The Government of the Republic of the Union of Myanmar

Ministry of Education

Year 2 Semester 2

EDU2209

Curriculum and Pedagogy Studies: Information and Communication Technology (ICT)

Teacher Educator Guide

PREFACE

The Myanmar Ministry of Education developed the four-year Education Degree College Curriculum, in line with the pre-service teacher education reform as specified in the National Education Strategic Plan (NESP) 2016-2021.

The Myanmar Education Degree College Curriculum consists of several components: the curriculum framework, syllabi, Student Teacher Textbooks, and Teacher Educator Guides. This curriculum for the four-year Education Degree College was designed and structured to align with the Basic Education Curriculum and to equip student teachers with the competencies needed to teach effectively in Myanmar's primary and middle school classrooms. It is based on a Teacher Competency Standards Framework (TCSF) which articulates the expectations for what a teacher should know and be able to do in the classroom.

The curriculum follows a spiral curriculum approach which means that throughout the four years, student teachers return to familiar concepts, each time deepening their knowledge and understanding. To achieve this, the four-year Education Degree College programme is divided into two cycles. The first cycle (Years 1 and 2) is repeated at a deeper level in the second cycle (Years 3 and 4) to enable student teachers to return to ideas, experiment with them, and share with their peers a wider range of practices in the classroom, with the option to follow up on specific aspects of their teaching at a deeper level.

The curriculum structure provides an integrated approach where teaching of subject knowledge and understanding educational theories are learnt through a supportive learning process of relevant preparation and practical application and experience. The focus is, therefore, not just on subject content, but also on the skills and attitudes needed to effectively apply their knowledge, skills, and attitudes in teaching and learning situations, with specific age groups. As the focus is on all components of a 'competency' – knowledge, skills, attitudes and their effective application – it is referred to as a competency-based curriculum.

Accordingly, a competency-based curriculum is learner-centred and adaptive to the changing needs of students, teachers, and society. Where new concepts are learnt, they are then applied and reflected on:

1. Learn (plan what and how to teach);
2. Apply (practise teaching and learning behaviours); and
3. Reflect (evaluate teaching practice).

Beyond the Education Degree College coursework, it is intended that student teacher graduates will be able to take and apply this cycle of 'learn, apply, and reflect' to their own teaching to effectively facilitate the learning and development of Myanmar's next generation.

The Myanmar Education Degree College Curriculum was developed by a curriculum core team, which is a Ministry of Education-appointed team of Myanmar Education Degree College teacher educators supported by the Ministry of Education, resource persons from the Universities of Education, University for the Development of National Races of the Union and a team of national and international experts. Overall guidance of the work was provided by the Department of Higher Education, Ministry of Education.

The curriculum development was also supported by the Strengthening Pre-service Teacher Education in Myanmar project, with technical assistance from the United Nations Educational, Scientific and Cultural Organization (UNESCO) and financial contributions from Australia, Finland, and UK Governments.

TABLE OF CONTENTS

HOW TO USE THIS GUIDE

Who will use this ICT Teacher Educator Guides?

This Teacher Educator Guide has been designed to help you facilitate student teachers' learning of Year 2 ICT. It is addressed to you, as the teacher educator, and should be used in tandem with the Student Teacher Textbook as you teach ICT. This Teacher Educator Guide contains step-by-step instructions to help you guide the student teachers in your class towards achieving the learning outcomes for each unit and lesson in the Student Teacher Textbook.

When and where does Year 2 ICT take place?

A total of 22 teaching periods (Semester 1: 12 teaching periods; Semester 2: 10 teaching periods) are allotted for Year 2 of the four-year Education Degree College programme. Classes will be held on the Education Degree College campus.

What is included in the Year 2 ICT Teacher Educator Guide?

The organisation and content of both ICT Student Teacher Textbook and Teacher Educator Guide align with ICT subject syllabus of the four-year Education Degree College programme.

Year 2 ICT contains following topics:

- Introduction to ICT
- Basic ICT Concept
- Computer Application
- Media Information Literacy and Digital Citizenship
- Internet and Communication
- ICT in Education

The Teacher Educator Guide follows the same structure as the Student Teacher Textbook. For each unit and lesson, there are **expected learning outcomes** and **competencies** that indicate what student teachers should know and be able to do by the end of the unit.

For each lesson, the Teacher Educator Guide includes:

Competencies gained: This list of competencies highlights the teacher competencies from the Teacher Competency Standards Framework (TCSF) that are focused on in that lesson.

Time: This is the total teaching minutes and number of 50-minute class periods allocated for the lesson as per the syllabus.

Learning strategies: This is an overview of all the learning strategies used during the suggested lesson learning activities.

Assessment approaches: This is an overview of all the assessment approaches suggested to be used before, during and after the lesson learning activities.

Preparation needed: This can include: guidance on what you need to know about the topic and references to subject knowledge resources; technology preparation; links to other subjects; room organisation; time management; and reference to expected answers.

Resources needed: This can include: printed media, flipchart paper, coloured paper, marker pens, URLs, video clips, low/no cost resources, and practical equipment.

Learning activities: Each lesson includes a variety of suggested learning activities designed to help student teachers achieve the expected learning outcomes within the allotted time. Each lesson should begin by activating the student teachers' prior knowledge or fostering interest in the subject. Learning activities are varied and in line with competency-based approaches to teaching and learning.

Facilitator's notes: These instruction boxes are included as an occasional 'safety net' at key points during the lesson, reminding you to quickly check that the lesson is flowing in the direction as planned, and to check if there are any points to emphasise to ensure that student teachers are learning effectively before moving forward.

Assessment: This comes at the end of each activity. It is an explanation or recap as to how each activity can be assessed formatively in order to assess success and inform future teaching. Instructions for facilitating various types of assessment are included in the *Toolbox for assessment approaches.*

Possible student teachers' responses: These are responses that you may get from the student teachers from each learning activity's assessment.

Check student teachers' understanding: This is the lesson plenary. At the end of the lesson, revisit the learning outcomes and TCSF competencies, and briefly assess the extent to which they have been achieved. Summarise the competencies and how they were addressed by the lesson content. Explicitly remind student teachers what they have studied and how they did so.

Extended learning activities: Some lessons in this guide include ideas on ways to adapt the learning activities to provide additional stimulus for student teachers to deepen their learning. These extended learning activities emphasise the benefits of flexibility in learning to respond to diverse needs and interests of student teachers. It is not mandatory to complete these learning activities during the class period.

Differentiated learning activities: Some lessons in this guide include ideas on ways to adapt the learning activities by considering different learning needs and interests of student teachers towards attaining the learning outcomes and TCSF competencies. These differentiated learning activities emphasise inclusive and flexible practice in teaching and learning. It is not mandatory to complete these learning activities during class period.

For each sub-unit, the Teacher Educator Guide includes:

Expected student teachers' responses for the review questions in TB: A box at the end of each sub-unit gives you the answers to the review questions in the Student Teacher Textbook. This section exists to support your knowledge as a teacher educator, and enables you to support your

student teachers by confirming the answers to the questions in their Student Teacher Textbook. It is NOT part of the lesson.

Each unit of the Teacher Educator Guide ends with a **Unit Summary**, which includes:

Key messages: This is a summary of the unit, including a reminder of the key points that student teachers should take from the unit.

Unit reflection: This section is part of the student teachers' self-study material and is included in the Student Teacher Textbook. It is duplicated here to inform you of its content. Your only task here is to remind the student teachers to read it. It does not form part of any lesson. It provides the student teachers with reflection points or questions relating to the learning in the unit.

Further reading: Suggestions for additional resources are listed according to the relevant unit. You can use these resources to learn more about the topic yourself or encourage student teachers to look these up in the library, on the internet, or in your Education Degree College's e-library.

Please note that the learning activities in the Student Teacher Textbook are designed for individual self-study. At times, these individual learning activities may be incorporated into the learning activities outlined in this guide. You may also wish to assign the learning activities in the Student Teacher Textbook for homework, or encourage student teachers to do them at their own pace.

While this Teacher Educator Guide contains detailed learning activities to help you plan and deliver lessons, the instructions in this guide are only suggestions. The student teachers in your classroom will have different characteristics and learning needs. As their teacher educator, you are encouraged to come up with your own learning activities which suit these needs, interests, and ability levels. You should feel free to change and adapt the lessons as much, or as little, as needed.

What is a competency-based curriculum?

The Student Teacher Textbooks and Teacher Educator Guides for all Education Degree College programmes follow a competency-based approach. This is outlined in the Education Degree College Curriculum Framework for the four-year degree and is based on the Myanmar Teacher Competency Standards Framework (TCSF). A competency-based approach means that the teacher education curriculum does not just focus on subject content. Rather, it emphasises the development of knowledge, skills, and attitudes and their application in real-life contexts. Competency-based curriculums are learner-centred and adaptive to the evolving needs of learners, teachers, and society.

The following elements are integrated throughout this Teacher Educator Guide, in line with a competency-based approach to teacher education: [1]

- **Contextualisation:** The learning content and learning activities are based on the Myanmar context to ensure that student teachers can relate what they learn to daily life.
- **Flipped classroom:** This pedagogical concept and method replaces the standard lecture-in-class format with opportunities for student teachers to review, discuss, and investigate module content with the teacher educators in class. Student teachers are typically expected to read the learning materials before class at their own pace. Classroom time is then used to deepen understanding through discussion with peers and problem-solving activities facilitated by you, the teacher educator.
- **Collaborative learning:** This educational approach involves groups of student teachers working together to solve a problem or complete a task. Learning occurs through active engagement among peers, either face-to-face or online. The main characteristics of collaborative learning are: a common task or activity, small group learning, co-operative behaviour, interdependence, and individual responsibility and accountability (Lejeune, 2009).[2]
- **Problem-solving:** This involves the act of defining a problem; determining the cause of the problem; identifying, prioritising and selecting alternatives for a solution; and implementing a solution. The learning content and activities included in this Teacher Educator Guide provide opportunities for student teachers to apply their problem-solving skills as appropriate.

1 Adapted from the *Glossary of curriculum terminology* (UNESCO-International Bureau of Education, 2013)
2 Lejenue's Collaborative Learning for Educational Achievement (1999)

Course rationale and description

The purpose of this course is to provide student teachers with basic knowledge of ICT-related concepts and using ICT in education and to prepare them to teach ICT in primary and middle schools. While the course includes practical sessions on how to use computer applications, a number of strands provides student teachers knowledge on basic ICT, media and information literacy, digital citizenship and internet and communication. The course will also provide student teachers with understanding of the linkages of ICT with other subjects'/ learning areas and how ICT can be effectively used in education. In addition, this ICT subject also supports the development of ICT knowledge for student teachers themselves. The knowledge will be useful for preparing them to utilise ICT effectively in not only teaching but also other areas such as management and professional development.

For all the student teachers, there will be 50 minutes per week in each year to study ICT. Years 1 and 2 are foundation years, in which student teachers are provided with foundational skills on basic knowledge of ICT and using ICT in education. Years 3 and 4 are years for deeper learning, in which student teachers are provided with advanced understanding and application on ICT and using ICT in education and learning.

Basic Education Curriculum objectives

This subject, ICT, is included in the pre-service Education Degree College (EDC) curriculum to ensure that teachers are prepared to teach the ICT curriculum as defined for basic education in Myanmar. Middle school teachers will be trained as subject area specialist and learn about academic standard equivalent to middle and high school level in order to ensure a strong subject proficiency foundation for being effective teachers for middle school students (Education Degree College Curriculum Framework, 2018).

The objectives of Basic Education Curriculum are as follows:

a) Ensure every school-age child learn until the completion of Basic Education;
b) Generate critical thinking skills in students, progressively throughout their primary education and are hence, equipped with five strengths;

c) Engage students to become responsible and accountable individuals who abide the laws in compliance with civic, democracy and human rights standards;
d) Cultivate students with appreciation to open-mindedness, curiosity, innovation and cooperation;
e) Strengthen 'union spirit' by allowing students to appreciate and preserve the languages, literatures, cultures, arts, traditional customs and historical heritage of all national ethnic groups and hence, evolve as citizens capable to pass on those valuable assets;
f) Give rise of students who appreciate and conserve natural environment, and involve in the dissemination of knowledge and skills in respect to sustainable development;
g) Enable the quality environment for education in conformity with international standards, and strengthen the quality of learning and teaching process by integrating technology in line with today's needs;
h) Promote sound body and sportsmanship through participation in sports and physical education activities, and school health activities;
i) Develop foundational knowledge for higher education, with inclusive to technical and vocational education; and
j) Empower to become global citizens who embrace diversity as individual or group, respect and value equality, and are armed with fundamental knowledge of peace to practice in their daily lives.

Learning outcomes for student teachers for ICT subject:

- To construct a better understanding of the alignment of ICT subject to the basic education curriculum framework and learning resources, and apply this to ensure the continuity and the progression of students' competencies developed across the grade level.
- To apply the competencies, particularly the technical skills, gained around ICT in their teaching practice to effectively support their students' learning process to achieve the learning objectives set for each ICT strand.

Teacher competencies in focus for Year 2 ICT

This section identifies key competencies from the Myanmar Teacher Competency Standards Framework (TCSF) specifically relevant for this subject. These teacher competencies give an overall compass for what student teachers should know and be able to do when graduating from this course. This overall teacher competencies links to the specific learning outcomes expected by ICT strands as outlined in the syllabus.

Table A. Teacher competencies in focus: Year 2 ICT

Competency standard	Minimum requirement	Indicators
A2: Know appropriate use of educational technologies	A2.2 Demonstrate understanding of appropriate use of Information and Communication Technology (ICT) in teaching and learning	A2.2.1 Describe the function and purpose of online and offline educational tools and materials to support the teaching and learning process A2.2.2 Evaluate and match available online and offline ICT tools and materials to curriculum content and pedagogical strategies, including online and offline A2.2.3 Describe and demonstrate the understanding of basic concepts and principles of media and information literacy
A3: Know how to communicate well with students and their families	A3.2 demonstrate respect for the social, linguistic, and cultural diversity of the students and their communities	A3.2.1 Give examples of inclusive communication to support all students' participation and engagement in classroom activities A3.2.2 Be aware of social, linguistic and cultural background of parents, community elders and leaders when interacting with them
B1: Teach curriculum content using various teaching strategies	B1.2 Demonstrate capacity to apply educational technologies and different strategies for teaching and learning	B1.2.1 Use teaching methods and learning strategies appropriate for the class – culture, size and type B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy B1.2.3 Create opportunities for students to investigate subject-related content and concepts through practical activities
C1: Service to profession	C1.4 Demonstrate responsibility and accountability for the use of education resources	C1.4.1 Use school supplies and resources appropriately
C3: Promote quality and equity in education for all students	C3.3 Demonstrate capacity to build students' understanding of different cultures and global citizenship	C3.3.1 Integrate concepts of sustainability, equality, justice and the rights and responsibilities of students into class and school activities
D2: Engage with colleagues in improving teaching practice	D2.1 Improve own teaching practice through learning from other teachers and professional development opportunities	D2.1.1 Discuss teaching practices with supervisors and colleagues, and willingly seek constructive feedback D2.1.2 Participate in professional development activities related to identified goals for improving practice D2.1.3 Establish goals for own professional development as a teacher
D3: Participate in professional learning to improve teaching practice	D3.1 Demonstrate understanding of the importance of inquiry and research-based learning to improve teaching practice	D3.1.1 Identify relevant professional learning material to improve own practice D3.1.2 Search and analyse online or offline information on current trends and research based practices in lower secondary education and for specific subjects taught to improve one's own content knowledge and teaching practice

***Source**:* Myanmar Teacher Competency Standards Framework (TCSF) - Beginning Teachers, 2020, pp. 109 – 140

Teaching young adult learners

The student teachers in your classroom are young adult learners. As such, evidence suggests that they will learn best when:

- The course content is related to their prior knowledge and experiences;
- There are opportunities for them to be active in their learning, both in and outside the classroom; and
- They are asked to develop their critical thinking and social skills and to take ownership of their own learning.

The different types of content delivery and learning strategies proposed in this Teacher Educator Guide are based on the following 'good practice' principles of teaching adult learners:

1. **Keep it relevant.** Adults tend to be goal-oriented and practical. They want to understand how what they are learning will be important in their daily lives. This means that it is important to have clearly defined goals and objectives for what student teachers will accomplish in a lesson, and why. Student teachers need to see the relevance of what they are learning for their future jobs as teachers. You can tell them explicitly what they are learning or how individual learning activities will be useful to them as teachers.
2. **Recognise your student teachers' backgrounds.** Your student teachers are coming to you with at least 18 years of life experience. The content of your course should reflect the level of education that they have completed and the realities of their daily lives. Adult learners need to be shown respect by valuing the experience and knowledge that they bring to the class. In your lessons, you can look for places where student teachers can draw on their real-life experiences and prior knowledge to help them understand and connect to a topic.
3. **Encourage exploration.** As adult learners, your student teachers are capable of learning on their own and being self-directed. Activities that require problem-solving and collaboration can help your student teachers to connect deeply and meaningfully with the lesson content. To do this, look for ways to actively involve your student teachers through discussion groups, real-life practice and opportunities to teach others. It may help to think of yourself as a *facilitator* of learning, rather than a teacher. You can encourage the student

teachers in your classes to take ownership of their learning by finding out what is interesting to them and encouraging them to pursue these things.

Guidelines for inclusive and equitable classroom practices

Inclusion is the act of ensuring that all persons are free from discrimination of any kind and enjoy equal rights. In terms of inclusion in education, a child should be able to enjoy their right to education, regardless of their gender, language, ethnicity, religion, disability, socioeconomic status and geographic location, as set forth in the 1990 UN Convention on the Rights of the Child. The vision of the Ministry of Education (MoE) is to ensure significant advancement towards adhering to the terms of the UN Convention. Its aim is also the achievement of the Sustainable Development Goal for Education, namely: *SDG Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.*

The achievement of SDG Goal 4 can be realised through the creation of inclusive, learner-friendly environments at all levels of the Education Degree College. While teacher educators can model inclusive and equitable classroom practices to their student teachers, administrators can also contribute by creating mission and/or vision statements and policies that celebrate inclusion, including a policy against discrimination.

As a teacher educator, actively promoting inclusion and gender equality in the classroom is an essential element of your teaching. Facilitating a safe and positive environment and atmosphere where all student teachers feel that their contributions are equally valued, and have equal access to learning, requires you to be mindful of the teaching and learning strategies and resources you use.

It is your responsibility not only to ensure your student teachers have equal access to learning, but also to ensure that they understand and value the importance of inclusion and gender equality and take that knowledge with them into their own teaching practice. The skills, knowledge, values and attitudes developed in the classroom with regards to creating inclusive, learner-friendly environments, either implicitly or explicitly, can have a long-lasting impact on the future behaviour of your student teachers.

General strategies to facilitate an inclusive classroom

Teachers, as facilitators, are responsible for creating high quality, inclusive learning environments where all students are supported to experience success in their learning.

- Think about each student teacher and consider the barriers they may experience because of their gender, disability, religion, ethnicity, language, geographical context, and socio-economic situation.
- Be aware of your own biases and reflect on your actions and teaching strategies.
- Ensure that all genders are represented and recognised, be aware not to reinforce gender stereotypes.
- Be sensitive to the marginalisation of different ethnic or religious groups experienced or continue to experience.
- Be aware that student teachers from ethno-linguistic groups who may not be as confident in using the language of instruction in the school. Use terms that all students would be familiar with and check for understanding throughout the lesson. If needed, provide translations of key documents and materials for all student teachers.
- Recognise and acknowledge different religious practices and try to represent all in the class and not have a bias towards the most predominant culture or religion in the population.
- Ensure that activities and examples are accessible to student teachers from all socio-economic groups and can all participate. Use local examples relevant to the locality and materials that are easy to acquire, low-cost and are readily available.
- Provide accommodations and adapt lessons for student teachers with disabilities.
- Make sure you present the key learning points of the lesson through visual, auditory and if possible tactile cues – respond to different learning styles.
- Be flexible and offer a variety of activities for different student teachers to explore the same learning competencies and learning outcomes.
- Have high expectations of all student teachers and focus on helping each of them all achieve the learning outcomes.

Ensure gender inclusivity in the classroom

Gender stereotypes are often inadvertently reinforced in the classroom through the use of language, pedagogical approaches and resources that support the preconceived culturally expected norms, roles, and responsibilities of women and men. By promoting a gender-inclusive environment in the classroom, you can support both male and female student teachers in building a healthy understanding of gender equality and further mainstreaming of this gender-sensitive and inclusive practice into basic education classrooms.

- Ensure that there is equal representation of male and female voices, names, quotes and examples.
- Ensure that illustration examples do not reinforce any existing stereotypes.
- Use equitable and gender-inclusive language and ensure that your student teachers do likewise.
- Help and encourage your students to be gender aware, highlight any perceived gender-biased attitudes and encourage your student teachers to reflect on their own actions.
- Ensure that you interact equally with male and female student teachers, addressing and engaging them both to the same degree in your teaching, across different subjects. For example, when asking questions, asking for volunteers, selecting activity leaders, giving complements, giving eye contacts, or even remembering the names of student teachers.
- Arrange the classroom setting in a gender-sensitive and equal manner, in terms of classroom decorations, seating arrangement, and group formation/ division.

Specific guidelines to adapt a lesson according to the different needs of your student teachers

Types of situations	Guidelines
Student teachers not interested in lesson topic	Make relevant connections between topic and their lives
	Show them practical applications of topic
	Use examples related to their interests
	Include games and activities which require the student teachers to collaborate together on the lesson content
Unmotivated student teachers to engage in activities	Provide choices within the classroom
	Increase opportunities for peer-based learning
	Ensure learning tasks is at appropriate level of difficulty
Student teachers reluctant to participate in class	Provide options for participation
	Be flexible in expectations for participation among peer partners/small groups
	Encourage and support the participation of quieter student teachers
Student teachers who may finish their work more quickly	Develop and prepare extension activities
Student teachers who may take longer time to complete the tasks	Allow more time to complete work if they need it
Student teachers who respond better to visual input (including learners with hearing impairments)	Use objects/pictures, colour-coded information for visual organisation
Student teachers who respond better to auditory input (including learners with visual impairments)	Use lecture or discussion-based learning, peer-based activities, audiobooks, text-to-speech software
Student teachers with learning or attention challenges	Use small chunk of information, frequent repetitions, multiple examples, concrete learning experiences, actual demonstration, hands-on learning
Student teachers who learn better kinaesthetically	Use hands-on learning, touching objects, tactile graphics, frequent movement, project-based learning
Culturally diverse student teachers	Use culturally-relevant materials and instructional methods
Student teachers with disabilities	Group them with student teachers who can offer support and assistance, not with those who are facing difficulties
Student teachers with hearing impairments	Ask them to sit near the front of the room
	Make sure that they can see your lips to be engaged through lip-reading
	Provide written representations of what is being communicated
Student teachers with visual impairments	Ask them to sit near the blackboard
	Use large-print materials with the contrast enhanced
	Provide instructions verbally as well as visually
	Provide a variety of engaging activities engaging other senses
Student teachers who prefer expressing themselves through printed words (including students with speech difficulty)	Use journaling, fill in the blank activities, essays, stories or poems

Types of situations	Guidelines
Student teachers who are verbally expressive (including students having writing difficulties)	Include discussions in class or "reporting back" to questions
Students teachers who communicate best with drawings, diagrams (including students with speech or writing challenges)	Use visuals, poster making or other artistic formats
Student teachers who express themselves better through demonstration and movement	Use drama/skit, body movements, building models
Student teachers who need time to think before responding (including second-language learners)	Provide time for them to construct responses before sharing with you or their classmates
Student teachers who have limited mobility	If movement is required, adjust the lesson to include variations that allows the student teachers to demonstrate knowledge by using other parts of their body or wheelchair movement.
	Have them demonstrate the competency using a written or oral description
Student teachers with complex physical disabilities	Use of scribe to support writing
Student teachers with learning/ organisational challenges	Encourage peer support
	Use sentence-starters in writing, work banks, pictures, to-do-lists, task checklists

Inclusive, quality assessment to enhance learning

Traditional assessment strategies create barriers for many students. Inclusive assessment allows student teachers to maximise access to learning opportunities, but also considers their individual differences and contributes to improving the quality of education.

- Use formative assessments frequently. Use the data that you get from formative assessments to influence instructional decisions.
- Design and adapt tests so that they are accessible to all student teachers.
- Ensure that all instructions are clear and easy to understand, questions are at the reading level of all students, and diagrams are clear and easy to read.
- Allow student teachers with disabilities to be supported by providing assistance in writing down their answers or understanding the questions as needed (this can be a student teacher from another year group or class or a designated teaching assistant).
- Use assessment rubrics with benchmarks towards the learning goal, using a rating scale such as 'not yet evident', 'beginning', 'developing' and 'independent'. The benchmarks can be adjusted depending on the lesson

or individual learning goals. Other alternatives include checklists, personal feedback, student self-assessment, portfolio with selecting highlights and areas for improvement.

- Ensure that there is more than one way for you to check understanding in a lesson. Provide several options for student teachers to express learning through a variety of assessment tasks.

Accommodations for student teachers who may experience barriers in participating in assessment tasks

Type of Accommodations	Ideas
Accommodations in presentation	Provide oral reading of the assessment (either by recorded voice or adult reader)
	Use large print for the assessments
	Provide audio amplification to aid in listening (hearing aids of speakers)
	Use computerised screen readers of text
Accommodations in response	Use a computer or a scribe to help with answering of questions
	Circle answers directly in the text booklet rather than a separate book
	Use organisational devices (calculators, organisers, spell checkers, dictionaries)
Accommodations in setting	Administrate the test in a separate place to minimise distraction
	Test in a small group
	Adjust lighting in a room (more or less light for students who need it)
	Provide noise buffers (headphones, ear plugs, earphones)
Accommodations in timing	Extend time to complete a test
	Allow multiple or frequent breaks
	Change the order of a test (e.g., provide easier subjects first to decrease anxiety)
	Test over multiple days rather than one day

Enhance inclusive teaching through reflective practice

You should constantly reflect on your teaching practice to ensure that you are providing quality education that is accessible and engaging for all of your student teachers, regardless of their background. After every lesson, think about these questions for your reflection:

1. Teaching is planned with all student teachers in mind.

- Do lesson activities take account of student teachers' interests and experiences?
- Are varied teaching strategies and methods used?
- Do the student teachers understand the purposes of lesson activities?
- Does the lesson plan support the achievement of intended learning outcomes?
- What works well and what does not work well for who? Is there a better way to teach the subject?
- Have I anticipated different learning styles, preferences, abilities, and needs of student teachers and designed activities to cater to their needs?
- How have I considered student teachers' understanding and prior knowledge? How have I adapted my lesson to scaffold understanding and address a range of needs?

2. Lessons encourage the participation of all student teachers.

- Are all student teachers, regardless of gender, addressed by their name equally?
- Are there locally, culturally, and personally relevant materials that engage the interest of the student teachers?
- Do student teachers feel they are able to speak during lessons?

3. Student teachers are actively involved in their own learning.

- Are student teachers encouraged to take responsibility for their own learning?
- Does the classroom environment encourage independent learning?
- Have I designed the lesson to allow student teachers an element of choice in how they learn?

4. Student teachers are encouraged to support one another's learning.

- Do seating arrangements encourage student teachers to interact?
- Are student teachers sometimes expected to work in pairs or groups?
- Do student teachers help one another to achieve the goals of lessons?

5. Support is provided when student teachers experience difficulties.

- Am I watching out for student teachers experiencing difficulties?
- Do students feel able to ask for help?

6. Positive learning behaviour is based on mutual respect.

- Are there established rules for taking turns to speak and listen?
- Do student teachers feel that their voice is being equally heard?
- Are bullying, gender stereotyping and discriminatory biases discouraged?

7. Student teachers feel that they have somebody to speak to when they are worried or upset.

- Are the concerns of all student teachers listened to, regardless of background?
- Do I make myself available for student teachers to talk with me privately?
- Have I created an encouraging and positive learning environment?

8. Assessment contributes to the achievement of all student teachers.

- Have I used assessment to encourage learning?
- Are the assessment techniques inclusive and accessible for all student teachers?
- Are all student teachers actually learning what they are supposed to?
- Are student teachers given constructive feedback on their work?
- Have I supported student teachers for tests or examinations according to their individual needs?
- Do teachers ensure that diversity is respected, even within one united formal assessment system?

Toolbox for teaching and learning strategies

This Teacher Educator Guide includes suggested learning activities for each lesson in the Student Teacher Textbook. These learning activities are intended to help support you as you plan your lessons but they do not dictate what you must do to help student teachers develop the desired knowledge, skills and attitudes for each lesson. On the contrary, you are encouraged to come up with the lesson activities that will best help the student teachers in your classroom to learn, given their unique backgrounds and needs.

Many of the learning activities listed below are used in this Teacher Educator Guide. You can also use this list to help you plan, or further adapt, your lessons. This is not an exhaustive list of teaching and learning strategies. You may wish to brainstorm additional teaching strategies by visiting http://www.theteachertoolkit.com/index.php/tool/all-tools or other similar websites.

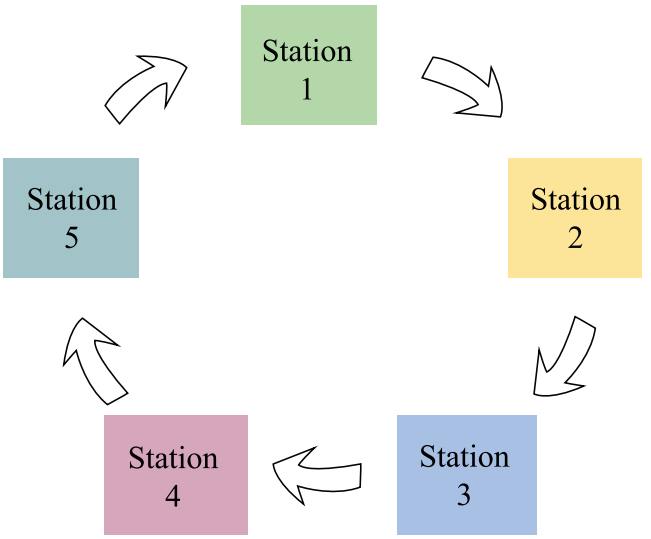
Assignments: The assignments that you give to student teachers might include formal written essays, portfolios and reflection journals. They also might be smaller, developmental tasks – for example, a short homework assignment answering questions about a reading. Assignments can help student teachers to review previously taught materials. They can also help student teachers prepare for future learning – for example, you might assign student teachers to read the Student Teacher Textbook content in advance of the next lesson.

Case studies: Working through case studies can help student teachers to develop their problem-solving and critical thinking skills as they must apply what they are learning to a scenario or story (the 'case'). To complete a case study, student teachers first read the scenario and then discuss and answer one or more open-ended questions about the scenario. Case studies often require student teachers to propose solutions to the problem presented in the scenario.

Directed activities: These are activities set by you, as the teacher educator, but carried out by the student teacher independently. For example, a directed activity might be for a student teacher to interview a basic education teacher during their Practicum school placement, or to independently research a specific teaching method. Directed activities are typically followed up in tutorials, seminars or workshops which provide an opportunity for student teachers to share about what they have learnt and to learn from their peers.

Gallery walk: In a gallery walk, student teachers work in groups to answer questions or complete a task on poster paper at various stations. They then rotate stations and add comments, questions, or further content to the poster at that station.

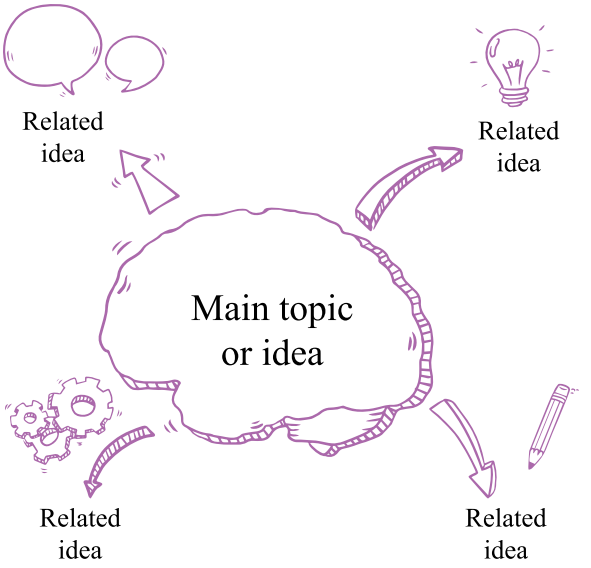
You can also use a version of the gallery walk to display student teachers' work. In this type of gallery walk, posters created during individual or group work are displayed around the room. Student teachers then circulate at their own pace to either simply view the posters, or to add their questions or comments to the poster.



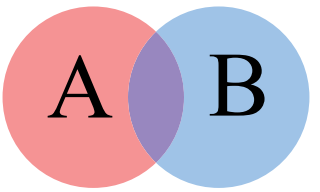
Graphic organisers: Graphic organisers are a simple and effective tool to help student teachers brainstorm and organise their thoughts and ideas in a way that makes it easier for them to understand. Graphic organisers can be used in any lesson for brainstorming, planning, problem-solving or decision-making.

Some of the most popular graphic organisers that you will see in your Teacher Educator Guides include:

- **Concept map (also called a mind map):** Concept maps, or mind maps, can be used to visually show the relationships between concepts or ideas. They are useful for brainstorming and also organising information. Concept maps can be organised in different ways and with different levels of complexity but most start with broad topics first, connected to sub-topics (or more specific concepts) to form a web of connecting ideas. The diagram below shows a very simple concept map.



- **Venn diagram:** Venn diagrams can be used to compare and contrast at least two different things or ideas (A and B). In the Venn diagram below, the overlapped area represents the characteristics belonging to both A and B and the two areas without overlap are for listing the characteristics that belong only to A and those that belong only to B.



- **KWL chart:** KWL charts can help student teachers organise information before, during and after a unit or a lesson. They can be used to engage students in a new topic, activate prior knowledge, share unit objectives and monitor student teachers' learning. KWL charts can be completed as a small group, whole class or by an individual. Before the lesson or unit, student teachers should fill in the first two columns about what they already know and what they want to know. After the lesson or unit, they can fill in the column about what they have learnt.

K What I **K**now	**W** What I **W**ant to know	**L** What I **L**earnt

- **T-chart:** T-charts can help student teachers examine two facets of a topic; for example, the advantages and disadvantages, or facts versus opinions.

Heading 1	**Heading 2**

Group work: Group work refers to any time you ask student teachers to cooperatively work together in groups on a task (for example, see the Jigsaw activity below). Group work can help motivate student teachers and encourage active learning. It requires student teachers to practise key critical thinking, communication and decision-making skills. Student teachers can work in groups to answer questions, create a presentation, write a lesson plan, analyse a case study, conduct a role-play and many more learning activities. You may wish to assign roles to group members – for example, recorder, presenter and team leader – to make sure that everyone is involved in the task.

Jigsaw: In a jigsaw activity, small groups of student teachers become experts on one component of a topic and then 'teach' that component to their peers. This gives student teachers the opportunity to work with others and to see different points of view. The jigsaw technique is especially effective because each student teacher is responsible for another's learning, and student teachers come to realise that each group member has something important to contribute to the group. In a jigsaw, student teachers must

practise using many important skills, including communication, problem-solving and critical thinking.

Lecture: Lectures are largely one-way communication between you, as a teacher educator, and a group of student teachers. They can be useful for delivering straightforward new content. Even when giving a lecture, you can involve student teachers more actively by pausing to ask and respond to questions, or by asking a student teacher to reflect or comment on the topic.

Micro-teaching: During a micro-teaching experience, a student teacher, or a small group of student teachers, teaches their peers all or part of a lesson. They then receive feedback on the mini-lesson and reflect on the experience in order to develop practical skills and apply their learning. Micro-teaching is an important opportunity to prepare for the Practicum Lesson Study and school placements. It can also provide a chance to focus on specific core teacher practices; for example, asking open-ended questions or giving students positive feedback.

Modelling: Modelling is an instructional strategy in which the teacher demonstrates a new concept or approach, and students learn by observing. As a teacher educator, you may choose to demonstrate a learning activity or teaching strategy, rather than simply telling the student teachers about it – this is modelling.

Modelling may also be followed by a discussion about how you presented the activity or strategy and what impact that had on the student teachers as learners. This can highlight the role of modelling in teaching and encourage student teachers to reflect on how they might use modelling in their own teaching in the future.

Observation: Student teachers can observe a peer or expert teacher teaching, then participate in structured, reflective discussion to make sense of what was observed. You may also observe a student teacher teaching all or part of a lesson and then follow this with a discussion to explore and develop the student teachers' thinking and practice. This strategy is an excellent opportunity to make links between theory and practice, and to support student teachers in making accurate assessments of their progress.

Practicals: Practicals can include demonstrations by you as teacher educator (for example, showing how to conduct a science experiment) and those led by, or involving, student teachers (for example, having student teachers complete a mathematical investigation and associated worksheet). This strategy can help student teachers to understand how different activities can help students learn. Practicals can also encourage student teachers to connect theory to their developing practice as teachers.

QR Codes: QR codes are a mobile friendly way to enter web addresses or check out links of specific information. Instead of clicking on links, a collection of small black squares, known as a QR code, is scanned.

First, student teachers will need to use their smartphone to download a QR code scanner or reader from the iOS Apple Store or Google Play, using mobile data or available internet connection. After downloading the scanner, connected students can hold up their phone, point their camera, scan the code and be directed to a given location. Teachers should be encouraged to use these codes in their own classrooms and know how to generate them easily and quickly.

These QR codes can be a great tool used for the flipped classroom approach, allowing student teachers to easily access links, websites, and download worksheets. You can also use them in warm up activities, assessments, surveys and other learning activities to include VLE in the classroom.

Please note that you and your student teachers will need mobile data or internet connection for the scanner to work.

Reading groups: A reading group is a small group session focused on the analysis and interpretation of a text, most commonly an academic paper. The paper is usually issued in advance and student teachers are expected to be familiar with its contents before attending the reading group. One student teacher may be asked to present the paper to the group, followed by a discussion to which all student teachers contribute. This strategy helps to familiarise students with academic writing as well as with the ideas within papers. Discussions may focus on the content, presentation or the methodology of the papers presented.

Role-playing: Role-play is a technique that allows student teachers to explore realistic situations as they interact with people and scenarios in a simulated way to try different strategies. This can allow student teachers to work through common challenges, or specific aspects of teaching, in a safe and supportive environment.

Self-study: In a self-study, student teachers must take responsibility for their own learning, with you as a guide. This strategy can supplement face-to-face and Education Degree College-based learning and is important to help frame, supplement, and consolidate new learning. Self-study can take a number of forms, such as reading around topic areas and action planning. Self-study includes time to think about specific areas of education.

Seminars: Seminars are small group sessions where questions can be explored, and views can be debated and analysed. Students usually complete preparatory work or reading before the seminar. While you would lead the seminar as a teacher educator, all student teachers are expected to contribute to discussions. Seminars can be good for developing student teachers' deeper thinking about content with which they are already familiar.

Think-pair-share: Think-pair-share is a simple and collaborative strategy where learners work together to solve a problem or answer a question. To use think-pair-share in your class, you can follow these three steps:

1. Think: Begin by asking a specific question about the text. Ask student teachers to 'think' about what they know or have learnt about the topic.
2. Pair: Each student teacher should pair up with a classmate, or with a small group.
3. Share: With their partner or small group, student teachers should share and discuss their thinking about the question. You can then expand this time of sharing into a whole class discussion about the topic.

Tutorials: Tutorials are one-on-one or small group sessions between you and a student teacher. Tutorials allow for personalised, detailed discussion and exploration of ideas. They may have a pastoral or academic focus and may be used to support student teachers who are struggling with specific academic content, or who have missed out on an in-class learning experience.

Virtual Learning Environment (VLE): This widely-used tool is a teaching strategy to supplement and support learning and self-study. In VLE, activities, study skills and website links are shared with student teachers, and different tools are used to explore understanding, such as wikis, forums and blogs. An e-library is available for student teachers to access teaching and learning resources.

Workshops: Workshops are group sessions in which student teachers engage with new content and skills in order to develop their understanding and practice. This strategy often incorporates a great deal of collaboration and discussion as well as more lecture 'teaching' by you, as teacher educator. Workshops allow for detailed discussions about a topic and for student teachers to practise applying what they are learning.

Toolbox for assessment approaches

There are many different ways you can monitor student teachers' learning before, during, and after a lesson. This Teacher Educator Guide includes many of these assessment approaches. Remember that providing feedback, either written or verbally, is an important part of formative assessment. Your feedback is what will help student teachers to learn and improve on future tasks. You can think of formative assessment as a chance for student teachers to practise before the summative assessment, where they will be asked to show what they have learnt through a larger test, exam or project.

Some of the most popular assessment methods you will see in this Teacher Educator Guide include:

Demonstration: In a demonstration, you may ask a student teacher to show you – or demonstrate – a skill that they have been learning. For example, you may ask a student teacher to demonstrate a dance technique, a step in a science experiment, or a movement in physical education. By observing the demonstration, you can monitor student teacher progress and provide suggestions for improvement. As with all formative assessment approaches, the feedback you provide on the student teacher's demonstration is what will help him or her to improve.

Homework assignments: Checking student teachers' homework assignments, which may include tasks such as reading and answering questions or looking up additional information, is a good way to monitor if they are on the right track. Depending on the homework assignment, you may wish to discuss answers as a class, check for completion, or collect and provide written feedback.

Journal log/reflection papers: These are a detailed log of student teachers' thoughts and feelings about their professional development and growth. The journal log and reflection papers are intended to help student teachers think deeply about their own learning by reflecting on their progress towards becoming a teacher. The process of consciously reflecting on their learning will help student teachers make connections between the content they learnt in a subject and other subjects, solve problems that come up, and learn from their experiences. Teacher educators may provide advice to student teachers on the areas to focus on when preparing the journal logs and reflection papers.

Observation: Informal observation – by circulating the room, listening to groups discuss, and making eye contact – is a good way to get a general sense of whether student teachers understand the material. More formal observation would involve using a checklist or criteria that you are looking for in a student teacher's answers or presentation. You can then provide feedback on the basis of what you have observed.

Peer-assessment: If you ask student teachers to evaluate or judge, the work of their peers, this is called peer-assessment. You will need to have the appropriate peer-assessment tools – either a rubric or a checklist – so that student teachers can provide feedback to their classmates based on established criteria. When student teachers observe each other during micro-teaching and complete an observation sheet, this is a form of peer-assessment.

Presentation: A presentation may be similar to a demonstration but often involves more preparation on the part of the student teachers. Asking groups or individuals to present their work – perhaps at the end of the lesson – is an excellent opportunity to check for understanding, correct any misconceptions and provide feedback.

Projects: Projects are completed by each student teacher, either individually or collaboratively in a group. This is to demonstrate their understanding in the subject content knowledge and their competencies gained through designing, planning

and developing projects. Student teachers work on a project over a certain period of time to investigate a topic or a real-life issue. Teacher educators are requested to provide instructions on completing the projects, including the rubrics of the assessment.

Question and answer: Asking student teachers both closed-ended and open-ended questions is a good way to monitor whether student teachers understand the material. During question and answer sessions, be sure to call on a variety of student teachers for their responses. While you may want to use some closed-ended questions (with one correct answer) to check understanding, you will be able to foster better and deeper discussions through open-ended questions, which have more than one right answer and generally require more thinking on the part of the student teachers.

Quiz: You may wish to use a short quiz to test the knowledge of your student teachers. Quizzes can be graded in class as a whole class activity, or you may wish to collect and check the quizzes outside of class. Quizzes can also be seen as a way to 'practise' for a summative test or exam.

Self-assessment: In a self-assessment, student teachers evaluate their own strengths and weaknesses. This process can help them to understand their own gaps in skills or knowledge and to create a plan to address these gaps. Self-assessments are good ways to encourage student teachers take ownership of their own learning and development. As in peer-assessment, student teachers will need some coaching to understand the assessment criteria and how to apply them to their own work or skill sets.

Written examinations: Written examinations are conducted usually at the end of each semester to test the basic subject content specific knowledge and reflection of related pedagogy discussed during the course.

General tips for facilitating a lesson

Some of the teaching and learning strategies suggested here and throughout this Teacher Educator Guide may be new to you. If so, it is recommended that you spend some time carefully planning out how you will use them in your lessons so that student teachers can achieve the desired learning outcomes.

The following are some additional general tips that you can implement to help your student teachers learn.

Before teaching a class, you may wish to do the following:

- Choose a small amount of content to deliver. Keep in mind that in a given 50-minute class period, you generally do not want more than one-third of the class period should be focused on content delivery. This will enable there to be enough time for student teachers to practise their skills and deepen their understanding of the topic.
- Note down the key points you think are most important for your student teachers to learn from the lesson content. You can refer to these as you deliver the content to the class to make sure you discuss these key points.
- Make sure you are clear on how you will carry out the content delivery and the learning activities. Refer to the suggestions in this guide and discuss with other teacher educators, if needed. Always feel free to change the suggested steps so that the lesson activities work well for your specific classroom situation.
- For each learning activity, prepare clear written instructions for your student teachers describing, step-by-step, how to do the activity. The instructions could be displayed on a presentation slide, printed on a handout or written on the board. Make sure the instructions are large enough to be read by all student teachers.
- You may want to practise explaining the instructions verbally, going slowly and step-by-step. This will help you be ready to explain the instructions to your student teachers before the activity, so they will understand what to do. You can practise the explanation with a friend or colleague ahead of time and then ask them what needs to be explained more clearly.
- If time allows, prepare to model of what student teachers are expected to do during the activity. This might involve one or two teacher educators doing a short role-play, pretending they are the student teachers doing the activity. This will enable student teachers to *see* exactly what they should be doing.
- If student teachers are expected to produce something at the end of an activity, you may wish to prepare an example, or ‘end product,’ to show student teachers what they should be aiming to create during the activity.

During class, just before the content delivery or any learning activity, if applicable, it may be helpful to:

- Distribute any materials or learning supplies that student teachers will need to carry out tasks you will ask them to do. Make good use of the e-library to request student teachers to access necessary teaching and learning materials online as appropriate.
- Provide clear verbal and written instructions to student teachers about any task you would like them to do as you deliver the content.
- Model what the student teachers should do using a short role-play.
- Show the example end product to student teachers that you prepared before class.
- Ask one or more student teachers to repeat back to the class how to do the activity, using their own words, to make sure they understand the instructions.
- Tell student teachers how long they have to complete the activity.

Throughout the class, it may be helpful to:

- Look for any signs that suggest whether the student teachers understand the content you are delivering or the task they are working on. If you suspect certain points may be difficult for student teachers to understand, consider explaining the information in a different way or breaking down the information into smaller, more manageable pieces.
- Walk around to all parts of the classroom to:
  - Ensure all student teachers are on task;
  - Answer questions student teachers have;
  - Ensure student teachers have all the materials needed to do the activity; and
  - Assess student teachers' understanding by observing whether they are carrying out the activity as instructed.
- Encourage student teachers to ask questions.
- If you detect a misunderstanding, either talk directly to the student teacher to clarify, or if the whole class may benefit from the clarification, call the attention of all student teachers and explain to everyone.
- Check for **Facilitator's notes** instruction boxes for points to emphasise and to ensure that student teachers are learning effectively before moving forward.

At the end of class, it may be helpful to:

- Consider following the suggested ways to "Check student teachers' understanding" at the end of each lesson. This is an opportunity to summarise the lesson and to briefly assess the student teachers' achievement of the learning outcomes and understanding of how the lesson addressed the Teacher Competency Standards Framework (TCSF).
- Assess student teachers' understanding by asking them to share a point from the content you delivered that they thought was particularly interesting, or that surprised them.
- Encourage student teachers to ask questions and provide comments on what you have just taught them.
- Ask one or two student teachers to share what they produced during the activity. If the activity was not designed to produce an end product, ask one or two student teachers to describe what they learnt from the activity.
- After student teachers share their work or their thoughts, choose one or two aspects of what they shared to emphasise to the class. The point you choose to emphasise should be key points that you would like all student teachers to learn and remember from the activity.

As a teacher educator, you have an important role to play in creating a classroom where all student teachers feel free to ask questions, share their reflections, and practise teaching in a safe supportive environment. It is your feedback and support that will help them grow into teachers who can foster the holistic development and learning of Myanmar's children and youth.

Table B. Year 2, Semester 2, ICT content map

Units	Sub-units	Lesson Headings	Learning Outcomes	TCSF		Periods
				Minimum Requirements	Indicators	
4. Media Information Literacy and Digital Citizenship	4.2. Digital Citizenship	4.2.1. Digital citizens in social media	• Identify the difference between internet and social media • Define the concept of digital identity • Practise social media etiquette • Explain how to protect "digital identity" and personal information online	A2.2 B1.2 C3.3 D3.1	A2.2.3 B1.2.1 B1.2.2 C3.3.1 D3.1.2	1
		4.2.2. Digital resilience	• Identify and distinguish different information disorders: disinformation, mal-information, misinformation and hate speech • Explain how algorithm works and discuss its impact on information processing, including the creation of echo chambers	A2.2 B1.2 C3.3 D3.1	A2.2.3 B1.2.1 B1.2.2 C3.3.1 D3.1.2	1

Units	Sub-units	Lesson Headings	Learning Outcomes	TCSF		Periods
				Minimum Requirements	Indicators	
5. Internet and Communication	5.1. Anatomy of the Web	5.1.1. Strategy of using search engine	• Search effectively with a specific and focused search strategy, using accurate search terms etc. • Use synonymous terms and broaden search when necessary • Differentiate between Ads and search results • Demonstrate an understanding of Search Engine Optimisation (SEO)	A2.2 B1.2 D2.1	A2.2.1 A2.2.3 B1.2.1 B1.2.2 B1.2.3 D2.1.2	1
		5.1.2. Engaging online video tutorials	• Use online video tutorials to facilitate thinking and problem solving • Explain "MOOCs" and introduce several famous MOOCs	A2.2 B1.2 D2.1	A2.2.1 A2.2.3 B1.2.1 B1.2.2 B1.2.3 D2.1.3	1
	5.2. Synchronous Conferencing	5.2.1. Understanding synchronous conferencing tools	• Explain the types and methods of conferencing • Implement conferencing tools in an education setting	A2.2 B1.2 D2.1	A2.2.1 A2.2.3 B1.2.1 B1.2.2 D2.1.1 D2.1.3	1
		5.2.2. Synchronous conferencing tools	• Explain how to initiate a synchronous group chat, audio call and video call • Demonstrate videoconferencing using apps, laptop/ desktop software • Demonstrate an effective and engaging activity using synchronous conferencing	A2.2 B1.2 D2.1	A2.2.1 A2.2.2 A2.2.3 B1.2.1 B1.2.2 D2.1.1 D2.1.3	1

Units	Sub-units	Lesson Headings	Learning Outcomes	TCSF		Periods
				Minimum Requirements	Indicators	
6. ICT in Education	6.1. ICT for Teacher Collaboration	6.1.1. Using ICT in teaching preparation and collaboration	• Explain the value of collaboration among teachers using ICT • Use relevant ICT tools to collaborate among teachers • Demonstrate how to exchange lesson plans, best practices, lessons learnt, and resource constraints	A2.2 B1.2 D2.1 D3.1	A2.2.2 B1.2.2 D2.1.1 D2.1.2 D2.1.3 D3.1.2	1
	6.2. ICT in Active Teaching and Learning	6.2.1. Using ICT in a learner-centred classroom	• Establish active teaching and learning facilitated by use of ICT	A2.2 B1.2 D2.1	A2.2.2 B1.2.2 D2.1.1 D2.1.2 D2.1.3	1
	6.3. ICT in Assessment	6.3.1. Offline assessment	• Explain the difference between offline and online assessment systems • Describe effective offline assessment tools in education by demonstrating any ICT tools • Assess offline assessment tools in education	A2.2 B1.2 D2.1 D3.1	A2.2.1 A2.2.2 B1.2.2 D2.1.2 D3.1.2	1
		6.3.2. Online assessment	• Practise the different types of online assessment • Identify many online assessment tools to teachers, including several multiple-choice education learning platforms (e.g. Google Word Coach) • Create sample online tests	A2.2 B1.2 D2.1	A2.2.1 A2.2.2 B1.2.2 D2.1.2	1
Total number of periods						10

Introduction to ICT

Education is concerned with information exchange, communication and the creation of knowledge. ICT (Information and Communication Technology) supports these three activities at a vast scale and therefore opens up new education opportunities. But the realities of the educational impact of ICT are not straightforward. We don't know whether the web, mobile phones, computers or apps for example, will improve, transform or even disrupt schooling. No one can say exactly what the relationship will be between the educational potential of ICT and actual use of ICT in Myanmar. While we might assume that the Internet can shape education, the history of education technology shows that innovations are usually shaped by classroom traditions.

We want students to start thinking about a model for understanding the relationship and fit between ICT and education. This model is simple. It states that:

- We learn about ICT
- We learn with ICT
- We learn through ICT

This model for understanding ICT's role in education is intended to guide this textbook as we explore future classrooms, teaching aids, digital literacies, assessment, school management and professional development. The model does not address the many pedagogical challenges and a teacher's need for hands-on expertise when using ICT in an education setting. Neither does the model deal with technical issues such as connectivity, hardware and software provision, or technical support. But that's what models do. They simplify, because reality is often too complex to portray, or because much of that complexity is unique to specific situations.

The textbook asks that future teachers think, plot, plan and strategise about how they intend to use ICT in their teaching, learning and administration. How can they take on the challenge of learning about, with and through ICT to develop the skills, knowledge and understanding required to make effective use of a range of technologies to solve problems, address challenges and find solutions to support the future of education in Myanmar?

To assist future teachers to understand and apply what they learn, we would suggest that teacher educators include online examples that student teachers can refer to. A

QR code that links to the example would allow the student teacher to quickly view it.

We would also like student teachers to look for ways in which the units and concepts that have been taught can be applied to their daily lives, inside and outside schools. To assist with the above, we have created a short story at the end of each unit that demonstrates the many possible uses for ICT.

Introduction to QR codes

Typing a long web address into a mobile phone browser can be difficult, especially when the address consists of random alphanumeric characters. In a classroom setting where each student has to individually enter a web address into their own device, sharing hyperlinks can be especially time consuming and difficult. A QR code offers an easy solution. These codes consist of a pattern of small squares arranged into a quadrangular shape. This pattern contains embedded information. Access to this information requires a mobile phone with a camera and installed QR code reader.

QR codes are a mobile friendly way to enter web addresses or links to specific information. Instead of clicking on links, a collection of small black squares known as a QR code, is scanned. QR codes have become very popular among educators because they allow for easy sharing of links. Connected students can hold up their phone, point their camera, scan the code and be directed to a given location. Teachers should be encouraged to use these codes in their own classrooms, and they should know how to generate them easily and quickly.

To view the information in a QR code, you will need

- a phone with a camera; and
- an app or programme that allows you to scan the code.

Pre-course activity - QR codes and the flipped classroom

A teacher educator could set up a survey for the class of student teachers to check whether they can use QR codes, enquire about student teachers' mobile devices and begin to practise the flipped classroom. If all student teachers have mobile devices, then the following survey could be adapted and put online. Student teachers could answer it on their phones.

Step 1 - Download a QR code reader.

Step 2 - Point your phone at the code.

Step 3 - Follow the information that is visible after scanning the code.

Alternatively, student teachers would need to complete the survey on paper and return the survey when they meet in class.

QR code survey

1. Does your phone have a camera?
   a. Yes
   b. No

2. Do you know what a QR code is?
   a. Yes
   b. No

3. Does your device have a QR code reader (software) installed?
   a. Yes
   b. No
   c. Unsure

4. If you answered yes to the previous question, then what is the name of your QR code reader?

5. Have you ever scanned a QR code using a QR code reader on your mobile device?
   a. Yes
   b. No

6. Have you ever seen the QR codes used in an education setting? If yes, what type of action(s) did you follow with the QR code? You can select more than one.
   a. I was directed to a website
   b. I accessed a text message
   c. I downloaded a file
   d. I was sent important information to take home
   e. I forwarded a pre-written SMS to a designated number
   f. I contacted a specific phone number

g. I connected to Wi-Fi
h. Other.

Introduction to case scenarios

At the end of each Unit, as part of the Summary you will find a Case Scenario for your student teachers to read. Each Case Scenario focuses on the key content of the Unit and uses a short story to demonstrate how ICT can be a subject, and also used as a tool to support student teachers' learning. The same characters appear in each Case Scenario to enhance the student teachers' own experience of a progression through the course.

A taxonomy of student teachers' levels of use of technologies has been developed to assist you in assessing progress that student teachers have made through each unit.

• Entry - computer literate, able to use computers and teach learners to use computers.
• Adoption - able to use various technologies, including the computer, to support traditional management, administration, teaching and learning.
• Adaptation - able to use technology to enrich the curriculum and use integrated systems for management and administration.
• Appropriation - able to integrate technology into teaching and learning activities and use integrated systems for management and administration within a community context.
• Innovation - prepared to develop entirely new learning environments that use technology as a flexible tool, so that learning becomes collaborative.

At the beginning of each Unit Summary the average level of knowledge and understanding that student teachers possessed on both starting and completing the unit is stated. This is to help you in assessing their progress.

Each Case Scenario is followed by some questions for you to ask your student teachers. The questions for Case Scenarios Units 1, 2 and 3 do not appear in their books. From Unit 4, the student teachers are given the questions to reflect on and respond to in their journals. These questions are intended to make them think about what they have learnt in the unit and how they can apply this to their own experience.

Finally, there will be some key points for you and your student teachers to focus on.

Unit 4

Media Information Literacy and Digital Citizenship

We access, read, connect and interact with new information every day. This unit is intended to identify some of the risks associated with digitisation and to develop your media and information literacy skills. You will analyse how media ownership impacts reporting processes and content. You will look critically at traditional and modern media. You will build skills which enable you to protect your digital identity and personal information online. You will also identify and distinguish between information disorders, as well as learn more about how algorithms work and their impact on information processing.

Expected learning outcomes

By the end of this unit, student teachers will be able to:

- Discuss how media selects, edits and alters information based on the objectives and functions of the media;
- Identify common media representation, including stereotypes of and prejudices against specific groups, communities and sectors (e.g. religion, gender, ethnicity, political ideology);
- Evaluate media content and information sources;
- Discuss how media ownership (e.g. private, government and public service) impacts on journalism processes (e.g. news sourcing and writing) and content (e.g. news stories);
- Recognise the importance of journalism ethics and practice editorial independence;
- Describe the importance of advertisements in media and information platforms;
- Evaluate critically media content using such criteria as accuracy, sensitivity (e.g. culture and religion) and timeliness;

- Identify the difference between internet and social media;
- Define the concept of digital identity;
- Practise social media etiquette;
- Explain how to protect "digital identity" and personal information online;
- Identify and distinguish different information disorders: disinformation, mal-information, misinformation and hate speech; and
- Explain how algorithm works and discuss its impact on information processing, including the creation of echo chambers.

Competencies gained

A2.2 Demonstrate understanding of appropriate use of Information and Communication Technology (ICT) in teaching and learning

B1.2 Demonstrate capacity to apply educational technologies and different strategies for teaching and learning

C3.3 Demonstrate capacity to build students' understanding of different cultures and global citizenship

D3.1 Demonstrate understanding of the importance of inquiry and research-based learning to improve teaching practice

4.2. Digital Citizenship

For this sub-unit, student teachers will watch a MOOC (massive open online course) and use social media websites to learn about different information disorders and algorithms. They will fill out tables in their handbooks eliciting their opinions on information disorders and algorithms. Use of the social media companies' websites will inform students teachers how algorithms work in practice to create echo chambers. Student teachers will make use of the whiteboard/chalkboard to compare different student teachers' preferences based on what appears in their social media feeds, so they can get exposure to how algorithms work with different user data sets.

4.2.1. Digital citizens in social media

Expected learning outcomes

By the end of this lesson, student teachers will be able to:

- Identify the difference between the internet and social media;
- Define the concept of digital identity;
- Practise social media etiquette; and
- Explain how to protect "digital identity" and personal information online.

Competencies gained

A2.2.3 Describe and demonstrate the understanding of basic concepts and principles of media and information literacy

B1.2.1 Use teaching methods and learning strategies appropriate for the class – culture, size and type

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

C3.3.1 Integrate concepts of sustainability, equality, justice and the rights and responsibilities of students into class and school activities

D3.1.2 Search and analyse online or offline information on current trends and research based practices in lower secondary education and for specific subjects taught to improve one's own content knowledge and teaching practice

Time: One period of 50 minutes

Learning strategies: Think-Pair-Share, research, pair work, group work, active learning

Assessment approaches: Observation, reflection journal, peer-assessment. For all activities, try to elicit responses equally from both male and female student teachers.

Preparation needed: Use of the computer lab for this lesson, if available, will make digital citizenship and media and information literacy trainings much easier through use of web search and social media platforms. If the computer lab is not available, have student teachers bring their mobile phones into class.

Resources needed: Before the start of the class, select a variety of Myanmar news sources, whether text, audio, images or video, online or print, each student teacher will preferably get a distinct Myanmar news source (some can be the same Myanmar news source, but will review different articles or content published on different dates). You will distribute these sample news sources to each student teacher in the class.

Facilitator's notes

A general repository of information on media and information literacy can be found below.

URL	QR - code
https://en.unesco.org/themes/media-and-information-literacy	
http://www.unesco.org/new/en/communication-and-information/media-development/media-literacy/five-laws-of-mil/	
http://www.unesco.org/new/en/communication-and-information/media-development/media-literacy/mil-curriculum-for-teachers/	
https://techcrunch.com/2019/08/22/who-gets-to-own-your-digital-identity/	
https://www.techopedia.com/definition/23915/digital-identity	

URL	QR - code
https://www.youtube.com/watch?v=uNGcKhqGMCw	
https://www.youtube.com/watch?v=f4B0q2oOLbs	

Learning activity 1. Active learning: What is digital identity? (15 minutes)

In this exercise, student teachers will be introduced to a virtual person, Khin Khin to better understand digital identity.

1. Begin the activity by asking student teachers to split up into pairs or groups and discuss what they think digital identity is and what it means for them online. Student teachers should write down their responses before sharing to the larger group.
2. Ask student teachers to review the basic information about Khin Khin.
3. Ask student teachers to discuss how this information would translate into a digital identity in small groups. Each group should be prepared to share their responses.
4. Note that typically, in offline settings people share different personal information with different people and institutions. Information is often orally shared and not recorded and retained indefinitely, unlike sharing data online, which can be indefinitely stored on a cloud database.

The purpose of this exercise is to prompt student teachers to think about possible reasons why most of them are likely willing to freely share personal information online to people they do not know and yet are far more unlikely to do so offline.

Assessment

Student teachers will be asked to work in groups and decide which aspects of their identity they want to share and which aspects they do not want to share online. The main purpose of the activity is to prompt self-reflection on the likely inconsistencies in student teachers' online and offline selves and the data they are willing share.

Possible student teachers' responses

There are no right or wrong answers but the student teachers should be made aware that their students can access their own teacher's digital identity. The information that their students find should not conflict with their classroom identities as an ICT teacher.

Learning activity 2. Active learning: Importance of keeping digital identity safe (15 minutes)

1. Ask the groups whether there are differences between what they feel comfortable with in sharing with their friends, family members, and colleagues or fellow student teachers. What are these differences? Please document these differences using the table below.

Table 4.8. Sharing online information

With friends	With family	With colleagues	With people in Myanmar	With the world

2. When the student teachers have completed the first 3 columns, elicit sample responses from the class and write them on the board under the same headings. Do the same with the fourth and fifth columns. Are there differences between the fourth and fifth columns? If so, why? Prompt the groups to discuss.
3. After this discussion of sharing online information, ask groups to discuss whether they are comfortable with their data being kept online by other companies for a long time. Ask them to note down the pros and cons of leaving their personal information for others to see and use.
4. After concluding the previous discussion, student teachers should discuss what kinds of information people share online in their profiles, posts and messages. They should write down what various people share.
5. Finally, ask student teachers to finally, discuss how they find out information about people they do not know by using social media profiles as well as other software that uses the internet, such as search engines.

Assessment

Once student teachers have completed the task individually, they should be grouped and discussed the kinds of information people share online in their profiles, posts and messages. Ask the groups if they know who has access to the information: "I don't know" is a perfectly fine answer, although it likely means that people who say "I don't know" have not turned on their privacy settings. You may also discuss how strangers use internet search and social media profiles to find out about people that they do not know.

Ask various student teachers for their answers, ensure that everyone, regardless of background, ability or gender, will feel equally invited to share their answers.

Possible student teachers' responses

For student teachers who say that they have turned on their privacy settings, let them show or explain to the other student teachers how they turn on their privacy settings. This will be useful for other people in the group who want to know more how privacy and limitations are shared online.

Learning activity 3. Active learning: What to be aware of online (10 minutes)

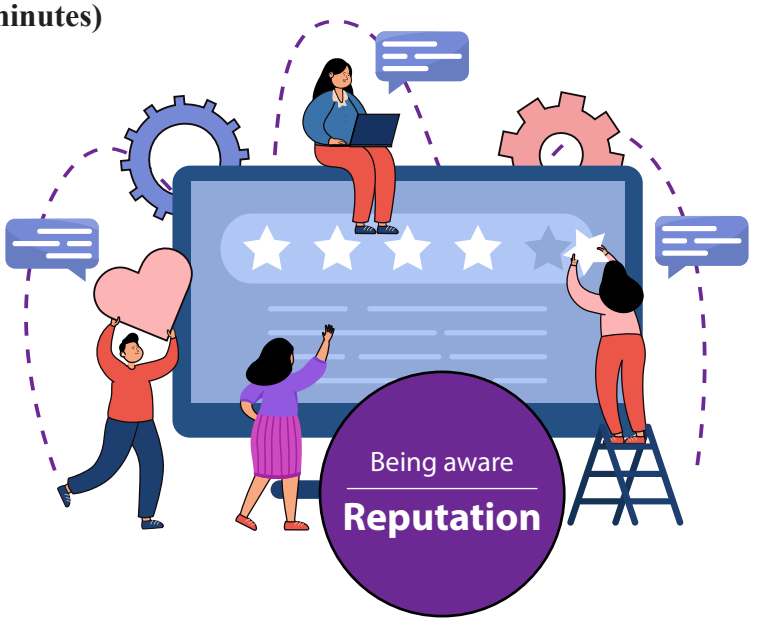


Figure 4.17. Your reputation

1. Have a whole class discussion on how the student teachers would feel if someone was spreading false information about them on social media or posting fake images of them.
   "What risks to their reputation there might be if someone were to post such information online?"
2. Elicit the answers to the two questions in the student textbook (Why would someone want to steal your digital identity? What kind of information do you think is useful for a digital identity thief?). Example responses include:
   - If digital thieves obtain your digital identity, they may be able to use it to pretend to be you, which they might use to steal your money; access your school/employment record etc.
   - The kind of information that is useful includes NRC card, date of birth, full name, father's name, address or phone number. People should consider only disclosing such information to trusted authorities.
3. Ask whether anyone in the group has either been a victim of money theft or knows someone who has been a victim online. If someone has or knows someone who has, let them tell their story and the other members of the group can discuss what they think about the story. If no one in the group has had such experience, you can invent a story 'about a friend' referencing news reports of individuals stealing from ATM machines using fake bank cards or people hacking into bank servers.

4. Ask the groups to discuss if anyone in the group has been a victim of identity theft. Identity theft happens quite often in many countries: personal data is stolen from many companies on a regular basis to resell that data for a profit or use that data to hack into personal accounts.

Assessment

Elicit responses from the groups after 5 minutes – ask each group to give you ONE answer only and don't allow any repetition!

Possible student teachers' responses

- Can you please tell me your official licence number?
- Why would I need to pay a government authority in gift cards?
- I will talk to my lawyer and they will contact you.
- If via email, check the URL to verify the authenticity of the link.
- Ask for the person's phone number, name and other identifying information and submit it to the police.

Check student teachers' understanding (10 minutes)

1. Display the diagram from the lesson again on a projector or draw its icons on the whiteboard:

Figure 4.23. Digital citizenship

2. Prompt the student teachers to think about **rights** they think they have as digital citizens. Ask them to write these rights on the whiteboard.
3. Next, ask the student teachers to think about **obligations** they have as digital citizens. Again, ask a few student teachers to write these obligations on the whiteboard.

Facilitator's notes

The reflection on rights and obligations as digital citizens may seem abstract for most student teachers. As you will have limited time, ask the more confident student teachers for their answers. Add explanations to ensure everyone understands: To enjoy and appreciate the benefits of being online, to be conscious of one's online behaviour, and to treat everyone else with respect.

4.2.2. Digital resilience

Expected learning outcomes

By the end of this lesson, student teachers will be able to:

- Identify and distinguish different information disorders: disinformation, mal-information, misinformation and hate speech; and
- Explain how algorithm works and discuss its impact on information processing, including the creation of echo chambers.

Competencies gained

A2.2.3 Describe and demonstrate the understanding of basic concepts and principles of media and information literacy

B1.2.1 Use teaching methods and learning strategies appropriate for the class – culture, size and type

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

C3.3.1 Integrate concepts of sustainability, equality, justice and the rights and responsibilities of students into class and school activities

D3.1.2 Search and analyse online or offline information on current trends and research based practices in lower secondary education and for specific subjects taught to improve one's own content knowledge and teaching practice

Time: One period of 50 minutes

Learning strategies: Think-pair-share, directed activity, pair work, group work, active learning

Assessment approaches: Observation, reflection journal, peer assessment. For all activities, try to elicit responses equally from both male and female student teachers.

Preparation needed: Use of the computer lab for this lesson, if available, will make digital citizenship and media and information literacy trainings much easier through use of web search and social media platforms. If the computer lab is not available, have student teachers bring their mobile phones into class.

Resources needed: Before the start of the class, select a variety of Myanmar news sources, whether text, audio, images or video, online or print, each student teacher will preferably get a distinct Myanmar news source (some can be the same Myanmar news source, but will review different articles or content published on different dates). You will distribute these sample news sources to each student teacher in the class.

Facilitator's notes

A general repository of information on media and information literacy can be found below.

URL	QR - code
https://en.unesco.org/themes/media-and-information-literacy	
http://www.unesco.org/new/en/communication-and-information/media-development/media-literacy/five-laws-of-mil/	
http://www.unesco.org/new/en/communication-and-information/media-development/media-literacy/mil-curriculum-for-teachers/	
https://techcrunch.com/2019/08/22/who-gets-to-own-your-digital-identity/	
https://www.techopedia.com/definition/23915/digital-identity	

URL	QR - code
https://www.facebook.com/unicefmyanmar/posts/2944665115600994?__cft__[0]=AZXIVmPUN8l7U51VLkwBJ9q0mVb5UVhcfwKd-l2De9UzYvcnbcDthf-SuQ-ji1eZ65AmkmJUoo9nBKUO_tQ3RQQFwBhQHASBtoD2VXZztVAs_KbSyX6scjWzrmfdTLP4auJ0RRxdQsXKbo2Vw6X3UxoRVzZG460aFNE_0PqVOcB-iQ&__tn__=%2CO%2CP-R	

Learning activity 1. Active learning: Defining information disorders (5 minutes)

1. Ask student teachers to think of examples of disinformation, mal-information, misinformation and hate speech and place these examples in the appropriate column in the table below.
2. Use the whiteboard/chalkboard, to collect each group's proposed example and see whether the whole class agrees with the example given for each category.

The purpose of this activity is to ensure that student teachers have a clear understanding of each type of information disorder. Student teachers may not get a correct match. But exact matches are not the point of the exercise.

Table 4.9. Information disorders

Information disorder	Definition	Example
Disinformation	Information that is false and deliberately created to harm a person, social group, organisation or country.	
Mal-information	Information that is based on reality, used to inflict harm on a person, social group, organisation or country.	
Misinformation	Information that is false but not created with the intention of causing harm.	
Hate speech	Information that is false or true, used with the intention to inflict harm or highly offend or demean on a person or social group.	

Learning activity 2. Directed activity: Learning about algorithms (10 minutes)

1. Share and watch this Khan Academy lesson on algorithms on your mobile phone, laptop or desktop with the class:

   https://www.khanacademy.org/computing/computer-science/algorithms/intro-to-algorithms/v/what-are-algorithms

2. Give the student teachers a few minutes to fill out the table below; some examples are provided here for your reference.
3. Ask student teachers what they think algorithms are and have them name common examples of algorithms in daily life.
4. Ask them whether they are comfortable with algorithms using their personal data and the pros and cons of the widespread use of algorithms in information processing.

Assessment

On the whiteboard/chalkboard, write three columns with the following headings: Algorithms, Pros and Cons. Write in each column the answers of the student teachers. By a show of hands, ask the students how many think algorithms have positive effects or negative effects. Draw suggestions from the student teachers on how they could change algorithms for the better. Write their answers on the board.

Possible student teachers' responses

Table 4.11. Understanding algorithms

Question/Prompt	Your Answer
What is an algorithm?	An **algorithm** is a finite series of well-defined, computer-implementable instructions to solve a specific set of computable problems.[2] The most effective algorithms are expressed within a finite amount of space and time in a well-defined formal language to perform a calculation.
Name common examples of algorithms in your daily life.	Web search engines Social media news feeds Traffic light signals
Are you comfortable using algorithms that use your personal data?	YES / NO
What are the positives of using algorithms in information processing?	Can provide useful information to humans much faster than through human calculation alone. Can free up humans from doing boring tasks, like changing a traffic light signal manually.
What are the negatives of using algorithms in information processing?	By collecting and processing personal data, social media companies can find out many otherwise private details about people. Algorithms can also be used to push only the content people like and agree with, perhaps preventing learning new points of view.

Learning activity 3. Research: Echo chambers (25 minutes)

Please do this exercise in a computer lab.

1. Ask student teachers to open a social media website on their computers and, using the table below, have them write down, on the whiteboard/chalkboard, the titles of the top ten posts that appeared on their social media feeds.
2. Have the student teachers then vote on what the preferences, politics and interests of each student is based on their news feed.

Assessment

Have student teachers discuss whether what has been written on the board reflects their true preferences, politics and interests. Ask the student teachers if they would like to change what social media companies' algorithms reflected as their interests and if so, how would they change the algorithms.

Possible student teachers' responses

Table 4.12. Understanding echo chambers

Feed Content	Your Answer
List the titles of the top ten posts that appear in your feed.	1. BTS best band 2. New road being built to Mandalay 3. Lay Phyu is best singer of all time 4. Five Buddhist teachings that are good 5. Meditation very healthy for mind 6. Top 18 restaurants in Kalaw 7. Education Degree College becoming more popular 8. Sai Sai releases new rap album 9. Thinzar Wint Kyaw quits Instagram 10. Myanmar Idol top show on TV
Click the three dots in the upper right-hand corner of each post and select "Why am I seeing this post?" Write the responses for each post next to the corresponding post number.	1. You like posts with Korean music 2. You like posts with construction 3. You like posts with Myanmar music 4. You like posts with Buddhism 5. You like posts with meditation 6. You like posts with food 7. You like posts with education 8. You like posts with Myanmar music 9. You like posts with Myanmar celebrities 10. You like posts with TV shows
Do you feel that the social media companies are accurately reflecting your interests in the posts that appear in your news feed?	YES / NO
If yes, why? If no, why not? Please write your answer here.	Yes, because it is true that I like Myanmar music and food.
Would you change the algorithms of the social media companies?	YES / NO
Why or why not?	Yes, because sometimes I think social media companies collect information that is too sensitive and that I would prefer to keep private.

Learning activity 4. Directed activity: Link analysis (10 minutes)

1. Draw the following diagram on the board.

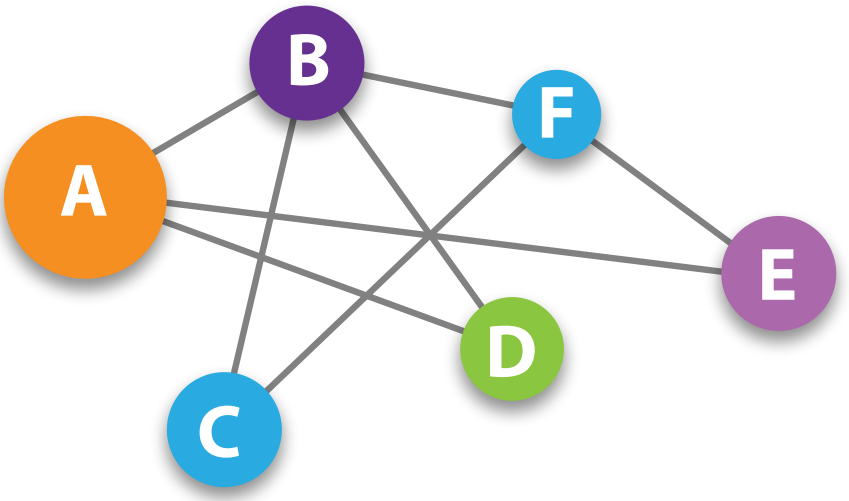


Figure 4.25. Link analysis diagram

2. Ask, *"What do you think this diagram is? It is a diagram of a Link Analysis, which is a branch of data mining. The above image shows a sample network graph in which each node represents a different profile and an edge (one of the lines) showing a friendship. Considering this scenario, social media companies' algorithms may determine that the number of mutual friends between A and F is 2 and may update your feed and friend suggestions. So, whenever you press a key on your keyboard, make a call, perform a calculation, start an application or press a remote button, algorithms are processed."*
3. Explain to student teachers that this is a simplification of the diagram search engine companies use when showing search results using page ranking technique. It is also what social media companies use when deciding what content to display in your news feed. All these use a modification of link analysis.

Assessment

Have a few student teachers come up and draw link analyses of their own on the board of their five strongest and five weakest connections and the relationships among those connections.

Expected student teachers' responses for the review questions in TB

Question 1: Identify three things that can be done to ensure online safety for your middle school students.

Answer: *Provide or promote secure log-in credentials that are not shared; teach middle school students awareness of digital identity: teach middle school students to think about the information they share and who they share it with.*

Question 2: Why is media and journalism considered important? How can you ensure that you and your middle school students use reliable information sources?

Answer: *Media and journalism is considered powerful and influential in society. Teach middle school students to:*

- *Be skeptical of the headlines*
- *Look closely at URLs*
- *Investigate the source*
- *Watch for unusual formatting*
- *Consider the images*
- *Check the date*
- *Check evidence*
- *Look at other reports*
- *Determine if the story is a joke*
- *Be reminded that some stories are intentionally false*

Question 3: A digital citizen has the skills and knowledge to use digital technologies confidently. List five things you should be able to do as a digital citizen.

Answer:

- *Access*
- *Understand*
- *Communicate respectfully*
- *Buy and sell*
- *Stay healthy*
- *Stay secure*
- *Recognise rights and responsibilities*
- *Obey rules*

Question 4: Why is it important to allow all students to contribute during class discussions? List three criteria for creating a safe and fair speaking environment.

Answer: *to discuss various and sometimes sensitive areas such as religion or ethnicity. It is important to create a safe space where all students feel confident that they can express themselves without feeling anxious. A quiet and secure space, taking it in turns to speak, listening to each other respectfully, responding politely (accept other appropriate suggestions).*

Question 5: An algorithm is a finite series of well-defined, computer-implementable instructions to solve a specific set of computable problems. List two search engine algorithm functions.

Answer:

- *Natural language understanding, to make sense of the meaning of your search query.*
- *Analysing webpages, specifically the keywords of the webpages, to assess whether the webpages contain content relevant to your search query.*

- *Prioritising the highest quality of content available by determining the expertise, authoritativeness and trustworthiness on a given topic.*
- *Assessing the usability of webpages, including whether the webpages are viewable on different browsers, whether they are designed for all devices and types and whether the page loading times work for users with slow internet connections.*

Unit Summary

Case scenario Unit 4: Media, Information Literacy and Digital Citizenship

Pre-unit 4: Adaptation – able to use technology to enrich the curriculum and use integrated systems for management and administration

Post-unit 4: Appropriation – able to integrate technology into teaching and learning activities and use integrated systems for management and administration within a community context

When you use the case study with your student teachers, first give them the story to read.

Ask them, what is the point of the story? Answer: *to be aware of the vulnerability of online information and to ensure that they are clear on how to make digital identities more secure*.

At this point in their studies, student teachers should be more independent learners. Rather than asking them questions, it is now time to ask them to reflect on the answers to the questions and respond in their journals.

Reflections on the scenario:

Think about the following questions and make notes in your journal.

1. As a middle school teacher, what can you do to ensure your students' digital identity is secure?
2. In a similar situation, how would you ensure that your colleagues are safe online?
3. What are the main messages to communicate?
4. What steps have you taken to secure your online profile?

Key messages

By the end of this unit, student teachers should:

- Have a better awareness of the power of media ownership and their impact on what they read in the press;
- Be more critical of media content;
- Be able to protect their digital identity and understand why it is important to be careful in posting personal information online;
- Have some understanding of various information disorders; and
- Be able to explain what algorithms are and how they work.

Unit reflection

Reflections on the scenario:

Allow the student teachers time to think about the following questions and make notes in their journals. Find out whether they have any questions for you about the topics covered.

1. As a middle school teacher, what can you do to ensure your students' digital identity is secure?
2. In a similar situation to the one described in the case scenario, how would you ensure that colleagues are safe online?
3. What are the main messages to communicate in such a situation?
4. What steps have you taken to secure your online profile?

Further reading

The Myanmar Press Council's website is: http://myanmarpresscouncil.org/. You can learn about the MPC on this website, including its bylaws and code of ethics: http://myanmarpresscouncil.org/laws/media-law.html. Time permitting, you may want your student teachers to read the code of ethics and what do they think about the code and whether they have proposed amendments to the MPC's code of ethics.

You and your student teachers can read more about the role of ICT, Myanmar government, social media and journalism in this link: https://www.myanmar-responsiblebusiness.org/pdf/SWIA/ICT/Executive-Summary-and-Recommendations_my.pdf. Note that some issues discussed are complicated that require significant policy and implementation debates. Often, there are no right or wrong answers for these kinds of issues!

There is much debate about the role of advertising and journalism and whether this relationship creates conflict of interest. You can read more about this issue in the *Columbia Journalism Review*, one of the leading journalistic publications in the world, here: https://www.cjr.org/tow_center/native-ads-endanger-newsrooms.php.

Time permitting, you can ask your student teachers to write short essays on what they think about the relationship between advertising and journalism. Note that for the vast majority of commercial media agencies, without advertising they would not have enough money to maintain their business and so they would likely have to close operations. There are other media agencies, such as Al-Jazeera, that are largely funded by governments. This helps resolve revenue issues as the government budget can finance the media agencies. However, this can lead to conflict interest issues as the agencies may feel a bias towards its governmental funding institutions, which could affect article selection and how the articles are written and the content of broadcasts.

The rise of false news is considered to be one of the more significant threats to citizens, but there is substantial debate over what and what does not constitute false news. Facebook offers several resources explaining false news and other issues with online content in Myanmar language here: https://www.facebook.com/safety/resources/myanmar.

You can lead a class discussion where student teachers use their mobile phones and the Facebook application to identify potential false news posts. Let the student teachers walk through the Facebook tips for spotting false news and discuss whether they have correctly identified false news on Facebook. You can then proceed in asking the student teachers report false news posts to Facebook.

The Myanmar Centre for Responsible Business (MCRB) has good resources for different kinds of freedom of expression issues online. You can read them here:

- https://www.myanmar-responsiblebusiness.org/pdf/SWIA/ICT/Chapter-04.01-Freedom-of-Expression.pdf
- https://www.myanmar-responsiblebusiness.org/pdf/SWIA/ICT/Chapter-04.02-Hate-Speech.pdf
- https://www.myanmar-responsiblebusiness.org/pdf/SWIA/ICT/Chapter-04.03-Privacy.pdf
- https://www.myanmar-responsiblebusiness.org/pdf/SWIA/ICT/Chapter-04.05-Cyber-Security.pdf

Unit 5

Internet & Communication

In this unit, student teachers will begin to unpack how they might learn more through ICT. They will explore topics such as MOOCs, use social media websites to learn about different information disorders and algorithms.

Expected learning outcomes

By the end of this unit, student teachers will be able to:

- Search effectively with a specific and focused search strategy, using accurate search terms etc.;
- Use synonymous terms and broaden search when necessary;
- Differentiate between Ads and search results;
- Demonstrate an understanding of Search Engine Optimisation (SEO);
- Use online video tutorials to facilitate thinking and problem solving;
- Explain "MOOCs" and introduce several famous MOOCs;
- Explain the types and methods of conferencing;
- Implement conferencing tools in an education setting;
- Explain how to initiate a synchronous group chat, audio call and video call;
- Demonstrate videoconferencing using apps laptop/desktop software; and
- Demonstrate an effective and engaging activity using synchronous conferencing.

Competencies gained

A2.2 Demonstrate understanding of appropriate use of Information and Communication Technology (ICT) in teaching and learning

B1.2 Demonstrate capacity to apply educational technologies and different strategies for teaching and learning

D2.1 Improve own teaching practice through learning from other teachers and professional development opportunities

5.1. Anatomy of the Web

Studying this sub-unit teaches you how to search effectively using a web search engine by using specific and focused search strategies, accurate search terms, synonymous terms and when to broaden your search when necessary. You will also learn about online advertising and Search Engine Optimisation (SEO), important aspects of online search.

5.1.1. Strategy of using search engine

Expected learning outcomes

By the end of this lesson, student teachers will be able to:

- Search effectively with a specific and focused search strategy, using accurate search terms etc.;
- Use synonymous terms and broaden search when necessary;
- Differentiate between Ads and search results; and
- Demonstrate an understanding of Search Engine Optimisation (SEO).

Competencies gained

A2.2.1 Describe the function and purpose of online and offline educational tools and materials to support the teaching and learning process

A2.2.3 Describe and demonstrate the understanding of basic concepts and principles of media and information literacy

B1.2.1 Use teaching methods and learning strategies appropriate for the class – culture, size and type

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

B1.2.3 Create opportunities for students to investigate subject-related content and concepts through practical activities

D2.1.2 Participate in professional development activities related to identified goals for improving practice

Time: One period of 50 minutes

Learning strategies: Think-pair-share, research, pair work, group work, active learning

Assessment approaches: Observation, reflection journal, peer assessment. For all activities, try to elicit responses equally from both male and female student teachers.

Preparation needed: Use of the computer lab for this lesson will make search engine trainings much easier through use of web search and social media platforms. If the computer lab is not available, have student teachers bring their mobile phones into class.

Resources needed: Desktops or phones with internet access, student teacher textbooks

Facilitator's notes

A general repository of information on search engines can be found below.

URL	QR code
https://support.google.com/websearch/answer/134479?hl=en	
https://www.techopedia.com/definition/23915/digital-identity	

Learning activity 1. Active learning: Performing and refining searches (10 minutes)

Please do this learning activity in the computer lab. If a computer lab is not available, you can use mobile phones that you provide or your student teachers can bring to the classroom.

1. Instruct student teachers to navigate to the web search engine of they prefer.
2. Instruct them to come up with searches they want answers for and to fill out the table accordingly.

Assessment

In the assessment, student teachers were asked whether they wanted to know about the ingredients of a popular Myanmar breakfast food. Or what Ohno Kaukswe was made of. You could explore with the class some of the results of various attempts to locate the desired information.

Refining a search

What do you want to find?

You would like to know the ingredients of a breakfast meal.

Your first search query terms:

If you wanted to find out the ingredients of a popular Myanmar breakfast food, then you could enter the terms “Myanmar breakfast food”. Your results would be varied, but probably not the specific breakfast food you wanted.

Your revised search query:

You want to find out about the ingredients of Myanmar Coconut Noodles. You type in “Ohno Kaukswe” (Myanmar Coconut Noodles). If you type that into a web search engine your search results will be more specific, but might also contain restaurants, which show their menu and the prices of “Ohno Kaukswe”.

Your further refined search query terms

This time you target your search further and type in “Ohno Kaukswe recipe”. The first search result has information that explains how to make Ohno Kaukswe!

Possible student teachers’ responses

Ask some of the student teachers to come up to the front of the class and write one of their searches on the board until you have about 10 searches filled out. Elicit from the student teachers, trends that they identified during their searches and what search techniques were most effective.

Table 5.2. Searches you want to perform

What you want to find	Your first search query terms	Your revised search query terms	Your further refined search query terms	At which search query point did you find what you were looking for?
Location of most famous Bagan pagoda	Bagan pagodas	Famous Bagan pagodas	#1 famous Bagan pagoda	3rd search
Who invented the iPhone?	Smartphone inventor	"iPhone inventor"		2nd search
UNESCO Education reports on Myanmar	UNESCO Education Myanmar	UNESCO Education "Myanmar report"		2nd search

Learning activity 2. Active learning: Identifying search engine advertisements (25 minutes)

1. Instruct student teachers to use their phones or laptops to open their preferred social media app.
2. Have them scroll through their feeds and identify the posts that have the Sponsored or Promoted text below the poster's name.
   Instruct the student teachers to fill out the table with five of the sponsored posts they have identified on their feeds. Note that when you see the blue mark next to a page name that the page has been independently verified as being an authentic page by the social media company. This means that you can be assured when a page has a blue mark that it is the official page of the actual real-life person or entity the page represents.
3. Ask the student teachers what their feelings are on having social media companies track their personal preferences and then present advertising content to them.
4. Ask student teachers whether they would prefer to pay a monthly fee to use a social media app instead of having the company collect their personal data.
5. Elicit from student teachers how much money they would be willing to pay per month and why.

6. Record their thoughts on the board. You may want to mention, for example, that popular email websites collect the contents of all user emails to train algorithms. There are other email companies that do not collect user email data, but they charge USD 5-10 per month to use.
7. Ask student teachers if they would be willing to pay that amount of money to retain the privacy of their personal data.

Assessment

Check student teachers' completed tables.

Possible student teachers' responses

An example of possible responses is as follows:

Table 5.3. Sponsored post examples

Example of sponsored post page name	Example of sponsored post title	Do you like the sponsored post?
Myanmar Institute of Education – MIE	Nov Intake အတွက် လူပြည့်ပါတော့မည် အမြန်ဆုံးလာရောက်ပြီး အပ်နှံနိုင်ပါသည်။	Yes
Ministry of Education, Myanmar	Website ဖြစ်သော www.moe.gov.mm တွင် သက်ဆိုင်ရာ အမျိုးအစားအလိုက် ဝင်ရောက်ကြည့်ရှုနိုင်ပါသည်။	Yes
Myanmar State Counsellor's Office	State Counsellor returns to Nay Pyi Taw from Mekong-ROK Summit	Yes

Learning activity 3. Active learning: Bookmarking (15 minutes)

In this final activity, student teachers are asked to apply the skills they have gained in this lesson to creating bookmarks in their respective web browsers.

1. Ask them to work in pairs.
2. When they have completed creating their bookmarks and filling out the list of bookmarks they created and why, they should share it with another pair and evaluate each other's work.

Assessment

Student teachers should draw a table with two columns, see the example below. Then they need to list the websites that they bookmarked and describe the reason why.

As they are working, walk around monitoring what they are doing and answering any queries they may have.

Possible student teachers' responses

A sample of possible responses is as follows:

Table 5.4. Bookmarked websites

Bookmarked website	Reason for bookmarking
www.google.com	Conduct searches frequently
https://www.khanacademy.org/	To learn something that I didn't understand about mathematics

5.1.2. Engaging online video tutorials

Expected learning outcomes

By the end of this lesson, student teachers will be able to:

- Use online video tutorials to facilitate thinking and problem solving; and
- Explain "MOOCs" and introduce several famous MOOCs.

Competencies gained

A2.2.1 Describe the function and purpose of online and offline educational tools and materials to support the teaching and learning process

A2.2.3 Describe and demonstrate the understanding of basic concepts and principles of media and information literacy

B1.2.1 Use teaching methods and learning strategies appropriate for the class – culture, size and type

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

B1.2.3 Create opportunities for students to investigate subject-related content and concepts through practical activities

D2.1.3 Establish goals for own pr ofessional development as a teacher

Time: One period of 50 minutes

Learning strategies: Think-pair-share, research, pair work, group work, active learning

Assessment approaches: Observation, reflection journal, peer assessment. For all activities, try to elicit responses equally from both male and female student teachers.

Preparation needed: Use of the computer lab for this lesson, if available, will make search engine trainings much easier through use of synchronous conferencing. If the computer lab is not available, have student teachers bring their mobile phones into class.

Resources needed: Computer lab, desktops/laptops/mobile phones, synchronous conferencing software.

Learning activity 1. Active learning: Joining an English language online video tutorial (30 minutes)

For this lesson we will learn about using a MOOC in the English language. Instruct each student teacher to access the Khan Academy website on their device and load the webpage or app. Khan Academy, like all MOOCs, features a **search bar**, where they can type in the subject they are interested in and see if Khan Academy offers courses in that subject. Sample subjects they can try typing in include:

- Education
- Teaching
- Programming
- Finance
- Economics
- History
- Law
- Physics
- Design

If student teachers are having trouble searching for a course, please assist them in searching for a course.

Instruct the student teachers to search through several subjects until they find a course that they like. Then click on that course. Almost all major MOOCs allow student teachers to **audit a course for FREE**, which means they do not have to pay any money in order to access the course content. All of Khan Academy's courses are free. For example, if a student teacher selects the "Arithmetic" course in Khan Academy, the following screen comes up:

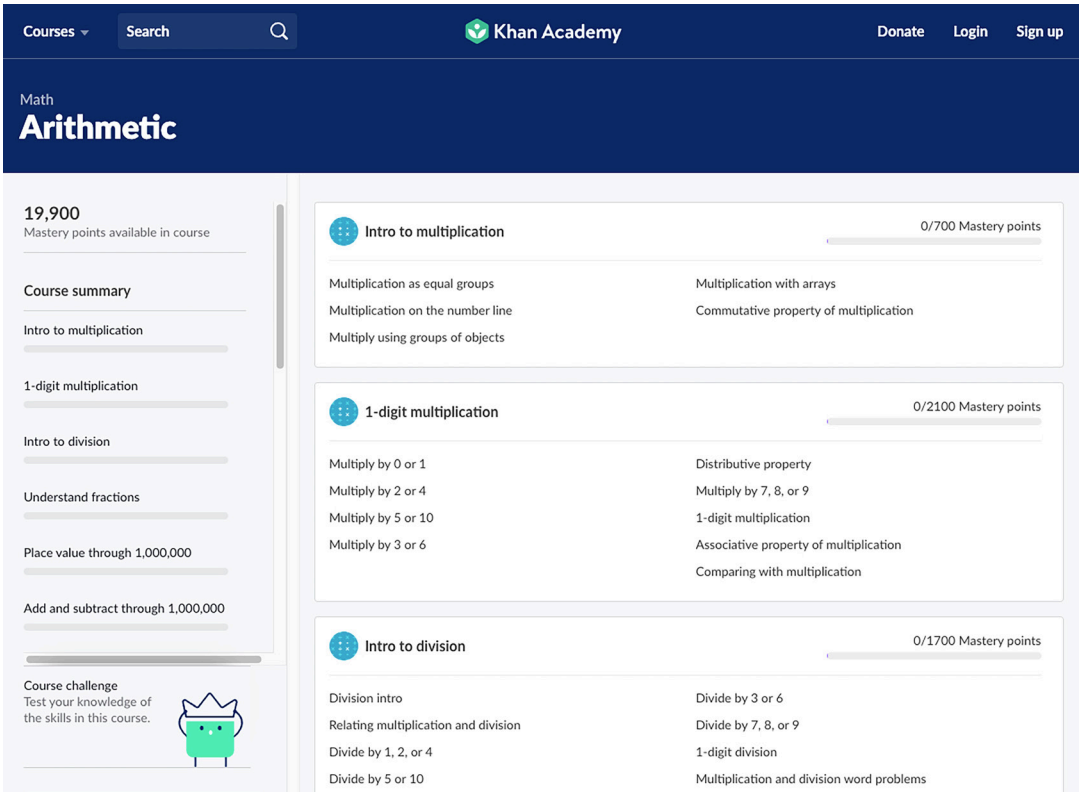


Figure 5.3. Khan Academy screen for its arithmetic class

Student teachers will then select a module they like and then watch a video of their choosing. Here's an example video on basic addition from Khan Academy:

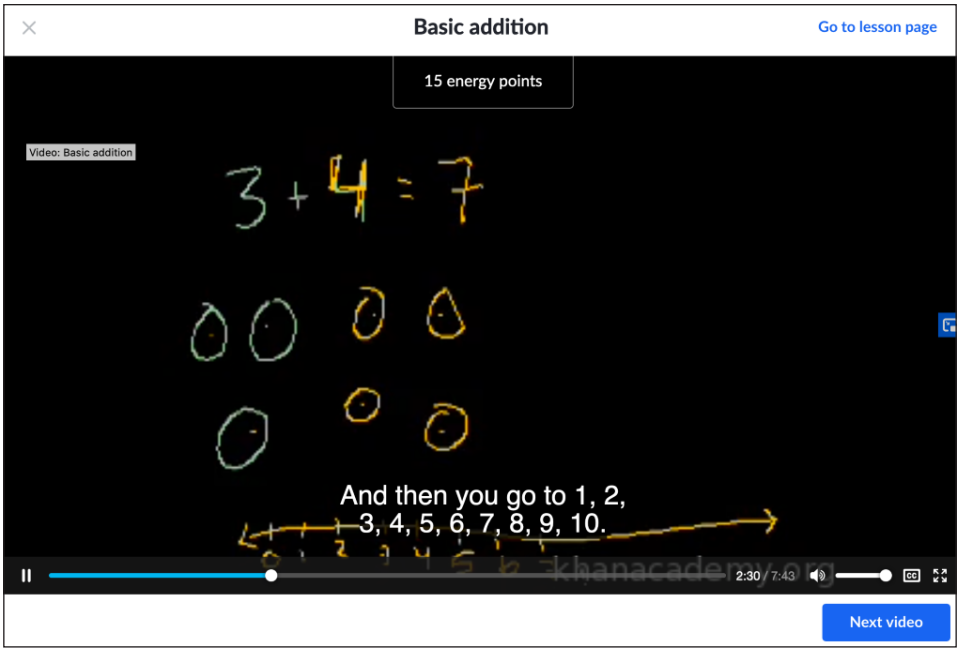


Figure 5.4. Khan Academy basic addition video

Student teachers should be able to watch all the videos, read all the assignments and lectures and take all the quizzes.

After they are finished watching the first video, please instruct student teachers to document their impressions about the video below. Tell them that they can exchange papers with the person next to them and compare each other's experiences!

Table 5.5. Responses to videos

Prompt	Your answer
Overall, I felt the course was....	

Prompt	Your answer
By watching the video, I learnt....	
I would recommend this course to a friend	YES / NO
I would recommend MOOCs to a friend	YES / NO
Other thoughts?	

Assessment

Stop the discussion after five minutes and invite a few of the student teachers to come to the front of the class to present what they have written. Make sure to invite student teachers from different backgrounds, abilities and genders to present.

With a show of hands, count the number of student teachers who would recommend the specific MOOC they did and whether they would recommend MOOCs at all. Elicit explanations from student teachers who may not have spoken yet in class to make sure everyone, regardless of background, ability or gender, have the opportunity to respond.

It may be that student teachers found it hard to use a MOOC in English language and that is perfectly normal. Tell them it is important to practise and motivate their future students to do the same, as whether we like it or not, a lot of what happens online is in the English language. Next learning activity we will use a MOOC in Myanmar language so we can see the difference!

If some or many student teachers respond that they were confused by the course materials or could not advance in watching the video in some way, ask them to explain why they felt confused. Offer to have them show their device and as a class together help the student teachers resolve their issues. Elicit from student teachers what they have learnt from helping each other and note that it is always important to help each other when learning new material, as different kinds of people learn different materials at different rates.

Possible student teachers' responses

Depending on the specific MOOC student teachers did, they may have different responses.

Learning activity 2. Active learning: Joining a Myanmar language MOOC (20 minutes)

Unfortunately, most of the most popular MOOCs do not offer Myanmar language. However, there are some Myanmar language learning materials online. We can spend this lesson checking one of these offerings out.

Divide up the student teachers into four groups and have each group select one of the following Myanmar language MOOCs below. Some of the software is for desktop and laptop; some are for mobile phones. Make sure each group selects a different MOOC so you have four groups with four different MOOCs.

Table 5.6. Myanmar language MOOCs

Title	Link	QR Code	Source
Lann Pya	https://play.google.com/store/apps/details?id=com.koekoetech.myjustice&hl=en_US		MyJustice

Title	Link	QR Code	Source
MyoTaw chatbot	https://web.facebook.com/myotawmunicipal-application/		Myanmar Local Government
DedaaBox	https://play.google.com/store/apps/details?id=com.biipbyte.dedaabox&hl=en_US		DedaaBox
Pyo Pyo May	https://play.google.com/store/apps/details?id=com.keoeoetech.pyopyomay&hl=en_US		SPRING

Explain that Myanmar language MOOCs are designed a bit differently to fit with the Myanmar context. Most of them do not feature a search bar. Instruct the student teachers to navigate through the MOOC interface and watch videos, listen to audio, take multiple choice exams or chat with a chatbot. Do this for about 10 minutes.

When they are finished using the Myanmar MOOC apps, tell them to write their impressions below. Instruct them to exchange papers with their groupmates and compare their experiences and try to build consensus about the MOOC they took together.

Table 5.7. Myanmar MOOC impressions

Prompt	Your Answer
Overall, I felt the Myanmar MOOC was....	
By using the Myanmar MOOC, I learnt....	
I would recommend this MOOC to a friend	YES / NO
I would use this Myanmar MOOC again	YES / NO
Other thoughts?	

This time select four student representatives, one from each group, to come to the front of the class to explain their conclusions. Select people who have not presented yet and who have different genders, ethnicities and cultural backgrounds.

Expected student teachers' responses for the review questions in TB

Question 1: What does SEO mean and why is it used?

Answer: *Search Engine Optimisation. A technique which advertisers use in order to have their website appear in the number 1 position in search results, they do this because studies show users usually click on the first one or two search results.*

Question 2: Why would you use a bookmark, and where can you find the tool required to bookmark a website?

Answer: *A bookmark provides a shortcut to a website that the user wants to remember meaning it can be quickly and easily found again. The bookmark star icon can be found in the URL bar of your web browser.*

5.2. Synchronous Conferencing

In this sub-unit, student teachers will be introduced to different types of conferencing and become familiar with different technologies that support synchronous conferencing. They will explore how such technologies may be used to support learning. It is expected that student teachers will also be given the opportunity to explore synchronous conferencing while using mobile apps and laptop/desktop software.

5.2.1. Understanding synchronous conferencing tools

Expected learning outcomes

By the end of this lesson, student teachers will be able to:

- Explain the types and methods of conferencing; and
- Implement conferencing tools in an education setting.

Competencies gained

A2.2.1 Describe the function and purpose of online and offline educational tools and materials to support the teaching and learning process

A2.2.3 Describe and demonstrate the understanding of basic concepts and principles of media and information literacy

B1.2.1 Use teaching methods and learning strategies appropriate for the class – culture, size and type

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

D2.1.1 Discuss teaching practices with supervisors and colleagues, and willingly seek constructive feedback

D2.1.3 Establish goals for own professional development as a teacher

Time: One period of 50 minutes

Learning strategies: Link to prior knowledge, practical, active learning, discussion

Assessment approaches: Observation, reflection journal, peer-assessment. For all activities, try to elicit responses equally from both male and female student teachers.

Preparation needed: Use of the computer lab for this lesson, if available, will make search engine trainings much easier through use of synchronous conferencing. If the computer lab is not available, have student teachers bring their mobile phones into class.

Resources needed: Use of the computer lab is recommended for this lesson to enable student teachers to have practical application of synchronous conferencing. If the computer lab is not available, have student teachers bring their mobile phones into class. Computer lab, desktops/laptops/ mobile phones, synchronous conferencing software.

Learning activity 1. Discussion: Likely or unlikely propositions (10 minutes)

After reading from their textbooks and becoming clearer about the concept of synchronous conferencing, student teachers should re-read the scenario entitled “Far away from home”.

Having read through this scenario, they should be asked to consider the following “True/False” propositions. The student teachers should then be allocated one or two propositions and in pairs come to a consensus on whether the propositions are “True” or “False” and articulate a brief justification for their answers using either a proof concept or a counter example.

1. Synchronous conferencing will one day replace the face-to-face classroom.
   Do you know who the student is and how accessible the class is in terms of time (when is it scheduled) and distance from a device / connection (how far away are they from ICT)?
2. Synchronous conferencing requires a multimedia specialist and is too tricky for teachers to master.
   Depends on the teachers themselves and their willingness.
3. Online conferences are boring and not interactive.
   Depends on the structure and levels of interaction.
4. Conferencing apps are only popular because of their novelty.
   Novelty does attract, but continued use is because the user finds value with the way that it is used.
5. Collaborating across borders requires expensive tools and programmes.
   Depends on the choices made by the parties involved in the conferencing.
6. People who do not own hardware are disadvantaged by synchronous meetings.
   All technologies open up advantages and disadvantages and those teachers who make tech choices need to be aware of the context wherein tech is used.
7. Videoconferences are exactly like classroom teaching.
   Depends on the way the technology is used.
8. Chat apps are only for teenagers who like socialising.
   Generalised observations about tech and its relationship to gender, age etc need to be examined carefully.
9. The high costs associated with conferencing make this approach unsuitable for education.
   Conferencing costs need to be measured against suitable criteria.
10. Conferencing is for spoon-feeding information to students.
    Depends on the approach that is used.

Assessment

This is not a true or false quiz, but an opportunity for student teachers to share their opinions and sentiments. Please note that the italic text under each proposition is a guideline for engagement and not a right or wrong answer.

Possible student teachers' responses

The responses have been included in the propositions.

Learning activity 2. Practical: Plan a micro-conference with a technology of your choice (15 minutes)

For the second activity, student teachers are going to focus on the realistic and practical application of these conferencing tools outside a classroom setting. Student teachers should be placed into groups of four (ensuring a mix of confidence within the group based on previous responses in this unit) and each group to look at the worksheet.

They need to be able to explain:

The technology that they will be using for the synchronous conference and how this technology is suitable for the purpose.

- The reactions that they expect from conference participants and ways in which they might prompt this activity.
- Describe the visual aids that they intend to use to communicate before and during the conference.
- Compile a set of instructions for participation to guide them with the technology.
- Plan for an alternative and describe the backup plan that they will use in case of technical failures.

The groups will be called to present a possible classroom activity. As each group presents their ideas, ask the rest of the class to evaluate the activity in terms of:

- how realistic/practical it is to carry out
- the learning opportunities for students

Assessment

Not required at this stage. See next learning activity for assessment.

Possible student teachers' responses

Not required at this stage. See next learning activity.

Learning activity 3. Pair work: Run an interaction activity using synchronous tools (25 minutes)

Student teachers should know by now how important it is to apply what they have learnt. In this third activity, ask student teachers to take their own micro-conference participation activity (not a whole lesson) that they have prepared and test it with the rest of the group while using a synchronous technology.

If the synchronous technology is not available, then encourage student teachers to continue to work on learning activity 2 with their partners to prepare a set of instructions and resources that might be able to deploy the interaction activity pro-actively.

Assessment

The teacher educator will need to think about the way assessment is arranged. Student teachers could be asked to critique each other's lessons using questions in the TB. Or they could conduct a more formal assessment of the micro-conference with the rubric (shown in Table 5.8.)

Possible student teachers' responses

Table 5.8. Rubric for student teachers' micro-conferences

Fit for purpose	The activity does not appear to be suitable for the given purpose. Nor does it recognise challenges faced by participants.	A suitable activity that fits the purpose of the synchronous conference has been selected.	The activity is fit for purpose and is designed in a manner that anticipates participants' challenges.
Visual aids	Visual aids are primarily decorative and do not lead to participation.	Visual aids are used primarily to push students towards participation.	Visual aids pull the student into engagement. They stimulate participation, they encourage users to explore ideas and ask questions.
Instructions	Written instructions, if any are provided, are generic.	Written instructions have been clearly written and directly support the activities purposes	Clearly written instructions support the intentions and anticipates some of the potential roadblocks that might affect the user.
Supporting online learning	Recognises individuals who are not participating.	Creates a welcoming environment and recognises individuals.	A welcoming learning environment where the whole group is managed with ease, including the hesitant students who choose to be quiet and not be involved.
Technical skills	Can make use of basic conferencing tools.	Proficient use of tools in a synchronous learning environment.	Uses advanced synchronous conferencing tools and can also deliver support to participants quickly.

5.2.2. Synchronous conferencing tools

In this lesson, student teachers will explore their own experiences of using synchronous technologies. They will be asked to apply what they have read about the interactive nature of conferencing and create their own conferencing activity. They will then be expected to do a micro-conferencing activity using the technologies that they have at their disposal.

Expected learning outcomes

By the end of this lesson, student teachers will be able to:

- Explain how to initiate a synchronous group chat, audio call and video call;
- Demonstrate videoconferencing using apps, laptop/desktop software; and
- Demonstrate an effective and engaging activity using synchronous conferencing.

Competencies gained

A2.2.1 Describe the function and purpose of online and offline educational tools and materials to support the teaching and learning process

A2.2.2 Evaluate and match available online and offline ICT tools and materials to curriculum content and pedagogical strategies, including online and offline

A2.2.3 Describe and demonstrate the understanding of basic concepts and principles of media and information literacy

B1.2.1 Use teaching methods and learning strategies appropriate for the class – culture, size and type

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

D2.1.1 Discuss teaching practices with supervisors and colleagues, and willingly seek constructive feedback

D2.1.3 Establish goals for own professional development as a teacher

Time: One period of 50 minutes

Learning strategies: Think-pair-share, personal research, pair work, group work, practical activity

Assessment approaches: Demonstration, reflection journal, peer assessment

Preparation needed: Use of the computer lab for this lesson, if available, will make search engine trainings much easier through use of synchronous conferencing. If the computer lab is not available, have student teachers bring their mobile phones into class.

Resources needed: Computer lab, desktops/laptops/mobile phones, synchronous conferencing software

Learning activity 1. Design an interaction activity (15 minutes)

Teachers who use a synchronous technology for the first few times neglect to think about how they might foster interaction and enable dialogue in such an event. The reading has stressed the need to consider interaction and offered a list of possibilities. The purpose of this activity will be to assess if student teachers are able to develop a learning activity that takes into consideration these principles.

- Ask student teachers to pair up, either assigning partners or allowing student teachers to form their own pairs or groups of 3 depending on the size of the class.
- Explain to student teachers that they will be selecting a modality (videoconferencing or synchronous group chat) to develop an activity designed for middle school students to learn more about their chosen modality.

- With their partner, student teachers should prepare a set of instructions and resources related to their activity
- Once complete, ask partners to pair up with another partner and to provide feedback on each other's learning activities.

Assessment

Student pairs will present their interaction activities to another pair of students and critique each other's interaction activity using these four assessment criteria. As the pairs work and conceive their learning activities, take the time to move around the room, listen, and provide advice based on the following criteria:

Activity Criteria:

Fit for purpose – the interactivity topic that has been selected matches the purpose of the event while also recognising the many challenges facing the participant.

Visual aids – clear and engaging visual aids that prompt participation and communicate the need for engagement with others are provided.

Instructions – a clear and concise sequence of steps or directions are written up to introduce the interactive activity to participants. These instructions also include steps that offer support to common issues and anticipates some of the potential difficulties that might affect the user.

Facilitation skills – a welcoming learning environment where the whole group is managed with ease, including the hesitant students who choose to be quiet and not be involved.

Technical – can deliver support to participants quickly and has a relevant backup plan in case of technical failures.

If there is the technology available, then in the next learning activity, student teachers will be given the opportunity to try out this participation activity with other students and reflect on how successfully the lesson worked.

Possible student teachers' responses

Responses will vary as each pair will have their own unique and subjective ideas to this learning activity.

Learning activity 2. Micro-conference (35 minutes)

Student teachers should be familiar with micro-teaching.

As such, in this learning activity:

1. In the same pairs as the previous activity, ask student teachers to use the feedback they received from their peers to develop a micro-lesson based on their designed activity.
2. Student teachers should be made aware that they do not need to prepare a whole lesson but a micro-lesson to test out their activity to the rest of the student teachers while using a synchronous technology.
3. Remind student teachers that in many instances, synchronous technology may not be readily available to them due to varying circumstances, such as technological and connectivity issues. As such, student teachers should also be prepared to provide alternative instructions or a "plan B"
4. As student teachers develop their micro-lesson, circle the room and provide guidance where needed.
5. After pairs have drafted their micro-lesson, ask them to partner up with a different pair to provide final feedback prior to micro-teaching the activity to the rest of the class.
6. Ask each pair to micro-teach their micro-lesson. Allow one or two student teachers to provide feedback on the experience.

Assessment

Use the following rubric to provide feedback to student teachers on their micro-teaching/activity.

Rubric for micro-teaching/ activity

Fit for purpose	The activity does not appear to be suitable for the given purpose. Nor does it recognise challenges faced by participants.	A suitable activity that fits the purpose of the synchronous conference has been selected.	The activity is fit for purpose and is designed in a manner that anticipates participants' challenges.
Visual aids	Visual aids are primarily decorative and do not lead to participation.	Visual aids are used primarily to push students towards participation.	Visual aids pull the student into engagement. They stimulate participation, they encourage users to explore ideas and ask questions.
Instructions	Written instructions, if any are provided, are generic.	Written instructions have been clearly written and directly support the activities purposes	Clearly written instructions support the intentions and anticipates some of the potential roadblocks that might affect the user.
Supporting online learning	Recognises individuals who are not participating.	Creates a welcoming environment and recognises individuals.	A welcoming learning environment where the whole group is managed with ease, including the hesitant students who choose to be quiet and not be involved.
Technical skills	Can make use of basic conferencing tools.	Proficient use of tools in a synchronous learning environment.	Uses advanced synchronous conferencing tools and can also deliver support to participants quickly.

Possible student teachers' responses

Responses will vary as each pair will have their own unique and subjective ideas to this learning activity.

Expected student teachers' responses for the review questions in TB

Question 1: Reflect on what you have learnt in the lessons under this unit and assess your understanding of the subject.

Answer: *Student teachers' own responses in the table which is provided in the student teacher textbook.*

Question 2: Use your own words to explain to your peers why synchronous conferencing is important in Myanmar middle schools and classrooms. How could you use synchronous conferencing as part of a lesson?

Answer: *Student teachers' responses will vary.*

Question 3: List three benefits of using video to support learning and teaching.

Answer: *Any three of the following: flexibility, continuous reinforcement of content and skills, real world application of theory, time saving. More answers are possible so accept other appropriate suggestions.*

Unit Summary

Case scenario Unit 5: Internet and Communication

Pre-unit 5: Adoption - able to use various technologies, including the computer, to support traditional management, administration, teaching and learning

Post-unit 5: Adaptation - able to use technology to enrich the curriculum and use integrated systems for management and administration

Case scenario

When you use the case scenario with your student teachers, first give them the story to read.

Ask them what the point of this story is? Answer: *a practical use of conferencing and shared bookmarks*.

By this point in their studies, the student teachers should be more independent learners. Rather than asking them the questions, it is now time to give them the questions and ask them to reflect on the answers and respond in their journals.

Key messages

By the end of this unit, student teachers will have:

- Learnt to search effectively with a specific and focused search strategy, using accurate search terms;
- Differentiated between Ads and search results;
- Demonstrated an understanding of Search Engine Optimisation (SEO);
- Understood and experienced a MOOC;
- Set up a synchronous group chat, audio call and video call;
- Demonstrated videoconferencing using apps, laptop/desktop software; and
- Designed an effective and engaging activity using synchronous conferencing.

Unit reflection

Reflections on the scenario:

Think about the following questions and make notes in your journal.

- As a new teacher how can ICT help you to develop your confidence and skills?
- What benefits are there from discussing *professional issues with your colleagues?*
- What tools/apps would ***you*** *use in this scenario?*
- How can you transfer the knowledge **about** *ICT into how you effectively* ***use*** *ICT?*

Remind your student teachers to read the 'Did you notice that...' points.

Further reading

Since Facebook and Facebook Messenger are widely used in Myanmar, you may want to try out Messenger Rooms. Messenger Rooms have the same functionality as a Zoom or Google Hangouts room for synchronous conferencing, with the difference that Messenger Rooms can be used via Facebook Messenger, which most Myanmar people already have on their phones. This can be more convenient for many instances since many Myanmar people may not know how to download the Zoom or Google Meet apps onto their phones or laptops. You can read about how to set up Messenger Rooms here:

https://www.facebook.com/help/819584731857901.

As an educator, you may want to deploy Messenger Rooms with your student teachers for remote education or even within the classroom so student teachers can get real hands-on experience with synchronous conferencing.

Asynchronous conferencing tools for the Myanmar context can be very useful. For example, you can record messages in Facebook Messenger or Viber and leave them for your friends in a chat to listen to later. You can learn how to do this here:

https://www.facebook.com/help/messenger-app/377884675632666?helpref=popular_topics

https://help.viber.com/en/article/send-videos-for-free-on-viber

The advantage of asynchronous conferencing is that often your friends, work colleagues or family may be busy doing something else and are not available to do an audio or video call, but you may have something important you want to communicate to them now or that you are afraid you will be unable to communicate later as you may forget what you want to say or you yourself may be busy. Thus, by recording messages and leaving them with your counterpart, you are able to relay the information you want without disrupting what they are doing and so they can listen to your recorded messages at their convenience.

You can pose to student teachers examples of how they may use asynchronous messages with their students. For example, student teachers may want to offer tutoring during office hours, but may be unavailable at the same hours every week due to other commitments. A student teacher can therefore suggest to their students that the students send recorded messages to the student teachers' Viber or Messenger accounts that the student teachers can listen to when they have free time. The student teacher can then either answer the students' questions in class or similarly send recorded answers via Viber and/or Messenger back to the students.

Unit 6

ICT in Education

In this unit, student teachers will reflect on the value of ICT tools that they have learnt about this year. They will consider tools that can assist them with their preparation, collaboration and planning. They will also discover how technology can be used to enable different forms of assessments and maximise student's learning.

Expected learning outcomes

By the end of this unit, student teachers will be able to:

- Explain the value of collaboration among teachers using ICT;
- Use relevant ICT tools to collaborate among teachers;
- Demonstrate how to exchange lesson plans, best practices, lessons learnt and resource constraints;
- Establish active teaching and learning facilitated by use of ICT;
- Explain the difference between offline and online assessment systems;
- Describe effective offline assessment tools in education by demonstrating any ICT tools;
- Assess offline assessment tools in education;
- Practise the different types of online assessment;
- Identify many online assessment tools to teachers, including several multiple-choice education learning platforms (e.g. Google Word Coach); and
- Create sample online tests.

Competencies gained

A2.2 Demonstrate understanding of appropriate use of Information and Communication Technology (ICT) in teaching and learning

B1.2 Demonstrate capacity to apply educational technologies and different strategies for teaching and learning

D2.1 Improve own teaching practice through learning from other teachers and professional development opportunities

D3.1 Demonstrate understanding of the importance of inquiry and research-based learning to improve teaching practice

6.1. ICT for Teacher Collaboration

Studying this sub-unit will give a good understanding of using ICT in teaching preparation and collaboration.

6.1.1. Using ICT in teaching preparation and collaboration

Expected learning outcomes

By the end of this lesson, student teachers will be able to:

- Explain the value of collaboration among teachers using ICT;
- Use relevant ICT tools to collaborate among teachers; and
- Demonstrate how to exchange lesson plans, best practices, lessons learnt and resource constraints.

Competencies gained

A2.2.2 Evaluate and match available online and offline ICT tools and materials to curriculum content and pedagogical strategies, including online and offline

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

D2.1.1 Discuss teaching practices with supervisors and colleagues, and willingly seek constructive feedback

D2.1.2 Participate in professional development activities related to identified goals for improving practice

D2.1.3 Establish goals for own professional development as a teacher

D3.1.2 Search and analyse online or offline information on current trends and research based practices in lower secondary education and for specific subjects taught to improve one's own content knowledge and teaching practice

Time: One period of 50 minutes

Learning strategies: Link to prior knowledge, flipped learning, reflection, pair work, group work, active learning

Assessment approaches: Reflection journal, quiz, observation. For all activities, try to elicit responses equally from both male and female student teachers.

Preparation needed: Use of the computer lab for this lesson, if available. If the computer lab is not available, have student teachers bring their mobile phones into class.

Resources needed: Online access via laptops/pc/tablet

Learning activity 1. Reflection: Why collaborate? (15 minutes)

Explore your student teachers' thoughts on working together with others. Then read through the case study with your student teachers and ask them for their opinions on Khin Maung Aye's strengths and weaknesses. Do they think working collaboratively has helped the student teachers in the case study?

1. Ask student teachers to work in pairs and to think of the advantages of working on a task with other people.
2. Go around the class, asking for reasons.
3. Add each one to the table either electronically via projector or by hand on the board. Encourage examples so that you can see if the student teachers really understand the concepts they are talking about. Encourage them to also think about the wider education community – e.g. government bodies, international education organisations.

4. Ensure that you have some good examples to offer for this particular activity.

Possible student teachers' responses

There will probably be five or six different responses, e.g. learning from others, good way of getting information, saves time, sharing resources, broadening their understanding of issues

Learning activity 2. Research: Which tools can be used for collaboration? (15 minutes)

This activity asks student teachers to think back through the year and focus on lessons where they have looked at communication tools, in particular sub-units 2.1 and 5.2. Review these two sub-units before the lesson so that you are familiar with them.

Ask student teachers to make a list of relevant tools and note down the advantages of using each tool. You could model good collaborative work here by asking them to initially work in pairs, then sit in groups of four (i.e. two pairs) and go through their lists, adding or editing.

Possible student teachers' responses

Potentially very broad, e.g. Google docs – async: shared writing; WhatsApp - async: sharing ideas; Skype – synch: discussing a topic etc.

Learning activity 3. Quiz: Using relevant communication tools and software (10 minutes)

Ask student teachers to take a short quiz which very quickly checks if they are familiar with the software. There will be a range of answers – get the class to decide which ones are correct:

1. What is the best way of sharing a lesson plan with another teacher and getting his/her feedback?

2. You would like to talk online in real time with some of your colleagues to brainstorm some ideas around teaching a topic. Which tool would you use?
3. In a month's time you have to teach a topic that you are worrying about. You think an ongoing discussion with some colleagues would really help you to prepare for this over the next couple of weeks. Which tool would you use for this?
4. You have found a good YouTube video that you think will be very helpful in teaching next week. How can you share this resource with your colleagues?

Assessment

Once you have gone through the answers, keep them in small groups and get them to demonstrate the various software so that you are confident they can all use them.

Possible student teachers' responses

Varied responses are likely.

1. Google docs
2. Synch video e.g. Skype
3. Asynch chat tool e.g. Messenger
4. WhatsApp

Check student teachers' understanding (10 minutes)

This is a good sub-unit to use the LINK approach that was used earlier in Semester 1 in 2.1.2. Draw the table below on the board and ask student teaches to copy it into their books.

Ask each student teacher to complete the L and I columns individually then share with a partner. You then lead a short discussion setting out what the class as a whole knows about the topic. During the lesson, they add information into column N. At the end of the lesson students teachers write down what they now know in K. This column can be torn off and given to you as they leave so that you can get immediate feedback on what they have taken from the lessons.

L List everything you know about the topic	I Inquire about what you want to know	N Note down information during the lesson	K What do you know now?

Possible student teachers' responses

For example, in the L column some student teachers may initially only think of talking to their friends via WhatsApp or collaborating through sharing a link to a resource. You should expect to see a range of responses dependending on the student teachers' individual experience and access.

In the K column by the end of the sub-unit you would hope to see a much broader understanding, including sharing skills, broadening understanding through access to blogs or websites, using google docs etc.

Expected student teachers' responses for the review questions in TB

Question 1: Explain in your own words how ICT tools can help with collaboration.

Answer: *Ideas such as: can learn from each other, share ideas, broaden understanding, access resources etc.*

Question 2: Identify the best tools to:

Answer:

a) Brainstorm ideas
   Various social media tools
b) Meet with your colleagues online
   Skype, Zoom etc.
c) Share documents
   Google docs, for example, OneDrive, Dropbox
d) Find useful resources
   Various search engines, teaching blogs

6.2. ICT in Active Teaching and Learning

Studying this sub-unit will give a good understanding of using ICT in teaching preparation and collaboration.

6.2.1. Using ICT in a learner-centred classroom

Expected learning outcome

By the end of this lesson, student teachers will be able to:

- Establish active teaching and learning facilitated by use of ICT.

Competencies gained

A2.2.2 Evaluate and match available online and offline ICT tools and materials to curriculum content and pedagogical strategies, including online and offline

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

D2.1.1 Discuss teaching practices with supervisors and colleagues, and willingly seek constructive feedback

D2.1.2 Participate in professional development activities related to identified goals for improving practice

D2.1.3 Establish goals for own professional development as a teacher

Time: One period of 50 minutes

Learning strategies: Link to prior knowledge, discussion, group work, active learning, Think-pair-share

Assessment approaches: Observation, reflection journal, quiz. For all activities, try to elicit responses equally from both male and female student teachers.

Preparation needed: Use of the computer lab for this lesson, if available. If the computer lab is not available, have student teachers bring their mobile phones into class.

Resources needed: Student teacher textbooks, online access via laptops/ PC/tablet

Learning activity 1. Discussion: Learner-centred online activities (10 minutes)

1. Ask student teachers to find an online resource and evaluate it with the questions in the student teacher textbook.
2. Ask student teachers to pair up to complete this activity however, once they are complete they should pair up with another group to discuss their answers.
3. Regroup as a whole class and elicit different responses from each group.

Assessment

Keep this as a group activity and move around the classroom monitoring and intervening where necessary. Make sure that they all have a comprehensive record after their group sharing as they can use this in the future for lesson planning.

Possible student teachers' responses

There will be differences of opinion. Answers will vary.

Learning activity 2. Review: Using ICT in the classroom (10 minutes)

This activity asks student teachers to apply what they have learnt about ICT and the pedagogy of ICT. They should fill out the table found in the student teacher textbook individually and then share it with a small group.

Assessment

Keep this as a group activity and move around the classroom monitoring and intervening where necessary. Make sure that they all have a comprehensive record after their group sharing as they can use this in the future for lesson planning.

Possible student teachers' responses

There will be differences of opinion. Answers will vary.

Learning activity 3. Active learning: Lesson plans with integrated ICT (30 minutes)

The final task in this lesson is for each student teacher to write a series of lesson plans (3 or 4) around a topic of their choice (from the curriculum) in which they integrate a range of ICT.

It is important that the tasks they include are meaningful and authentic. This means that they require an element of ICT in order to complete them successfully.

Assessment

As they are working on these, move around the classroom advising and helping where required. Monitor each group, facilitate their discussion if necessary and try to stimulate equal contribution of all student teachers, regardless of their background, ability or gender, to the activity.

Possible student teachers' responses

Lesson plans will vary from one student teacher to the next.

Expected student teachers' responses for the review questions in TB

Question 1: Describe active learning?

Answer: *Expect to see an answer similar to: Students are not passive, they are engaged in the learning and actively participate in the learning process.*

Question 2: Engaging student attention is necessary for effective learning. Describe two common strategies that help to achieve this.

Answer: ***Appeal to middle school students' curiosity:*** *Curiosity is experienced as a result of awareness of a knowledge gap, which creates the motivation to find the answer.* ***Acceptance or belonging****: When middle school students feel a sense of care and connection to other students in class, they are more likely to become actively involved.*

Question 3: Online learning and assessment need to be engaging and active. List three criteria you should consider when researching an online learning resource.

Answer:

- *Introduction (draws in / engaging)*
- *Task or activity (do-able, engaging)*
- *Process (clear / easy to follow)*
- *Relevance, quality and quantity of the resources (appropriate for middle school students)*
- *Clarity of assessment criteria*

6.3. ICT in Assessment

Among student teachers, the word "assessment" is associated with hours of studies, a stressful end of semester test and a final mark. For some it also means a hollow disappointment, a setback or blow or even a change in life plans. Placing the word "offline" or "online" in front of the word "assessment" will not necessarily change the student teacher's reaction. Electronic assessment offers a more systematic way to collect and analyse student teacher's learning. The information that has been collected might be used by both student teachers and teachers in a developmental manner, to get to know students better, to facilitate and encourage understanding.

The word "assessment" need not necessarily evoke a negative reaction. When e-assessments are used in a learner-centred way, to help their understanding, then students will see value with this approach.

6.3.1. Offline assessment

Expected learning outcomes

By the end of this lesson, student teachers will be able to:

- Explain the difference between offline and online assessment systems;
- Describe effective offline assessment tools in education by demonstrating any ICT tools; and
- Assess offline assessment tools in education.

Competencies gained

A2.2.1 Describe the function and purpose of online and offline educational tools and materials to support the teaching and learning process

A2.2.2 Evaluate and match available online and offline ICT tools and materials to curriculum content and pedagogical strategies, including online and offline

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

D2.1.2 Participate in professional development activities related to identified goals for improving practice

D3.1.2 Search and analyse online or offline information on current trends and research based practices in lower secondary education and for specific subjects taught to improve one's own content knowledge and teaching practice

Time: One period of 50 minutes

Learning strategies: Think-pair-share, research, pair work, group work, active learning

Assessment approaches: Observation, reflection journal, peer assessment. For all activities, try to elicit responses equally from both male and female student teachers.

Preparation needed: Use of the computer lab for this lesson, if available, will make it possible to create their own assessment using online apps, platforms and social media platforms.

Resources needed: Online access via laptops/PC/tablet

Facilitator's notes

Computers can assist with assessment. They can support a greater variety of assessments and collect evidence of a new range of skills. In this sub unit and the previous sub-unit we focus to assessments on a computing device with an internet connection (online), via a network connection or on independent software, installed on local computers. For the sake of conceptual clarity, in this unit we are going to look at offline assessment and focus on how computers can be used for standardised, high stakes and summative assessment. In the next unit, you will be introduced to online assessment and how computers can be used for low stakes formative teaching, in a classroom.

The distinction between the two units is to help student teachers understand how computers are able to assist with the assessment process. Offline and summative assessment, as well as online and formative assessment can and frequently do overlap. For example, online assessment can be used for both formative and summative purposes. And offline assessment can be used for formative and summative assessment?

Teacher educators will find this unit far easier to teach if they have access to software that allows them to create offline assessments. Below are two products that can be downloaded to use offline.

Hot Potatoes (https://hotpot.uvic.ca/) is a shareware that allows you to make six different types of self-test exercises.

CourseLab (courselab.com) is a commercial e-Learning authoring tool with a free version. The quizzes that are created can be published in a range of environments, including the Internet, Learning Management Systems (LMS), CD-ROMs and other devices.

If it becomes difficult to access this software, commercial survey sites such as Typeform, Survey Monkey or Google Forms can be used.

Learning activity 1. Matching exercise: Fields and questions types (5 minutes)

The intention of this brief matching exercise is to ascertain that student teachers are familiar with fields and question types. In the learning activity, the student teacher will need to recognise different types of fields (either open or closed) and then match these fields to a suitable question type.

Field	Question type
Single-line text field	Cloze question
Paragraph text field	Extended matching question
Drop-down list	Ranking question
Radio field	Multiple-choice question
Checkbox field	Assertion and reason question

Learning activity 2. Active learning: A good e-assessment experience (20 minutes)

A good offline exam experience does not only depend on student teachers' understanding or the instrument used. It also depends on how the student teachers are prepared for the experience and the steps they need to follow before, during and after using the assessment instrument.

In this exercise, ask student teachers to work together in pairs. They should be shown a mixed-up sequence of steps that they will need to arrange under headings and make sense of the sequence. The intention of the learning activity is to determine whether student teachers can address issues such as preparation, procedures, logistics and standards that are necessary to run a successful exam.

The answers below are a bit more detailed than the student teachers' responses as they include instructions for student teachers who bring their own devices (BYOD) to an offline exam

Before the exam

Prepare themselves before the exam by

1) Complete the orientation activity to become familiar with the environment
2) Prepare themselves by completing past exam papers on the e-assessment platform
3) Practise typing skills and, if necessary, enabling and using a language keyboard

If you bring your own device (BYOD) to complete the e-assessment you should do the above and

1) Make sure that you are using an approved browser, compatible hardware, operating system and monitor
2) Be able to disable notifications, popups, updates and other interruptions
3) Ensure that your computer is virus protected

On the exam day

1) Make sure that your BYOD device is fully charged
2) Bring an emergency power bank
3) Remember to include pens in case you need to take notes

When in the exam venue

1) Arrive half an hour before the exam to set up
2) Log in (and ask for assistance if necessary)
3) Plug in your power bank to charge necessary

After the exam

1) Be familiar with the process for receiving or retrieving your results
2) Know who to contact if you require assistance with a review or re-write

Learning activity 3. Pair work: Bigger issues (20 minutes)

Student teachers will have been very aware of the differences between traditional pen and paper tests and e-assessment systems. In this exercise, they will be asked to critically question whether e-assessment tools (online or offline) can address these problems.

Paper based tests	Offline tests
Possibility of a leaked exam and the implications	Exam content is encrypted and removed from the computer after the exam
Costs of printing, storing and distributing a set of paper-based exam questions	Exam questions are stored in an item bank and can be distributed at the time of the exam
Standardised exams require students to sit at the same exam and complete the same question	If a calibrated item bank is used, then each candidate can answer a unique set of questions that have been randomised, in terms of order and answer sequence
Students granted extra time in some venues	The system automatically logs off candidates at the expiration of allocated time
The annual overhead costs of the administration at scale of exams	Computers offer the capacity to scale up assessments without increasing the administration costs
Venue capacity	If exams are conducted on students own computers and can be completed independently, then seats and desks will not be a problem.

Assessment

Create a 10-question survey

Student teachers need to become familiar with forms, fields and question types. This assessment is about creating an offline assessment using different question types. Before they begin, student teachers will need to do two things

1. **Authoring package**. Student teachers will need to decide what offline assessment options, ranging from freemium or trial software, they will download and use to create offline assessment. It may be appropriate for the teacher educator to also investigate the offline options available, especially if there is a lack of connectivity.
2. **Offline assessment purpose**: Student teachers must select a purpose behind their offline assessment. There are ten suggestions included in the textbook.

Having decided on an authoring package and overall purpose, the student teachers then think about the questions that they will include in the assessment. It could be a good idea to work through the first question together and ensure that student teachers can include at least one multiple-choice question.

Possible student teachers' responses

You will need to judge the suitability of the task that has been set as it will depend on the venue and infrastructure. If there are computers available or if student teachers have mobile devices, then the assessment may be completed in class and perhaps even replace some of the other learning activities. But the conditions are not suitable, then the teacher educator will need to ensure that the class follows the steps below.

Once you have decided on your topic, the questions and question types, then you are ready to begin.

Step 1 – Set up a test

To create a new test, look for a button or link that allows you to 'Create' or 'Set up'. This will allow you to create a new assessment, wherein you can add questions.

Step 2 - Add questions & pages

Once you create your test, remember the purpose that you had thought about initially. Then, think of questions that you can include that address this purpose. There will be range of settings available. One of your questions need to be MCQ with distractors. Then, experiment with other question types and further customise the test.

Step 3 – Mark correct answers, insert feedback

Student teachers who are completing the quiz will expect feedback. This may be immediate. Or they may only receive their answers after you have released them. You will need to decide how you intend to run the assessment.

Step 4 – Break it down

If you have a long test, it might be helpful to break it up into multiple pages. Pages help you organise your test into sections, which makes it easier for people to take. Plus, every time they go to the next page, their previous responses are saved.

Step 5 - Customise the design

After your test, questions and pages are in place, you can focus on fine-tuning the look and feel of your test with the design and display options. For example, show or hide elements on the test, add your school badge, create a custom theme.

Step 6 - Preview and test your own test

Always preview and try out your own e-assessment before sending in. This will help you catch any mistakes or issues. Once you're ready to send it out to peers in your class and ask them to complete.

Check student teachers' understanding (5 minutes)

The assessment will reveal the depth of the student teachers' understanding. Allow time to check they understand the difference between offline and online assessment systems.

6.3.2. Online assessment

Expected learning outcomes

By the end of this lesson, student teachers will be able to:

- Practise the different types of online assessment;
- Identify many online assessment tools to teachers, including several multiple-choice education learning platforms (e.g. Google Word Coach); and
- Create sample online tests.

Competencies gained

A2.2.1 Describe the function and purpose of online and offline educational tools and materials to support the teaching and learning process

A2.2.2 Evaluate and match available online and offline ICT tools and materials to curriculum content and pedagogical strategies, including online and offline

B1.2.2 Use knowledge of different literacy teaching strategies to support development of subject matter literacy

D2.1.2 Participate in professional development activities related to identified goals for improving practice

Time: One period of 50 minutes

Learning strategies: Assignment, group work, active learning

Assessment approaches: Reflection journal, peer-assessment, self-assessment. For all activities, try to elicit responses equally from both male and female student teachers.

Preparation needed: Use of the computer lab for this lesson, if available, will make creating assessments via online forms much easier. If the computer lab is not available, have student teachers bring their mobile phones into class.

Resources needed: Online access via laptops/PC/tablet

Using online forms for assessment

Online forms offer a quick way for a teacher to collect and gather information. There are many ways to use forms to gather information about a class: whether it be information about the class members, the suitability of lessons for children's understanding, the fitness of the learning activities or even how the teacher can improve in the next year. Fields are used to collect the information that is entered into a form. These fields can contain either open-ended or closed types of questions, depending on the information that needs to be collected.

Fields that support open-ended questions

- Single-line text field - enter characters into a standard single line input area.
- Paragraph text field - enter paragraph of characters into a a multiple lined input area

Fields that support closed-questions

- A drop-down list - a selected item is always visible and the others are visible when users click on it and a drop-down menu allows users to choose an item from the list.
- The Multiple-choice field allows users to choose only one item from a list of options. Radio buttons are usually used so that only one answer can be selected.
- The Checkboxes field allows users to choose any number of items from a list of options. Checkboxes are usually selected so that many options can be used.

Below are five ways that a form and fields can be used:

1. Want to **capture** their attention? How much do you know about your student's interest in the subject you are teaching or the topic you are covering?
    a. **Check for prior knowledge**: Set a diagnostic test at the beginning of the semester with multiple-choice questions to find out how much they know before they begin a new section.
    b. **See how much was gained**. Compare learning outcomes before and after a unit by using the same quiz twice. First, at the beginning of the unit and then second at the end. Then, examine the gains.
    c. **Check for understanding**: Set a short automatically answered question to allow the student to see where they are in their understanding.
2. Care about your students? Concerned about the life of your children beyond the class? Teachers who take the time to get know their students find that their children want to please them and try hard.
    a. **Class management and administrative information**: Gather important class information using a single-line text to get information such as date of birth, parents' name, contact number
    b. **Parental input**: Get an insight from parents about their children interests with a rating scale
    c. **Personal preferences:** Allow children to use a checkbox to indicate from a list their own preferences
3. **Consolidate** your teaching practices. As a teacher you need to reflect on what went well and what needs to be changes? You can use a form to ask students for their anonymous and constructive feedback.
4. a. **Student satisfaction survey:** At half semester, offer students the opportunity to write a short report using grades drop-down
    b. **Try out something new**: Be innovative and allow students to offer their anonymous responses about how it went
    c. **Collect success stories**: Ask students to shared tips that are specifically for students with students
5. Conferring about and **clarifying** details**.** Using an online assessment in this way helps students gauge their understanding of the material. With feedback, you can guide students to further their own learning. Using some of the advanced features in Wits-e you can:

a. **Create a checklist**: List the important aspects of a task for students to go through
b. **Self-assessment**: provide a series of statements for students to rate according to a scale
c. **Peer involvement:** Set up a peer review exercise and ask students to review fellow

Learning activity 1. Active learning: Creating a formative assessment quiz (50 minutes)

Learning activities 1 and 2 are about using online forms and fields in a classroom setting. The exercises are intended for student teachers to become comfortable with using online forms. They will complete a course evaluation that has been created on a Google form, discover how a form might be used by students, even if they do not have internet access and then create their own self marking quiz.

The example self-assessment form is a checklist for students to see how ready they are to use computers for learning and then for the teachers to use that feedback to assist them to prepare suitable lessons

The following five questions can be the basis for the survey:

1. I understand that flipped learning is different from traditional classroom learning and requires an equal or greater amount of work.
   [Multiple-choice question] Yes, No

2. I am willing to spend (and have available to me) at least [INSERT REQUIRED NUMBER] hours each week on [subject name]
   [Drop-down list with hour options]

3. I am ready to start the first day of class.
   [Likert Scale]
   5 = I strongly agree
   4 = I agree
   3 = I feel neutral
   2 = I disagree
   1 = I disagree strongly

4. I have regular and reliable access to a desktop or powerful laptop computer. [Checkbox]

5. I can download software to my computer, create documents on it, save them to my computer and upload them as directed to other sites.
   [Multiple-choice]
   Yes, all the time
   Only sometimes
   No, not at all

Assessment

Self-assessment. Student teachers have been given directions in their textbook for creating the survey.

Possible student teachers' responses

Surveys will vary from one student teacher to the next.

Learning activity 2. Homework assignment: Formative assessment

Ask student teachers to complete learning activity 2 in their own time. The activity will provide them with an opportunity to better understand the formative assessment.

Expected student teachers' responses for the review questions in TB

Question 1: Teachers can use technology to facilitate and monitor assessment. There are a variety of methods used to determine whether students have understood what has been taught. List three.

Answer: *Self-assessment, peer assessment, time constrained individual assessments (like test or exams), writing assignments (projects, essays, reports).*

Question 2: What is formative assessment?

Answer: *Formative assessment is a final assessment of a student's achievement, usually leading to a formal acknowledgement of progress or a certification of an ability.*

Question 3: List two advantages and two drawbacks of using ICT in formative assessment.

Answer: *See Table 6.3.*

Question 4: You can create quiz questions in a variety of forms. Name four.

Answer:

- *Multiple-choice questions*
- *Multiple response questions*
- *Alternative response questions*
- *Ranking questions*
- *Matching questions*
- *Completion questions*

Unit Summary

Case scenario Unit 6: ICT in Education

Pre-unit 6: Adoption - able to use various technologies, including the computer, to support traditional management, administration, teaching and learning

Post-unit 6: Appropriation - able to integrate technology into teaching and learning activities and use integrated systems for management and administration within a community context

When you use the case study with your student teachers, first give them the story to read.

Ask them what the point of this story is?

Answer: *to reflect on the positives of teaching ICT in middle school.*

By this point in their studies, the student teachers should be more independent learners. Rather than asking them the questions, give them the questions and ask them to reflect on the answers and respond in their journals.

Reflections on the scenario:

Think about the following questions and make notes in your journal.

1. Reflect on your own practicum. What is the key experience that you have had? How did it make you feel?
2. In the first case scenario, U Thaung talked about the three aspects of being an ICT teacher:
   - To learn about ICT
   - To learn how to use ICT in middle school
   - To use ICT to become a better teacher

Write a short paragraph on each of these three aspects, reflecting on how you have developed as an ICT teacher throughout the two semesters.

Remind your student teachers to read the 'Did you notice that...' points.

Key messages

By the end of this unit student teachers will have:

- Understood the value of collaboration among teachers using ICT;
- Practised using relevant ICT tools to collaborate among teachers;
- Established active teaching and learning facilitated by use of ICT;
- Explained the difference between offline and online assessment systems;
- Assessed online and offline assessment tools in education; and
- Created sample online tests.

Unit reflection

Think about the following questions and make notes in your journal.

1. Reflect on your own practicum. What is the key experience that you have had? How did it make you feel?
2. In the first case scenario, U Thaung talked about the 3 aspects of being an ICT teacher:
   - To learn about ICT
   - To learn how to use ICT in middle school
   - To use ICT to become a better teacher

Write a short paragraph on each of these 3 aspects, reflecting on how you have developed as an ICT teacher throughout the two semesters.

Further reading

Here is Salman Khan, the creator of Khan Academy, talking about effective use of ICT in the classroom: https://www.ted.com/talks/sal_khan_let_s_use_video_to_reinvent_education

Glossary

Terms	Elaborations
Asynchronous collaboration	A type of collaboration where the exchange of ideas, information and interaction between users occurs on a schedule basis rather than connecting in real time
Asynchronous conferencing	A form of computer-mediated communication, collaboration and learning in which there is a delay in interactions between contributors. Examples can include e-mail, online forums and social networking sites
Critical friend	A trusted person who asks provocative questions, provides data to be examined from another lens and offers critiques of a person's work as a friend
Digital citizen	A person with the skills and knowledge to effectively use digital technologies in a positive way to participate in society, communicate with others, and create and consume digital content
Digital footprint	The total set of data that is left behind by a person using a digital system
Digital identity	Body of online information that an individual discloses, shares and curates
Digital media literacy	A new and shifting set of skills and abilities that is required to navigate a digital culture. A new literacy that goes beyond reading, writing, and numeracy and includes the ability to examine, comprehend messages and credibility of digital work
Digital resilience	Ability to cope with setbacks and to bounce back from something difficult
Echo chamber	A term used to describe an environment (often online or on social media) where all beliefs and opinions are amplified and reinforced, but never challenged
Facebook	A social networking site that makes it easy for you to connect and share with family and friends online
Firefox	A cross-platform web browser created and maintained by Mozilla
Information literacy	Focuses on the purposes of engaging with information and the process of becoming informed. It is associated with the concepts of learning to learn and making decisions through its emphasis on defining needs and problems, relevant information and using it critically and responsibly (ethically)
Instagram	A free photo and video sharing app for people to upload photos or videos and share them with their followers or with a select group of friends
Khan Academy	A website that offers practice exercises, instructional videos, and a personalised learning dashboard that empower learners to study at their own pace in and outside of the classroom
Mal-information	Information that is based on reality, used to inflict harm on a person, social group, organisation or country
Misinformation	Information that is false but not created with the intention of causing harm
MOOC	Massive Open Online Course: an online course aimed at unlimited participation and open access
Prejudice	An unfair and unreasonable opinion or feeling, especially when formed without enough thought or knowledge
Privacy	Broadly speaking, privacy is the right to be left alone, freedom from interference or intrusion. Privacy also encompasses the right to have some control over how your personal information is collected and used.
Search Engine Optimisation (SEO)	The process associated with increasing the visibility of a website on search engine listings in order to receive more visitors

Terms	Elaborations
Security	The state of being free from danger or threat. In the context of ICT, security represents the rules you follow, actions you take and processes that happen to ensure you are safe online and offline
Stereotypes	An over-generalised belief about a particular category of people. It is an expectation that people might have about every person of a particular group
Synchronous collaboration	A type of collaboration where the exchange of ideas, information and interaction between users occurs in real time
Synchronous conferencing	Two-way audio/video communication in real time where users can connect and interact with each other simultaneously
TAN	A transaction authentication number (TAN) is a one-time code used in the processing of online transactions. It represents an additional layer of security beyond a password to securely log into an account or conduct a transaction
Traditional media	Different media formats (print, audio, video) focused on delivering information to a wide audience
Videoconferencing	Two-way audio/video communication where users can connect and interact with each other simultaneously
Zoom	A synchronous conferencing platform in the cloud that can be used for video, voice, content sharing, and chat

Bibliography

American Press Institute. (2020). What makes a good story? Retrieved from https://www.americanpressinstitute.org/journalism-essentials/makes-good-story/

Asia Society. (2020.) Five benefits of online learning for teachers. Retrieved from https://asiasociety.org/five-benefits-online-learning-teachers

Banda, F. (2009). *Civic education for media professionals: A training manual*. Paris: UNESCO. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000180402

Brin, S. & Page, L. (n.d.). The anatomy of a large-scale hypertextual Web search engine. Retrieved from http://infolab.stanford.edu/~backrub/google.html

Disruptive Asia. (2019). 5G infrastructure could cost $2.7 trillion by the end of 2020. Then what? Retrieved from https://disruptive.asia/5g-infrastructure-cost-2-7-trillion/

Facebook. (n.d.). Guides. Retrieved from https://www.facebook.com/safety/resources/myanmar

Gibbs, G. (1994). *Learning in teams: A student manual,* Oxford: Oxford Brookes University, Oxford Centre for Staff.

GSMA. (2020). Achieving over $1bn cost efficiencies in the 5G era: New network economics annual report. Retrieved from https://www.gsma.com/futurenetworks/digest/achieving-over-1bn-cost-efficiencies-in-the-5g-era-new-network-economics-report/

GSMA. (2020). Future networks. Retrieved from https://www.gsma.com/futurenetworks/ip_services/understanding-5g/

James, K. (2019). *Myanmar: Assessing digital participation*. Retrieved from https://www.dw.com/downloads/49235998/speakup-barometer-myanmar-full-report.pdf

Khan Academy. (2020). Computer programming. Retrieved from https://www.khanacademy.org/computing/computer-programming

Kille, L.W. (2014). Math basics for journalists: Working with averages and percentages. Retrieved from https://journalistsresource.org/tip-sheets/foundations/math-for-journalists/

Kille, L.W. (2015). Copyediting for reporters: How to get the basics right. Retrieved from https://journalistsresource.org/tip-sheets/style/copyediting-for-reporters/

Kille, L.W. (2015). Statistical terms used in research studies: A primer for media. Retrieved from https://journalistsresource.org/tip-sheets/research/statistics-for-journalists/

Mobile World Live. (2019). Intelligence brief: How much will 5G cost? Retrieved from https://www.mobileworldlive.com/blog/intelligence-brief-how-much-will-5g-cost/

Myanmar Centre for Responsible Business (MCRB). (2020). Retrieved from https://www.myanmar-responsiblebusiness.org

Myanmar Computer Federation. (2020). Retrieved from https://mcf.org.mm/

Myanmar Press Council. (2016). သတင်းမီဒီယာကျင့်ဝတ် [Media ethics]. Retrieved from http://myanmarpresscouncil.org/laws/media-ethic

Nan Lwin. (2020). Combating fake news in the time of Coronavirus in Myanmar. Retrieved from https://www.irrawaddy.com/news/burma/myanmar-combating-fake-news-time-coronavirus.html

Open School of Journalism. (n.d.). Editing. Retrieved from https://www.open-schoolofjournalism.com/resources/encyclopedia/editing

Oxford Business Group. (2020, March 24). Growth of mobile and internet usage make Myanmar ICT more competitive. Retrieved from https://oxfordbusinessgroup.com/overview/tech-transformation-mobile-and-internet-usage-rise-sector-set-expand-and-become-more-competitive

PBS Newshour. (n.d.). What is newsworthy?. Retrieved from https://www.pbs.org/newshour/extra/app/uploads/2013/11/What-is-Newsworthy-Worksheet.pdf

Prejudice. (n.d). In *Cambridge English Dictionary*. Retrieved from https://dictionary.cambridge.org/dictionary/english/prejudice

Renner, N. (2017). The media today: Twitter decides what is newsworthy. *Columbia Journalism Review*. Retrieved from https://www.cjr.org/the_media_today/twitter-newsworthiness.php

Saw Yi Nanda. (2019). Myanmar to go 5G in 2-3 years. *Myanmar Times*. Retrieved from https://www.mmtimes.com/news/myanmar-go-5g-2-3-years.html

Sirrah, A. (2019). Native advertising may jeopardize the legitimacy of newsrooms. *Columbia journalism review.* Retrieved from https://www.cjr.org/tow_center/native-ads-endanger-newsrooms.php.

Sort data in a range or table. (n.d.). Retrieved from https://support.office.com/en-us/article/sort-data-in-a-range-or-table-62d0b95d-2a90-4610-a6ae-2e545c4a4654'

The Economist. (2019). Myanmar seeks to join global race towards 5G. Retrieved from http://country.eiu.com/article.aspx?articleid=68511790&Country=Myanmar&topic=Economy

UNESCO, & IMS. (2016). *Assessment of media development in Myanmar: Based on UNESCO's media development indicators*. Myanmar: UNESCO/ Copenhagen: International Media Support. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000244760

UNESCO. (2018). *Journalism, fake news and disinformation: A handbook for journalism education and training*. Retrieved from https://en.unesco.org/fightfakenews

UNESCO. (n.d.) *Brief 4: Information and Communication Technology (ICT) in Education*. Retrieved from https://learningportal.iiep.unesco.org/en/issue-briefs/improve-learning/curriculum-and-materials/information-and-communication-technology-ict

Wired. (2019). 5G is coming for real, but it will cost you. Retrieved from https://www.wired.com/story/5g-is-coming-real-will-cost-you/

Notes

Notes

Notes

The Government of the Republic of the Union of Myanmar

Ministry of Education