human resources</li> <li>▪ Motor vehicles</li> <li>▪ Accessibility to 8 online modules</li> <li>▪ Server space</li> </ul>	Quarterly	Joint working group appointed from the MOGE and TCZ	Permanent Secretary and the TCZ Council
<b>Immediate Outcomes 2 years</b>	<ul style="list-style-type: none"> <li>▪ Teachers trained in at least 1 module</li> <li>▪ Regulation, compulsion</li> <li>▪ Advocacy and communication</li> </ul>	At least 150,000 teachers completed at least 1 module	850 practising teachers use technology during teaching and learning in Zambia (UNESCO survey, 2020)	<ul style="list-style-type: none"> <li>▪ Sensitisation</li> <li>▪ Development of 5 modules</li> <li>▪ Implement mandatory ICT training for CPD (licence renewal)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Financial resources</li> <li>▪ Human resources</li> <li>▪ Motor vehicles</li> <li>▪ IT modification of CPD module</li> <li>▪ Accessibility to 5 online modules</li> <li>▪ Server space</li> <li>▪ Revisit CPD policy</li> </ul>	Quarterly	Joint working group appointed from the MOGE and TCZ	Permanent Secretary and the TCZ Council
<b>Outputs</b>	<ul style="list-style-type: none"> <li>▪ Development of media packages</li> <li>▪ Development of draft modules</li> </ul>			<ul style="list-style-type: none"> <li>▪ Engage media house</li> <li>▪ Teacher engagement</li> <li>▪ Stakeholder engagement</li> </ul>	Financial resources	Monthly		

## 8. Implementation Strategy

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Implementing a technology-enabled learning competency framework for teachers can be a complex process. Here are some steps involved in implementing the TEL competency framework for teachers:

- (a) **Tailor a framework:** Research was conducted on existing frameworks; this was followed by consulting with stakeholders, and tailoring the framework to the specific needs of teachers in Zambia.
- (b) **Assess current TEL competencies:** Next, it is important to assess the current TEL competencies of teachers, since they will not all be at the same competency level. This can involve surveys, interviews or assessments to determine their current level of TEL competency and identify areas where they need support. An individual needs analysis for each teacher using the grid as indicated in Section 10 can be done and plotted.
- (c) **Develop a professional development plan:** Based on the results of the assessment, develop a professional development plan that supports teachers in building the necessary TEL competencies. This can involve a range of activities, such as workshops, training sessions, coaching or mentoring. The professional development plan must be a record that is used to measure the progress of each teacher and is aligned with the teacher competency framework in Zambia.
- (d) **Communicate the framework and plan:** Once the framework and overall professional development plan have been developed, communicate them to all relevant stakeholders. This includes teachers, school leaders, parents and students. Clear communication is essential to ensure everyone understands the importance of TEL competencies and the steps being taken to support teachers in building them. Individual professional development plans must be linked to the broader framework. The points allocated as teachers progress with their plans should be incentivised to encourage learners to continuously improve themselves and their digital competencies.
- (e) **Provide ongoing support:** Ongoing support is essential to ensure the successful implementation of the TEL competency framework. This can involve providing regular training and professional development opportunities, creating a culture of collaboration and sharing best practices, and providing resources and tools to support teachers in building their TEL competencies.
- (f) **Evaluate and adjust:** Finally, it is important to evaluate the effectiveness of the TEL competency framework and adjust as needed. This can involve collecting feedback from teachers, students and other stakeholders, analysing data on the use of technology in the classroom, and making changes to the professional development plan, as necessary.

In Zambia, there are two groups of teachers: private schoolteachers and public/government schoolteachers. The TCZ is legally mandated to regulate both, so it has ownership of this framework. The TEL CFT in Zambia shall be evaluated and reviewed every five years. However, if a module is outdated or there is a need to introduce a new one, such a module may be changed or included at the recommendation of any stakeholder and with the approval of the TCZ management. This will maintain the flexibility required for success in the digital learning frame.

## 9. Conclusion

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As mentioned earlier in this document, the primary objective of the Technology-Enabled Learning Competency Framework for Teachers in Zambia is to facilitate continuous professional development and customise learning pathways for individual teachers. The successful implementation of the framework requires careful guidance and alignment with agreed-upon time frames and responsibilities. To ensure effective progress monitoring and teacher support, a program of action must be established. This will lead to the development of a competent teaching workforce and foster inclusive growth by embracing technology-enabled learning.

## 10. References

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# 11. Annexure 1: Modules

## Module 1: Understanding Basic ICT

Topic area: Understanding ICT in Education			Sub-topic area: Lesson Planning	
Module title: Understanding Basic ICT			Hours: 4	
<ul style="list-style-type: none"> <li>▪ <b>Key competencies:</b> Make appropriate ICT choices to support specific teaching and learning methodologies.</li> </ul>				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values	<ul style="list-style-type: none"> <li>▪ Definition of digital education, technology-enabled learning.</li> <li>▪ ICT equipment and gadgets relevant in education.</li> <li>▪ Operating systems and application software.</li> <li>▪ Computer networks.</li> <li>▪ Cyber-security.</li> <li>▪ Information backup.</li> <li>▪ Criteria to evaluate ICT equipment for educational purposes.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Teachers review video tutorials and web resources on ICT equipment used in schools.</li> <li>▪ In a forum, teachers discuss scenarios where ICT might improve a particular section of the syllabus.</li> <li>▪ Teachers select and experiment with ICT tools for learning practice.</li> <li>▪ Teachers prepare and evaluate hardware and software for learning.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Describe ICT equipment and gadgets.</li> <li>▪ Describe the types of computer networks.</li> <li>▪ Demonstrate understanding of operating systems and application software.</li> <li>▪ Describe, compare and use computer networks.</li> <li>▪ Identify types of security threats and how to manage them.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compare different computer networks.</li> <li>▪ Use peripheral devices.</li> <li>▪ Identify possible network/ICT gadget security threats.</li> <li>▪ Secure ICT gadgets against threats.</li> <li>Identify and use forms of information backup.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Appreciation of ICT gadgets relevant to teaching.</li> <li>▪ Appreciation of ICT devices.</li> <li>▪ Appreciation of operating systems and application software.</li> <li>▪ Awareness of several computer networks.</li> <li>▪ Appreciation of a computer network.</li> <li>▪ Awareness of security threats.</li> <li>▪ Appreciation of information backup.</li> </ul>		
<p><b>Assessment criteria:</b></p> <p>The assessment will include the following activities:</p> <ul style="list-style-type: none"> <li>▪ class discussions on real-world examples of technology-enabled learning</li> <li>▪ a hands-on workshop for students to interact with different gadgets</li> <li>▪ a practical exercise installing and navigating different operating systems</li> <li>▪ a critical analysis of a tutorial video demonstrating how to use a specific software application</li> <li>▪ a simulation activity where students configure a small computer network</li> <li>▪ a case study analysis of a cyber-attack on an educational organisation</li> <li>▪ a quiz on best practices for maintaining cybersecurity in digital education</li> </ul>				
<p><b>Supporting references and open educational resources:</b></p> <p>ICT equipment and gadgets relevant to teaching: <a href="https://leadschool.in/blog/a-list-of-ict-tools-for-teaching-and-learning-lead">https://leadschool.in/blog/a-list-of-ict-tools-for-teaching-and-learning-lead</a></p> <p>List of ICT tools for teaching and learning: Tech devices for teachers and students: <a href="https://kenyavote.com/list-of-ict-tools-for-teaching-and-learning-tech-devices-for-teachers-and-students/">https://kenyavote.com/list-of-ict-tools-for-teaching-and-learning-tech-devices-for-teachers-and-students/</a></p> <p>Software: Systems and Application Software: <a href="https://www.skylineuniversity.ac.ae/pdf/software-">https://www.skylineuniversity.ac.ae/pdf/software-</a></p>				

[engineering/Software.pdf](#)

Types of Computer Networks: [types-of-networks.pdf \(eazynotes.com\)](#)

Categories of Network: <https://www.researchgate.net/publication/344259472> Categories of Network

Classification of security threats in information systems:

<https://www.researchgate.net/publication/315714820> Classification of security threats in information systems

Information system security threats classifications:

<https://www.researchgate.net/publication/26596385> Information system security threats classification

### **Facilitation guide**

Organise the class into groups and assign each group a specific gadget to explore, analyse and learn how to use.

Have each group research and present real-world examples of how technology (with a focus on their gadget) has transformed learning and education in their country.

Facilitate a class discussion where groups share their experience, knowledge and skills, highlighting the impact of technology-enabled learning in teacher education.

Provide learners with guided tasks or challenges that involve using each gadget to solve a specific problem or complete a task.

Allow them to rotate through different stations, experimenting with and exploring the gadgets hands-on.

## Module 2: Use E-portfolios to Create an Online Learning Environment

Topic area: Curriculum, Pedagogy and Technology			Sub-topic area: Lesson Planning	
Module title: Use E-portfolios to Create an Online Learning Environment			Hours: 4	
Key competency: Use e-portfolios to achieve learning outcomes.				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values	<ul style="list-style-type: none"> <li>▪ Introduction to e-portfolios.</li> <li>▪ Meaning of e-portfolios.</li> <li>▪ Advantages and disadvantages of e-portfolios in learning contexts.</li> <li>▪ Types of e-portfolios such as learning portfolios, assessment portfolios, and professional e-portfolios.</li> <li>▪ Differences between learning management systems and e-portfolios.</li> <li>▪ Processes of designing and developing e-portfolios.</li> <li>▪ Design and develop individual e-portfolios.</li> <li>▪ Integrate e-portfolios in teaching and learning practice.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Exploring a series of videos and tutorials that explain e-portfolios and how they are used in learning contexts.</li> <li>▪ Discussing in groups major types of e-portfolios.</li> <li>▪ Designing and developing an individual e-portfolio.</li> <li>▪ Participate in evaluation of learning activities using e-portfolio and present the outcomes.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Demonstrate understanding of e-portfolio features.</li> <li>▪ Discuss the benefits of e-portfolios.</li> <li>▪ Describe how e-portfolios are established with existing platforms.</li> <li>▪ Explain the process of developing e-portfolios.</li> <li>▪ Articulate how e-portfolios are used in the evaluation of learning activities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Prepare and design learning activities in e-portfolios.</li> <li>▪ Integrate e-portfolios into the teaching and learning process using existing platforms.</li> <li>▪ Create individual e-portfolio learning activities.</li> <li>▪ Evaluate learning activities using e-portfolio platforms.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Teachers embrace the use of e-portfolios in their daily teaching activities.</li> <li>▪ Appreciate the use of e-portfolios in helping students understand learning outcomes.</li> <li>▪ Teachers abide by the online protection policy and code of safety control.</li> </ul>		
<p><b>Assessment activity:</b> Teachers use e-portfolios to assess their achievement of the learning outcomes.</p>				
<p><b>Supporting references and open educational resources:</b>  <b>Learning e-portfolios</b> — These are typically created by a learner as part of a course to demonstrate learning and the learning process, then are often shared with other learners to elicit peer feedback. Learning portfolios support the idea of formative feedback as an essential part of the learning process. Learners can use the following resources to understand more about e-portfolios:  <a href="https://sites.google.com/a/nd.edu/michelle-m-fuhrman-s-e-portfolio">https://sites.google.com/a/nd.edu/michelle-m-fuhrman-s-e-portfolio</a>  <a href="https://sites.google.com/site/dbennerorg/presentations/eportfolios-with-google-sites">https://sites.google.com/site/dbennerorg/presentations/eportfolios-with-google-sites</a>  <a href="https://sites.google.com/a/udel.edu/capstone-educational-technology/capstone-home-page/">https://sites.google.com/a/udel.edu/capstone-educational-technology/capstone-home-page/</a>  <a href="https://sites.google.com/u.boisestate.edu/kraschnewski-portfolio/home">https://sites.google.com/u.boisestate.edu/kraschnewski-portfolio/home</a>  <a href="https://sites.google.com/view/mynguyen-metportfolio/aect-standards">https://sites.google.com/view/mynguyen-metportfolio/aect-standards</a></p>				
<p><b>Facilitation guide</b></p> <p><b>This is a workshop activity.</b></p> <ul style="list-style-type: none"> <li>▪ Use the TCZ learning management platform and explore a series of videos that explain e-portfolios.</li> <li>▪ Create learning activities that stimulate learners to use e-portfolios.</li> <li>▪ Use e-portfolios to assess learning outcomes, and share learning activities in e-portfolios.</li> <li>▪ Use learners' portfolios to assess their progress.</li> <li>▪ Explore recommended resources, and use e-portfolios to assess learning outcomes.</li> </ul>				

## Module 3: Understanding ICT in Education Policy Environments in Zambia

Topic area: Policies Related to ICT in Education			Sub-topic area: Policy Awareness	
Module title: Understanding ICT in Education Policy Environments in Zambia			Hours: 4	
<b>Key competencies:</b> Use ICT in education policy and strategies appropriately to: <ul style="list-style-type: none"> <li>▪ identify how policy implementation is shaping teaching and learning practices</li> <li>▪ identify the principles of using ICT in education in a safe and accessible manner</li> </ul>				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values	<ul style="list-style-type: none"> <li>▪ Introduction to national and international ICT in education policies and strategies in the education sector.</li> <li>▪ The process of developing an ICT in education policy and strategies of its monitoring and evaluation.</li> <li>▪ Key components of the national ICT in education policy and its implementation plan.</li> <li>▪ Alignment of the SIP with the national ICT in education policy and implementation plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Read national and international ICT in education policies, discuss with others and draft different possible implementation mechanisms at the school and classroom levels.</li> <li>▪ With reference to the current ICT in education policy, reflect and comment on the process of its development, monitoring and evaluation.</li> <li>▪ Discuss strategies, opportunities, key issues and challenges in implementing an ICT in education policy and suggest possible solutions.</li> <li>▪ Review the SIP against the ICT in education policy and its implementation plan.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Demonstrate understanding of national policies related to ICT in education.</li> <li>▪ Identify how teaching and learning practices align with national and international ICT in education policies and strategies.</li> <li>▪ Identify best practices related to national and international ICT in education policies and strategies.</li> <li>▪ Explain the roles of ICT in education policies in teaching and learning environments.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Participate in developing or customising a school improvement plan (SIP) that embraces ICT in education policy and strategies.</li> <li>▪ Use different ICT in education policy recommendations to enhance teaching and learning practices.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Appreciate the roles of national and international ICT in education policies and strategies in national development.</li> <li>▪ Recognise the roles of ICT in education policies in teaching and learning environments within the SIP.</li> </ul>		
<b>Assessment criteria:</b> <ul style="list-style-type: none"> <li>▪ Submission of revised school improvement plan that embeds ICT in education policy and strategies.</li> <li>▪ Uploading online required activities demonstrating understanding and implementation of ICT in education policy and strategies.</li> </ul>				
<b>Supporting references and open educational resources:</b> <p><b>Government policies and framework</b></p> <p>Ministry of Education, Zambia. (2016). <i>Educating our future: National Policy on Education</i>. Zambia Educational Publishing House.</p> <p>Ministry of Finance and National Development, Zambia. (2022). <i>Eighth National Development Plan 2022–2026</i>. <a href="https://zanec.org.zm/download/eighth-national-development-plan-2022-2026/">https://zanec.org.zm/download/eighth-national-development-plan-2022-2026/</a></p> <p>TCZ. (2021). <i>Continuing Professional Development Regulatory Policy</i>. Teaching Council of Zambia.</p> <p>ZICTA. (2022). <i>Mid-year ICT sector performance report 2022</i>.</p>				

<https://www.zicta.zm/storage/posts/attachments/qjV6lLzl8lZO0a7jEPygrChFT8vTo6qknQPSdnGq.pdf>

## OER

COL & Ministry of Education, Guyana. (2012). Advancing policy through classroom action and technology. <http://colccti.colfinder.org/sites/default/files/guyana/pages/KD/Module01/Unit01/01.html>)

KERIS. (n.d.). *Operating a customized Digital Education Platform*.

(<https://www.keris.or.kr/eng/cm/cntnts/cntntsView.do?mi=1180&cntntsId=1327>)

## Facilitation guide

This module is accessed and delivered online through the TCZ learning management system.

**Activity 1 (90 minutes):** Peer learning and peer support are essential learning strategies. It is therefore expected in this module that participants will be divided into working groups, to be formed using the TCZ e-learning platform or WhatsApp groups. To ensure individual active participation, each participant will be required to read national and international ICT in education policies and present them to the group members. In addition, participants are required to outline strategies to adopt at the school and classroom levels and communicate them to peers via an online forum.

**Activity 2 (30 minutes):** Once participants are aware of the ICT in education policy in use, they individually assess the policy development process, as well as policy monitoring and evaluation. Thereafter, they discuss in groups their findings and come up with appreciation and recommendations for improvement, which are to be uploaded.

**Activity 3 (120 minutes):** The portfolio assignment is as follows:

Create a presentation that has the following structure:

- What does ICT in education policy tell us about teaching and learning practices?
- To what extent do your school and classroom teaching and learning practices reflect the provisions within the ICT in education policy?
- How is the ICT in education policy embedded in your school improvement plans?
- What revisions do you suggest in your school improvement plan to cater for the ICT in education provisions?
- What challenges do you foresee in implementing the ICT in education policy at your school and at the classroom level?

Once the presentation is complete, the teacher needs to upload it to the Moodle server using the assignment tool available.

## Module 4: Developing and Using Open Educational Resources

Topic area: Application of Digital Skills			Sub-topic area: Lesson Planning	
Module title: Developing and Using Open Educational Resources			Hours: 4	
Key competency: Demonstrate the ability to develop and use open educational resources.				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values	<ul style="list-style-type: none"> <li>Definition of open education and OER.</li> <li>Creative Commons licences.</li> <li>OER repositories.</li> <li>Creating OER.</li> <li>Repurposing, remixing and adaptation of OER.</li> <li>OER authoring tools.</li> <li>Publishing OER.</li> </ul>	<ul style="list-style-type: none"> <li>Review videos on developing OER.</li> <li>Students form small, task-based groups to identify, use, develop, purpose and remix OER.</li> <li>Facilitate students' discussion on OER repositories.</li> <li>Create and use, reuse OER in learning, teaching.</li> </ul>
<ul style="list-style-type: none"> <li>Demonstrate understanding of open educational resources.</li> <li>Describe characteristics of OER.</li> <li>Identify OER for specific educational purposes.</li> <li>Define Creative Commons licences.</li> </ul>	<ul style="list-style-type: none"> <li>Create OER.</li> <li>Repurpose, remix and adapt OER.</li> <li>Use appropriate online tools to create OER.</li> <li>Publish OER.</li> </ul>	<ul style="list-style-type: none"> <li>Appreciate positive roles of OER in increasing access to quality education.</li> <li>Appreciate the relevance and ethical values of OER in teaching and learning.</li> </ul>		
<p><b>Assessment activity:</b> Working in small, task-based groups, students:</p> <ul style="list-style-type: none"> <li>participate in forum discussions and debates on the practicability and utility of OER in their contexts</li> <li>develop, use, repurpose, remix and adapt OER according to their contexts</li> <li>document in their portfolio the learning experience towards improving their online facilitation role</li> </ul>				
<p><b>Supporting references and open educational resources:</b> Access OER using the following tools:</p> <ul style="list-style-type: none"> <li>OER Commons, <a href="https://www.oercommons.org/">https://www.oercommons.org/</a>, a public digital library of OER</li> <li>OpenStax</li> <li>Khan Academy</li> <li>MIT OpenCourseWare</li> </ul> <p>Rebus is a tool to publish open textbooks: <a href="https://press.rebus.community/the-rebus-guide-to-publishing-open-textbooks/back-matter/version-history/">https://press.rebus.community/the-rebus-guide-to-publishing-open-textbooks/back-matter/version-history/</a> Pressbooks is an open book-creation platform: <a href="https://pressbooks.com/">https://pressbooks.com/</a> Gooru (<a href="https://gooru.org/about/">https://gooru.org/about/</a>) and OpenAuthor (<a href="https://www.oercommons.org/login?next=/courseware/lesson/add">https://www.oercommons.org/login?next=/courseware/lesson/add</a>) are tools that can help you to create your own OER. LaTeX (<a href="https://www.latex-project.org/">https://www.latex-project.org/</a>) is a typesetting system for publishing scientific documents and books (compatible with STEM formulae). African Minds is an open-access, not-for-profit publisher of scholarly books: <a href="https://www.africanminds.co.za/">https://www.africanminds.co.za/</a> ChatGPT: <a href="https://openai.com/blog/chatgpt/">https://openai.com/blog/chatgpt/</a></p>				
<p><b>Facilitation guide</b></p> <ul style="list-style-type: none"> <li>Facilitators invite teachers to review OER and video tutorials.</li> <li>Facilitators encourage the teachers to apply what they learned in the videos in relation to creating, repurposing, remixing and adapting OER.</li> <li>Facilitators engage teachers in an activity of reviewing OER.</li> </ul>				

## Module 5: Creating an Online Learning Environment

Topic area: Creating and Using Online Learning Environments			Sub-topic area: Learning Platforms	
Module title: Creating an Online Learning Environment			Hours: 4	
Key competency: Create an online learning environment that goes beyond the traditional classroom.				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values		
<ul style="list-style-type: none"> <li>▪ Demonstrate understanding of the benefits of online learning.</li> <li>▪ Explain the use of different learning management systems (LMSs) used to support online learning.</li> <li>▪ Assess attributes of online teaching and learning environments to support learners.</li> <li>▪ Explain how to create and manage an online teaching and learning environment.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Create an online teaching and learning environment to support learners.</li> <li>▪ Create individual learners' profiles and credentials to be used in online learning.</li> <li>▪ Create activities for online assessment.</li> <li>▪ Devise strategies to motivate learners, monitor progress, provide feedback and remediation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Value the role of ICT in providing learning opportunities beyond the traditional classroom.</li> <li>▪ Praise learners' engagement.</li> <li>▪ Recognise learners' participation and contribution in online learning.</li> <li>▪ Reward learners' excellence in online learning.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Introduction to online learning platforms.</li> <li>▪ Development of online learning resources and activities.</li> <li>▪ Enrolling and managing learners through a LMS.</li> <li>▪ Strategies to make an online course interactive.</li> <li>▪ Strategies to keep learners motivated and engaged in online learning.</li> <li>▪ Engage learners in collaborative learning through a CoI.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Review videos on creating online learning platforms, developing learning resources and activities.</li> <li>▪ Create and upload an introductory video providing overview of the course, subject, unit.</li> <li>▪ Use familiar online learning platforms, enrol learners and take them through designed learning activities.</li> <li>▪ Create discussion forum, deliberate on challenges associated with online learning and suggest possible solutions.</li> <li>▪ Create and insert a test, an assignment, and a set of resources into the online platform.</li> </ul>

### Assessment activity:

- Facilitators task teachers with creating a learning environment using Google Classroom, Microsoft Teams and Moodle Cloud.
- Facilitators request teachers to include a resource document, interactive quiz, forum discussion and wiki exercise for learners in the developed online learning environment.

### Supporting references and open educational resources:

MG Online, Creating Online Learning Environment (LMS):

<https://mgonline.mgslg.co.za/course/view.php?id=46>

MG Online, Moodle in the Cloud: <https://mgonline.mgslg.co.za/course/view.php?id=51>

MG Online, Google Classroom: <https://mgonline.mgslg.co.za/course/view.php?id=48>

### Facilitation guide

- Facilitators invite teachers to review web-based resources and video tutorials such as Google Classroom and using Google Docs <https://youtu.be/-apCibV9YKA>, <https://youtu.be/CeF1vXhFIId8>, <https://youtu.be/GIN-EtPa0lw>, [https://youtu.be/Yiu3dBeSI\\_A](https://youtu.be/Yiu3dBeSI_A)
- Facilitators encourage the teachers to apply what they learned in the videos in relation to creating online learning platforms, developing learning resources and activities.

- Facilitators engage teachers in an activity of reviewing video tutorials on the benefits of using a VLE or LMS: <https://youtu.be/zv5bpfxI2xE>. Also outline what a good online course might look like and how this is different from Google Classroom, where you simply provide access to resources.
- Facilitators verify that teachers have generated unique classroom credentials to ensure learners have access and are engaged.
- Facilitators take teachers through a series of tutorials on how to set up their space: Let them set up a course, <https://youtu.be/dCdoUoleBY8>, <https://youtu.be/69FhVA4Ogal>. Make them aware of the edit icons <https://youtu.be/1bief7fjKsI>, how to add text <https://youtu.be/n-EI087Mog>, and how to add activities [https://youtu.be/VTxE\\_cSlv3E](https://youtu.be/VTxE_cSlv3E) and assessments <https://youtu.be/pmo2UNa2wJI>.
- Facilitators ask teachers to create an online platform course, add a document resource, add an interactive quiz, set up a discussion forum and have a wiki exercise set up for the students.

## Module 6: Facilitating Online Learning

Topic area: Creating and Using Online Learning Environments			Sub-topic area: Supporting Online Learning	
Module title: Facilitating Online Learning			Hours: 2	
<b>Key competencies:</b> Use digital tools to: <ul style="list-style-type: none"> <li>support online collaboration between students and members of the knowledge community</li> <li>track and evaluate student contributions to learning in the knowledge community</li> </ul>				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values	<ul style="list-style-type: none"> <li>Difference between online teaching and facilitation.</li> <li>Introduction to community of inquiry: teaching presence, social presence, cognitive presence.</li> <li>Online facilitation strategies and services.</li> <li>Differences between online facilitation and face-to-face facilitation,</li> <li>Roles of an online facilitator.</li> <li>Supporting online learning, managerial support, technical support and nurturing social cohesion online.</li> <li>Strategies to support online learning.</li> <li>Strategies to manage online support services.</li> <li>Strategies to nurture online relationships.</li> </ul>	<ul style="list-style-type: none"> <li>Review web resources and videos on online teaching and facilitation.</li> <li>Discuss components of community of inquiry and their application in online learning.</li> <li>Conduct online discussion where teachers facilitate and collect evidence (WhatsApp or forum discussions) of good facilitation.</li> <li>Devise a support strategy for learners when they engage with the learning resources on the online platform developed.</li> <li>Write a reflection piece on the acquired experience in online learning and submit in portfolio.</li> </ul>
<ul style="list-style-type: none"> <li>Differentiate between online teaching and facilitation.</li> <li>Demonstrate an understanding of the importance of a community of inquiry in online learning.</li> <li>Identify essential competencies of a facilitator.</li> <li>Explain roles of an online facilitator.</li> </ul>	<ul style="list-style-type: none"> <li>Create online support services for learners.</li> <li>Engage and facilitate learners in online group discussions.</li> <li>Track learners' progress in online learning practice.</li> <li>Provide feedback and technical support to online learners.</li> </ul>	<ul style="list-style-type: none"> <li>Appreciate the values of online learning collaboration.</li> <li>Recognise individual differences in online collaboration learning.</li> </ul>		
<b>Assessment activity:</b> <ul style="list-style-type: none"> <li>Select a topic and prepare a short lesson to be delivered online.</li> <li>Upload the lesson to the online platform being used.</li> <li>Practice online facilitation with peers using the uploaded lesson.</li> <li>Document in your portfolio the learning experience towards improved online facilitation.</li> <li>Spend some time planning how you will run the course and in what ways you will be supporting the learners while they are online to make sure that they stay engaged and interested.</li> </ul>				

## Supporting references and open educational resources:

### OER

MG Online, Facilitating online learning: <https://mgonline.mgslg.co.za/course/view.php?id=47>

KICT CFT, Online Facilitator's Training: <http://kictcft.or.ke/course/view.php?id=21>

### Facilitation guide

- Facilitators will encourage teachers to review web resources and videos on online teaching and facilitation, as available on <https://youtu.be/iNBcyPPutko>.
- Facilitators will induct teachers into strategies for supporting students in an online learning environment.
- Facilitators take teachers through an online lesson and provide required feedback and support.
- Facilitators request that teachers document their experience and identify what worked well and what was challenging.

## Module 7: Creating Learner-Centred Lessons

Topic area: Curriculum, Pedagogy and Technology			Sub-topic area: Approaches to Teaching and Learning	
Module title: Creating Learner-Centred Lessons			Hours: 3	
Key competency: Design activities that put learners first and engage them in autonomous, collaborative and problem-solving research or artistic creation.				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values		
<ul style="list-style-type: none"> <li>▪ Identify learner-centred approaches in the classroom.</li> <li>▪ Demonstrate understanding of characteristics of learner-centred lessons.</li> <li>▪ Explain how ICT can support learner-centred approach.</li> <li>▪ Select appropriate ICT tools to create learner-centred lessons.</li> <li>▪ Identify competence-based activities that enhance learner centredness.</li> <li>▪ Analyse the learning needs of students at school.</li> <li>▪ Analyse existing lessons within a subject to determine how best to adapt it to support learner centredness.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Design and implement competence-based lessons using learner-centred approach.</li> <li>▪ Analyse and address learners' needs, to optimise their potentials.</li> <li>▪ Use appropriate ICT-based teaching models to support learner centredness, such as Substitution, Augmentation Modification Redefinition (SAMR).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Teachers appreciate changes in their roles in the learner-centred teaching approach.</li> <li>▪ Teachers are keen to facilitate learning rather than to lead it.</li> <li>▪ Teachers embrace the idea of using technology to help transform their teaching to adopt learner-centred approaches.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Introduction to learner-centred approaches and methods.</li> <li>▪ Strategies to address learners needed in learner-centred lessons.</li> <li>▪ ICT-based teaching models and tools supporting learner centredness.</li> <li>▪ Design and implement learner-centred lessons.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Review a series of videos, web resources and materials in relation to learner-centred learning.</li> <li>▪ Document the acquired lessons and show the extent to which they would enrich the implementation of learner centredness.</li> <li>▪ Participate in a discussion forum about challenges and best practices around learner centredness.</li> <li>▪ Review ICT-based models and plan a lesson that uses one of the reviewed models, taking a learner-centred approach, then deliver micro-teaching lessons.</li> <li>▪ Complete a survey or feedback tool that assesses both learners' and teachers' experience with regard to learner-centred approaches, methods, technology.</li> </ul>

**Assessment activity:**

- Teachers design learner-centred lessons using ICT tools.
- Teachers deliver the designed learner-centred lessons using ICT tools.
- Teachers are asked to critically reflect on how the lesson was conducted, what did and did not work.
- Teachers upload evidence of their work in their e-portfolio. Evidence includes reports and videos.

**Supporting references and open educational resources:**

MG Online, What is Learner Centric Education?: <https://mgonline.mgslg.co.za/course/view.php?id=28>

MG Online, ICT to Support Learner Centric Education:

<https://mgonline.mgslg.co.za/course/view.php?id=31>

**References**

Active teaching and learning for Africa (2): Inclusive teaching:

<https://www.open.edu/openlearncreate/mod/book/tool/print/index.php?id=169377#ch22874>

Teacher Education in Sub-Saharan Africa (TESSA): <https://www.tessafrica.net/>

Resources-TESSA-Zambia: <https://www.open.edu/openlearncreate/course/view.php?id=2047>

**Facilitation guide**

**This is a completely online unit of study and needs to be facilitated remotely.**

- Facilitators ask teachers to review a series of videos, web resources and materials in relation to learner-centred learning, including <https://youtu.be/e6ieXLVCss4>, <https://youtu.be/Ff0lec8L97s>, <https://youtu.be/OrEEVZa3f98>, <https://youtu.be/z56SNAQNOqs> and <https://www.youtube.com/watch?v=1OsQS7Sanxg>.
- Facilitators ask teachers to review ICT-based models and plan a lesson that uses one of the reviewed models taking care of a learner-centred approach, then deliver micro-teaching lessons, including <https://youtu.be/LeaAHv4UTI8>, <https://youtu.be/9b5yvgKQdqE>, <https://youtu.be/SC5ARwUkVQg> and <https://youtu.be/ZQTx2UQQvbU>.
- Facilitators will demonstrate to teachers some examples of technology that supports student-centric approaches to learning, including MediaWiki, WordPress, Google Docs, Powtoon, PowerPoint and Pedometric.
- Facilitators ask teachers to create a lesson plan that employs a technology-enhanced student-centred lesson plan using a template.
- Facilitators request that teachers deliver a lesson, record it on video and upload the file to their portfolio as evidence.
- Facilitators invite teachers to complete a survey or feedback tool that assesses both learners' and teachers' experiences with regard to learner-centred approaches, methods and technology.

## Module 8: ICT Resources & Tools to Support Teaching & Learning

Topic area: Educational Technology			Sub-topic area: ICT Tools for Teaching and Learning	
Module title: ICT Resources and Tools to Support Teaching and Learning			Hours: 3	
Key competency: Use ICT resources and tools to support teaching, learning, and assessment activities.				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values		
<ul style="list-style-type: none"> <li>▪ Demonstrate understanding of ICT resources and tools in enhancing learning.</li> <li>▪ Identify different ICT resources and tools to support 21<sup>st</sup>-century learning skills.</li> <li>▪ Identify appropriate ICT resources and tools to create learning and teaching materials.</li> <li>▪ Analyse how different ICT resources and tools can be used in learning, teaching and assessment activities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Design and implement learning, teaching and assessment activities using different ICT resources and tools.</li> <li>▪ Use ICT resources and tools to support lesson delivery.</li> <li>▪ Evaluate a lesson based on ICT resources and tools.</li> <li>▪ Localise and adapt ICT resources and tools for learning, teaching and assessment activities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Teachers embrace the idea of using technology to create learning materials.</li> <li>▪ Develop active learning attitudes and values among learners in using ICT resources and tools for learning.</li> <li>▪ Recognise the ethics related to the integration of ICT resources and tools in teaching and learning.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Introduction to integration of ICT resources and tools in teaching, learning, and assessment.</li> <li>▪ Role of ICT resources and tools in supporting 21<sup>st</sup>-century learning skills (e.g., critical thinking, problem solving, communication, collaboration, creativity and innovation).</li> <li>▪ Ethical considerations in using ICT resources and tools for teaching and learning.</li> <li>▪ Key ICT resources and tools for teaching, learning and assessment.</li> <li>▪ Strategies to identify appropriate ICT resources and tools to create learning, teaching and assessment activities.</li> <li>▪ Steps for customising ICT resources and tools for learning and teaching.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Review web-based materials and video tutorials on ICT resources and tools in teaching and learning.</li> <li>▪ Search and evaluate existing curriculum-based ICT resources and tools.</li> <li>▪ Design and develop a lesson using appropriate ICT resources and tools.</li> <li>▪ Share with peers learning materials designed and developed using ICT resources and tools.</li> </ul>
<b>Assessment activity:</b>				
<ul style="list-style-type: none"> <li>▪ For this assessment, teachers design and develop a lesson based on ICT resources and tools to support learning.</li> <li>▪ Teachers choose a topic from their syllabus.</li> </ul>				

- Teachers select appropriate ICT resources and tools and design a lesson.
- Teachers deliver a lesson based on ICT resources and tools.
- In small groups, teachers observe each other’s lesson delivery and evaluate it using a rubric.
- Teachers discuss their reports in small groups and upload an individual evaluation report in the e-portfolio.
- Teachers use the online forum to share their resources with peers.

#### **Supporting References and OER:**

- Khan Academy offers access to materials from Grade 9 through to first-year college: <https://www.khanacademy.org/>
- MIT Blossoms Library: Math, biology, physics, chemistry and engineering video lessons for high school classes: <https://blossoms.mit.edu/videos/alpha>
- The University of Colorado has interactive simulations for secondary school-level science and math at their PhET site: <https://phet.colorado.edu/>
- OpenStax is a good starting point for quality textbooks, including printable versions: <https://openstax.org/subjects>
- GeoGebra offers “free digital tools for class activities, graphing, geometry, collaborative whiteboard and more”: <https://www.geogebra.org/classic>
- Graph, for plotting mathematical functions: <https://www.padowan.dk/download/>; see the Graph manual here: <https://www.padowan.dk/bin/Graph-English.pdf>

#### **Facilitation guide**

##### **This is an online unit.**

- Facilitators invite teachers to review some recommended web-based materials and video tutorials of ICT resources and tools related to their teaching subjects.
- Facilitators invite teachers to access online free and open professional ICT resources and tools that can be used to support learning in their teaching subjects.
- Facilitators invite teachers to try out various ICT resources and tools to support teaching, learning and assessment activities.
- Facilitators invite teachers to design and deliver lessons using ICT resources and tools.

## Module 9: Creating Digital Content

Topic area: Creating Digital Content			Sub-topic area: Identifying Forms of Digital Content for Use	
Module title: Creating Digital Content			5 days	
Key competency: Ability to identify forms of digital content for use in class.				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values		
<ul style="list-style-type: none"> <li>▪ Identify appropriate and effective forms of digital learning.</li> <li>▪ Identify sources and tools to create content.</li> <li>▪ Create actual content.</li> <li>▪ Edit content.</li> <li>▪ Upload the content.</li> <li>▪ Create different forms of digital content.</li> <li>▪ Uploading digital content.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ability to systematically plan and organise techniques.</li> <li>▪ Ability to identify, research and analyse data.</li> <li>▪ Ability to create, organise and communicate digital content.</li> <li>▪ Ability to edit digital content.</li> <li>▪ Ability to find different forms of digital content.</li> <li>▪ Ability to upload digital content accurately.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Appreciate different forms of digital content.</li> <li>▪ Appreciate justice and responsibility.</li> <li>▪ Protection of human dignity.</li> <li>▪ Truthfulness, responsibility.</li> <li>▪ Honesty.</li> <li>▪ Efficiency in content editing.</li> <li>▪ Effectiveness in the use of language in editing.</li> <li>▪ Accuracy in editing digital content.</li> <li>▪ Appreciate the process of uploading digital content.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Types of digital content (blogs, videos, podcasts, 3D pictures/images, online articles).</li> <li>▪ Scope of Creative Commons law.</li> <li>▪ Sources of existing digital content and tools to create digital content.</li> <li>▪ Animation.</li> <li>▪ Sources of existing digital content.</li> <li>▪ Types of tools to create content.</li> <li>▪ How to create content (animations, CorelDRAW, videos, blogs).</li> <li>▪ Adaptation of digital content.</li> <li>▪ Techniques of editing different forms of content.</li> <li>▪ Steps in content editing.</li> <li>▪ Photoshop and InDesign.</li> <li>▪ Knowledge of content and software.</li> <li>▪ Editing techniques.</li> <li>▪ Techniques for editing digital presentations.</li> <li>▪ Steps in editing digital content.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Review web-based materials and video tutorials on digital content (multimedia applications and simulations) in teaching and learning.</li> <li>▪ Search and evaluate existing curriculum-based multimedia applications and simulations.</li> <li>▪ Design and develop a lesson using appropriate multimedia applications and simulation tools.</li> <li>▪ Share with peers digital learning materials designed and developed using multimedia applications and simulation tools.</li> <li>▪ Use a rubric to evaluate a lesson based on digital content (multimedia and simulation tools).</li> </ul>
<b>Assessment activity:</b>				
<ul style="list-style-type: none"> <li>▪ Assessment will take place at every stage of development through questions and answers based on course objectives.</li> </ul>				

- Student project that involves identifying, creating, editing and uploading digital content.
- Validation of activities assigned by an independent trainer.

### **Supporting references and open educational resources:**

Digital Content Creation: What It Is and How to Excel at It: <https://www.semrush.com/blog/digital-content-creation/>

What is digital content creation? [INSIDER TIPS and more]: <https://andrewstapleton.com.au/what-is-digital-content-creation/>

Bing provides several videos on digital content creation, including how to make it; free web content; content writing samples; content creators, and more: [Creating digital content - Bing videos](#)

MG Online, Multimedia and Simulations: <https://mgonline.mgslg.co.za/course/view.php?id=40>

PhET: <https://phet.colorado.edu/>

GeoGebra: <https://www.geogebra.org/>

Powtoon tutorials: <https://www.powtoon.com/tutorials/>

Khan Academy video tutorials: [https://youtu.be/-vZ\\_g7K6P0](https://youtu.be/-vZ_g7K6P0),

YouTube, Multimedia in Education: <https://youtu.be/LbEiBNQMg9U>

YouTube, PowerPoint Screen Recording Feature: <https://youtu.be/kQwGEY4IDi0>

YouTube, What is Multimedia | Multimedia Definition | Multimedia Communication:

[https://www.youtube.com/watch?v=Syeu\\_l3sAJE](https://www.youtube.com/watch?v=Syeu_l3sAJE)

YouTube, Multimedia in Education: <https://www.youtube.com/watch?v=SH73vNexb88>

YouTube, How to Create a Multimedia PowerPoint Presentation:

<https://www.youtube.com/watch?v=8xaMalJfOhY>

YouTube, Online Simulation Education: [https://www.youtube.com/watch?v=X\\_nekmFQx1c](https://www.youtube.com/watch?v=X_nekmFQx1c)

YouTube, Multimedia in Education: [www.youtube.com/watch?v=MWQhnWAR4xw](https://www.youtube.com/watch?v=MWQhnWAR4xw)

### **Facilitation guide**

#### **This is an online activity.**

- Facilitators invite teachers to review some recommended web-based materials and video tutorials of multimedia applications and simulation tools related to their teaching subjects.
- Facilitators invite teachers to access online free and open professionally made simulations (e.g., PhET, Science, Open GIS Geography, GeoGebra, Camtasia, Powtoon, Paint.net, Paint 3D, Screencast-o-Matic, PowerPoint) that can be used as resources in lessons.
- Facilitators invite teachers to try out various multimedia applications and simulation tools to support teaching, learning and assessment activities.
- Facilitators invite teachers to design and deliver lessons using multimedia applications and simulation tools.

## Module 10: Using Assistive Technology to Support Inclusive & Special Needs Education

Topic area: Educational Support			Sub-topic area: Inclusive and Special Needs Education	
Module title: Using Assistive Technologies to Support Inclusive and Special Needs Education			Hours: 4	
Key competencies: Access, evaluate, organise, and disseminate digital resources and assistive technologies to support learners with disabilities/special educational needs.				
Learning objectives			Content	Learning activities
Knowledge & understanding	Skills	Attitudes & values	<ul style="list-style-type: none"> <li>Concepts of inclusive and special needs education.</li> <li>Types and evolution of assistive technologies in education; examples of text to speech, speech to text, Braille technology, light alerts, sign language etc.</li> <li>Case studies and best practices in using assistive technologies for learners with disabilities, special educational needs.</li> <li>Appropriate use of assistive technologies.</li> <li>Supporting learners with disabilities, special educational needs in online learning environments.</li> <li>Evaluating learning of learners with disabilities, special educational needs.</li> </ul>	<ul style="list-style-type: none"> <li>Explore available resources on inclusive and special educational needs.</li> <li>Engage in forum discussions and debates with others on how to support inclusive education and learners with disabilities, special educational needs.</li> <li>Allocate appropriate assistive technologies to specific learners with disabilities, special educational needs.</li> </ul>
<ul style="list-style-type: none"> <li>Demonstrate understanding of inclusive and special needs education.</li> <li>Identify and select appropriate assistive technologies to support learners with disabilities, special educational needs.</li> <li>Explain the use of assistive technologies to support learners with disabilities, special educational needs.</li> <li>Identify and select appropriate assistive technologies to evaluate learning of learners with disabilities, special educational needs.</li> <li>Identify and select digital resources using assistive technologies appropriately.</li> </ul>	<ul style="list-style-type: none"> <li>Use appropriate assistive technologies to support learners with disabilities, special educational needs.</li> <li>Use assistive technologies to evaluate learning of learners with disabilities, special educational needs.</li> <li>Access, evaluate, organise and disseminate digital resources to support learners with disabilities.</li> <li>Support learners with disabilities to access and use digital resources and assistive technologies.</li> </ul>	<ul style="list-style-type: none"> <li>Appreciate assistive technologies and their potential to ensure equal learning opportunities.</li> <li>Formulate recommendations that can improve the use of assistive technologies and digital resources for learners with disabilities, special educational needs.</li> <li>Demonstrate positive attitudes towards learners with disabilities, special educational needs.</li> </ul>		
<b>Assessment Activity:</b>				
<ul style="list-style-type: none"> <li>Learners participate in forum discussions and debates where they discuss the practicability and helpfulness of assistive technologies in their contexts.</li> </ul>				

- Support learners who need assistive technologies, and develop individual portfolios of learners' progress.
- Organise online activities for assessing learners' abilities to use assistive technologies in an online learning environment.

### **Supporting references and open educational resources:**

#### **References**

Assistive technology for math: <https://www.understood.org/en/school-learning/assistive-technology/assistive-technologies-basics/assistive-technology-for-math>

#### **OER**

MG Online, ICT to Support Students with Special Needs:

<https://mgonline.mgslg.co.za/course/view.php?id=32>

Zimbabwe ICT Essentials, Accessibility Guide: <https://www.oercommons.org/courses/zimbabwe-ict-essentials-accessibility-guide>

YouTube, Trend towards inclusive education:

<https://www.youtube.com/watch?v=uluTXwSjIeE&feature=youtu.be>

YouTube, The power of inclusive education: <https://www.youtube.com/watch?v=Tzl8eSK7aIA>

YouTube, Cultivate Inclusion: <https://www.youtube.com/watch?v=H2vzTkP5cU4&feature=youtu.be>

YouTube, What are learning disabilities?:

<https://www.youtube.com/watch?v=H2vzTkP5cU4&feature=youtu.be>

YouTube, SA Blind: <https://www.youtube.com/watch?v=cQ8kVOITYXI&feature=youtu.be>

YouTube, Dyslexia Support: [https://www.youtube.com/watch?v=rRqOFM\\_JSbl&feature=youtu.be](https://www.youtube.com/watch?v=rRqOFM_JSbl&feature=youtu.be)

YouTube, Multiple Intelligences: <https://www.youtube.com/watch?v=IYh8yoQJISk>

YouTube, The 9 Types of Intelligence: <https://www.youtube.com/watch?v=jVQitvk1Xtk>

HEART, Inclusive learning: <https://www.heart-resources.org/topic/inclusive-learning/>

#### **Facilitation guide**

##### **This is a blended learning session.**

- Engage learners in exploring a set of digital resources and assistive technologies for inclusive and special needs education.
- Facilitate learners to support learners with disabilities and special educational needs.

## 12. Annexure 2: Acknowledgements

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### Workshop Participants

The Teaching Council of Zambia hosted a five-day workshop to develop the Technology-Enabled Learning Competency Framework for Teachers in Zambia. The contextualised framework is based on the UNESCO ICT Competency Framework for Teachers, Version 3. The participants closely involved in the development come from a wide variety of stakeholder groupings and are acknowledged below:

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## **The Validation Team**

A consolidated draft was submitted to the TCZ after the workshop, for review and input. A follow-up one-day workshop was confirmed, to which more than ten additional members were also invited to discuss and finalise the document. The validation team members are acknowledged below:

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