



ICT Diagnostic for Digital Transformation in Cambodia

Findings from the Department of Digital Transformation's ICT skills assessment across the country

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Abbreviations and acronyms

CDL	Critical Digital Literacies
DDT	Department of Digital Transformation
DMIL	Digital, Media and Information Literacy
DOE	District of Education office
EMIS	Education Management Information Systems\
FGD	Focus group discussion
ICT	Information Communication Technology
LMS	Learning Management System
MoEYS	Ministry of Education, Youth and Sport
PLC	Professional Learning Community
POE	Provincial of Education office

Introduction

Background

This ICT Diagnostic Report is a product of a Helpdesk request from UNICEF Cambodia on behalf of the Department of Digital Transformation (DDT) of the Cambodian Ministry of Education, Youth and Sport (MoEYS). As part of its efforts to enhance digital literacy and proficiency among educators, Cambodia's MoEYS has developed several key initiatives, including two online platforms: *Sala Digital* (sala.moeys.gov.kh), a self-regulated learning environment, and the *Capacity Development Platform* (cdp.moeys.gov.kh), a learning management system to support continuous professional development. MoEYS is also developing a more targeted Digital Education Strategy focused specifically on schools, with the aim of improving the use of educational technology (EdTech) to enhance learning outcomes. Achieving this vision requires building capacity at both national and sub-national levels to implement the strategy and support schools in integrating digital learning tools effectively.

To support MoEYS strengthen the digital competencies of both teaching and non-teaching staff, EdTech Hub provided technical assistance to DDT to conduct an ICT skills diagnostic to assess current capacity at schools, teacher education institutions, and MoEYS central, provincial, and district level offices. The goal of the diagnostic was to identify existing gaps in ICT skills as well as the desired competencies needed among education personnel. Findings from the diagnostic are intended to inform future MoEYS digital transformation activities, including the design of targeted ICT-related training courses to support capacity development across the sector. .

Based on the findings from a survey and focus group discussions (FGDs), this report provides recommendations on the skills and competencies teachers and MoEYS staff need to develop in order to contribute to positive learning outcomes for Cambodian learners.

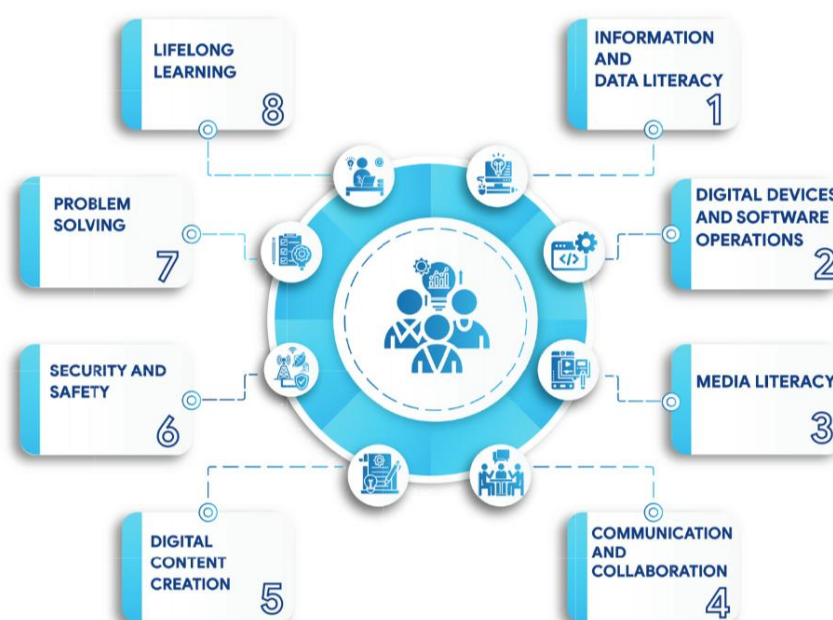
Conceptual framework

Various organisations and government bodies have developed digital competency standards and frameworks for teachers and citizens. While frameworks have different audiences and competencies depending on the context, they are typically developed to define and standardise the

knowledge, skills and attitudes necessary for individuals to participate effectively in a digital society ([UNESCO-UNEVOC, n.d.](#)).

Cambodia released its Digital, Media and Information Literacy (DMIL) Framework in 2024, which serves as the conceptual framework for this report. This framework was developed by the Ministry of Post and Telecommunications with support from UNESCO. The document defines DMIL as: “a set of competencies that empower individuals to effectively use digital tools, access, use, choose, evaluate, organize, create and share digital contents in their professional and daily lives and engage with media, and information from various sources with a positive attitude, critical thinking, ethics, efficiency and responsibility” ([Ministry of Post and Telecommunications, 2024](#), p.13)

The Eight DMIL Competency Domains



Although the DMIL framework is not designed for education specifically, these competencies are essential for both teachers and MoEYS staff to develop in order to fulfill their roles and impact learning outcomes in Cambodia, which are described in [Table 1](#). The ways in which teachers and MoEYS staff can use digital competencies for an education setting draws on the Critical Digital Literacies (CDL) for educators framework developed by the DETECT project. Although there is overlap between this and the DMIL framework, the latter has been maintained as the primary structure for presenting this report’s findings and recommendations. This is because the DMIL was developed for the Cambodian context specifically and is intended to be a guiding document for creating digital literacy curricula, evaluating competency levels and strategic planning.

Table 1: *DMIL competencies and relevance to education settings and educators¹*

Competency	Description	Teachers	MoEYS Staff
Information and data literacy	Ability to effectively find, evaluate, use, and communicate information and data in a digital world	Needed to search and select appropriate learning resources, and use student data to measure learning	Needed to interpret education data to guide evidence-based EdTech policies
Digital devices and software operations	Ability to effectively utilise digital tools and software, including knowledge of the latest technological advancements	Needed to operate digital devices and online teaching tools; support learners' use in the classroom	Needed to identify appropriate digital tools and software for teachers and schools
Communication and collaboration	Ability to effectively and ethically communicate and initiate online work collaborations, while encouraging input from others in a digital environment	Needed to use digital platforms and tools to communicate and collaborate with students, parents, and colleagues	Needed to coordinate with provincial, district and national teams; ensure student information is shared appropriately and protected
Digital content creation	Ability to create and share digital content ethically and responsibly	Needed to create and share content for learning	Needed to create and share materials and reports

¹ Media literacy is a competency of the DMIL but was not studied in this report. Although it is a critical competency, this report focused on practical digital skills related to digital pedagogy, administrative tasks and online collaboration, rather than the evaluation and critical engagement with media sources.

Security and safety	Ability to navigate the online world with confidence, protect self and others from harm, and contribute to a more positive and inclusive digital experience for everyone	Needed to teach and model responsible digital behaviour and ensure students are protected from cyberbullying, harmful content and other online risks	Needed to develop online safety and security policies and guidelines for schools
Problem solving	Ability to identify, analyse, and address challenges effectively and creatively	Needed to troubleshoot technology in the classroom and adapt tools to suit learners' unique needs	Needed to develop strategies to address systemic challenges that limit equal opportunities to engage with EdTech
Lifelong learning	The pursuit of continuous study and personal development to enhance one's abilities and professional skills	Needed to stay updated on EdTech tools and engage in self-directed professional development	Needed to stay updated on EdTech tools and promote a culture of continuous professional development

Methodology

Survey

Instrument development: The survey instrument was designed to provide quantitative data for the diagnostic. Questions were designed to provide insights into current levels of training and professional development, ICT devices used, frequency of ICT tasks, self-assessment of ICT skills, and perception of digital competencies (see [Appendix](#)). For the section on self-assessment of skills, items from the DigiComp² item bank were selected and adapted to align with the competencies in the DMIL. Questions about technology use and knowledge aimed to capture professional tasks participants were likely to either be currently using or would be expected to do as part of the digital transformation of education.

Data collection: Survey collection was conducted in January 2025 by DDT staff. The survey instrument was created in Google Forms and distributed through Telegram. Recognizing that some regions required additional support to encourage survey participation, DDT staff conducted six field visits in Kratie, Stung Treng, Ratanakiri, Mondulakiri, Preah Vihear and Otdar Meanchey. At these site visits, a DDT staff member explained the purpose of the survey and respondents completed the survey on-site.

Participants: Four types of participants were chosen to gather the perspectives from a range of teachers and staff: teachers, teacher educators, provincial and district level MoEYS staff, and central level MoEYS staff.³ The survey aimed to gather a total of 400 responses, with representation from all 24 provinces and Phnom Penh. The distribution of each group is provided in [Table 2](#).

Sampling method: Stratified random sampling was used to select survey respondents. DDT procured a list of current teachers and staff from the MoEYS human resources management system. This list was divided into populations based on department (MoEYS Central staff), province and role (MoEYS provincial and district staff), grade level and province (teachers) or

² The DigiComp 2.2 framework was developed by the Joint Research Centre of the European Commission. It provides a structure for the skills, knowledge and attitudes that citizens need to effectively engage with digital technologies ([Vuorikari et al., 2022](#)). It was a reference for the development of the DMIL ([Ministry of Post and Telecommunications, 2024](#))

³ In the initial proposal, teacher trainees were included as participants. However, since there was not a central database with contact information for teacher trainees, this group was not included in the survey distribution or focus group discussions. Instead, DDT sought to contact 50 teacher educators, instead of the original proposal of 25.

teacher educator institution (teacher educators). A random number generator was used to randomly select participants from each population group to create the sample.

DDT staff monitored survey completion and conducted follow up to the selected respondents who did not respond in a timely manner. If the selected participant did not complete the survey after reminders, an alternative person from that population was randomly selected and contacted.

Data cleaning: To ensure survey results were accurate and reliable, data was cleaned to remove any responses that did not match quality standards. The following criteria were used to assess if a response needed to be removed:

- *Duplicate responses:* Results that had the same name, gender, age, and location selected were assumed to be responses from the same person. These duplicates were compared; the response that was the most complete (the fewest questions left blank or unanswered) was kept. In the case that both responses had an equal number of responses, the most recently completed response was kept.
- *Incomplete responses:* Results that were missing responses to 25% or more of the questions in the survey were removed. These responses were considered to be lacking sufficient information and suggested that the respondent rushed through the survey.

After completing the cleaning process, we retained 402 valid responses out of the 420 collected.

Table 2. *Survey participants characteristics*

Demographic	Description	Count	Percentage ⁴
Response Type	Teachers	147	36.57%
	Teacher educators	53	13.18%
	POE and DOE	102	25.37%
	Central	100	24.88%
Gender	Female	186	46.27%

⁴ Percentages may not add up to 100% due to rounding

Demographic	Description	Count	Percentage ⁴
	Male	216	53.73%
Age	18-24 years old	12	2.99%
	25-34 years old	104	25.87%
	35-44 years old	166	41.29%
	45-54 years old	86	21.39%
	55 years or older	34	8.46%
Education Level⁵	High school graduate, diploma or the equivalent	52	12.94%
	Some college credit, no degree	7	1.74%
	Technical/vocational training	18	4.48%
	Associate degree	13	3.23%
	Bachelor's degree	183	45.52%
	Master's degree	118	29.35%
	Doctorate degree	10	2.49%
Location⁶	Coastal	43	10.70%
	Plain	202	50.25%
	Plateau	89	22.14%
	Tonle Sap	64	15.92%
Total		402	

⁵ 1 respondent did not provide this information

⁶ See Appendix for list of provinces and corresponding regions. All Central staff are located in Phnom Penh, which contributes to the higher representation from the Plain region. Four respondents did not provide their location.

Focus group discussions

Instrument development: The questions for the FGDs were designed to provide qualitative data to supplement the quantitative data in the survey. The sections have similar themes as the survey (See [Appendix](#)) but the open ended questions enabled greater detail about training and technology use. Participants were also asked questions to shed light on challenges and barriers to ICT use, and their recommendations to improve the ICT skills of themselves and their colleagues.

Data collection: Focus group discussions took place in February 2025. DDT staff conducted four group discussions virtually through Google Meet with six to 11 people in each group. The FGDs were conducted in Khmer and DDT staff took notes on FGD guides which were then professionally translated into English.

Participants: There were four groups of participants (See [Table 3](#)).

Table 3. *Focus group types and participants*

Type	Participants	Total
Teachers	• Levels: basic, high school • 6 different provinces	11
Teacher Educators	• Training centres: regional, provincial • 4 different provinces	6
Central level Technical staff	• Designation: deputy head officers, officers	8
Provincial and district level staff	• Levels: provincial, district • Designation: chief of office, vice chief of office, deputy director, officer	10

Limitations

This research encountered some challenges in the survey distribution, which presents implications for the results. DDT reported that over 40% of phone numbers they initially contacted did not work. Possible explanations included change of phone number, the recipients believing the message was spam, and waiting for assurance from superiors before responding. To ensure a sufficient response rate, DDT reached out to alternative respondents. However, this means there could be some response bias in the results. Those who chose to respond may have been more motivated or confident in their digital skill level, leading to over-estimation of overall skill levels. Additionally, DDT also learned that some Central MoEYS staff may have asked assistants to complete the survey for them, citing time constraints. Although it is not believed that this practice was widespread, some data may not accurately reflect the digital competencies and practices of this group. Lastly, it is important to note that this research does not measure digital skill levels directly, but relies on self-assessment provided by the respondents.

Key Findings

Current status of training

To establish a baseline of the training and professional development experiences of teachers and MoEYS staff, both the survey and FGDs asked participants to reflect on the training and workshops they had received.

Teachers and MoEYS staff report significant gaps in ICT training.

This study finds that a substantial proportion of respondents report not having received training on specific topics relevant for their position, including online safety and using digital tools. Teachers in particular report gaps in training in key areas to integrate technology: Nearly half (46%) of teachers reported not receiving training for one or more topics and more than a quarter (28%) report not having received training in eight or more of the nine topics⁷.

⁷ Participants were asked if they had received training in online safety, using video conferencing software (Google Meet, Zoom, etc), using artificial intelligence ethically, using digital technology for different work-related tasks, and inclusive and equitable use of EdTech (Teachers and Teacher educators only). See [Appendix](#) for details on the survey.

The majority of respondents had no training in the past six months.

Over 70% of respondents reported not having completed any in the past six months, and many report not knowing about any training that was offered. FGDs further supported this finding, with participants from all stakeholder groups stating that they had little to no training on using digital technology for their role.

Teachers and teacher educators have trouble using MoEYS applications and tools because of the lack of training.

Teachers and teacher educators in the FGDs identified tools like Microsoft Office and websites like Google and YouTube as easy to use. However, they reported trouble using applications and tools produced by the MoEYS, citing a lack of training for these applications and websites.

Respondents rely heavily on self-learning and peer support for training needs.

In the absence of formalised training, teachers and MoEYS staff report self learning through social media, online videos, and peer support. Some teacher educators shared receiving support from ICT teachers, and in one example, school leadership has organised weekly sessions where an ICT teacher presents on a specific topic.

Current status of technology use

Technology use is inconsistent.

Survey responses and FGDs reveal that while technology is being used in education settings, usage is often inconsistent. With the exception of central MoEYS staff, survey respondents most commonly said they use technology for professional tasks “Sometimes”, indicating that technology is not used consistently. However, “Never” is often the second most common response among provincial and district staff, and teachers, which could indicate that these groups do not know how to use technology for these tasks or do not do this task (See [Figure 1](#)).

Engagement with digital tools is exploratory, not embedded.

This uneven usage is reflected in respondents’ self-reflection on their digital use; 37% consider themselves “Explorers”, meaning they have tried using digital technology in their role but it is not yet a regular practice (See [Figure 2](#)).

Figure 1. Frequency of technology use in role

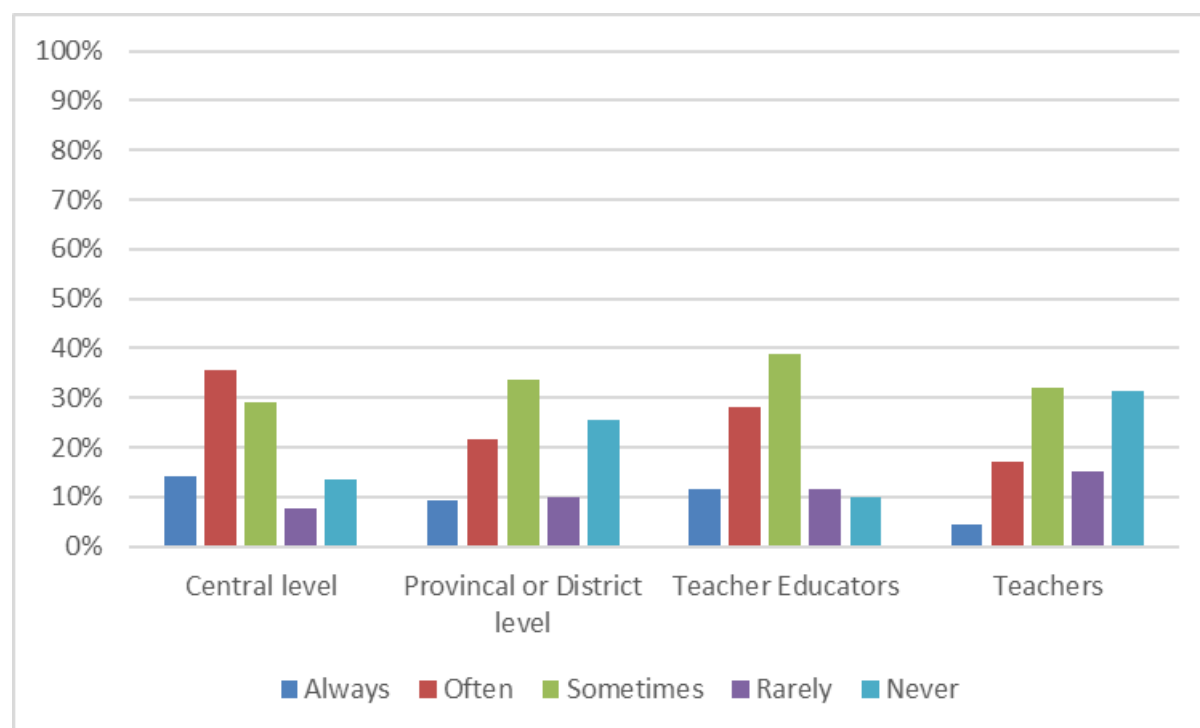
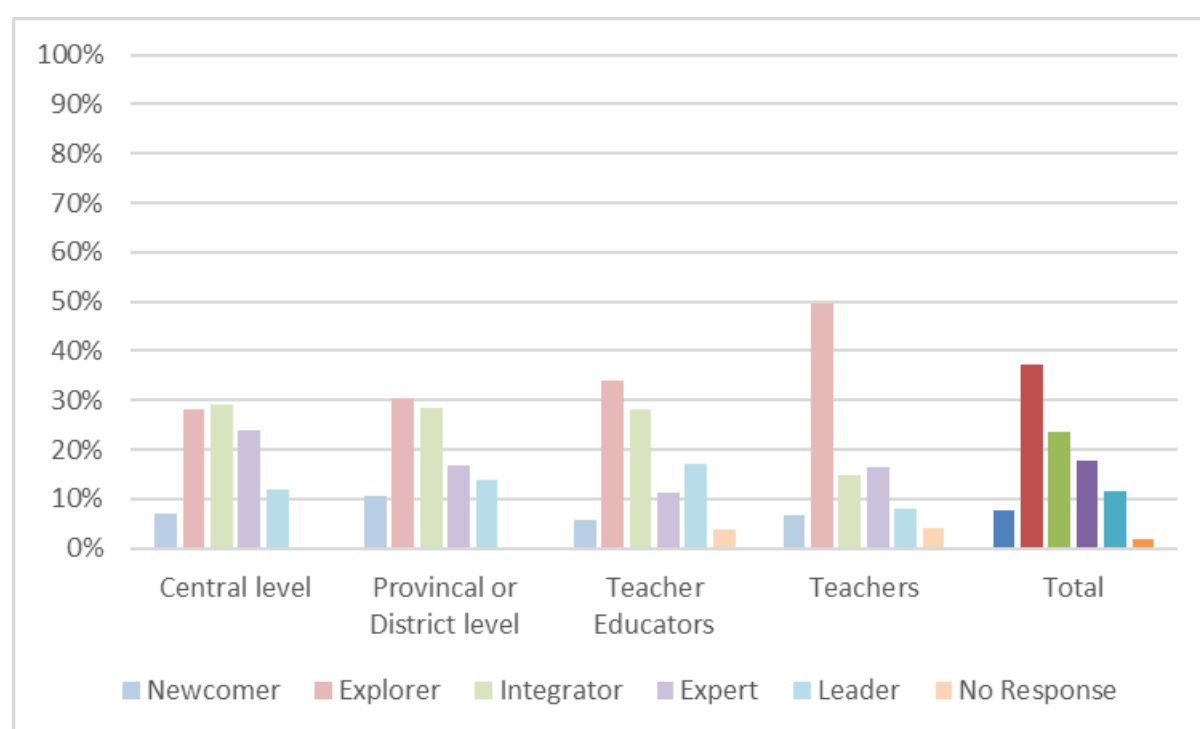


Figure 2. Self-reported digital competency by stakeholder group⁸



⁸ The survey included these descriptors for each option. Newcomer: I am aware of how digital technologies can affect my work; Explorer: I have tried using digital technology in my role; Integrator: I regularly use digital technology to complete tasks for my work; Expert: I use digital technologies confidently, and use them to improve my work; Leader: Other people recognise my expertise in using digital technologies and I share my knowledge with my peers.

Technology is used mostly for basic tasks.

For teachers and teacher educators, frequent use of digital tools is primarily reserved for basic or routine tasks. Over 60% of teachers report finding online resources to share with students “always”, “often” or “sometimes” and 87% of teacher educators report using digital tools to create lesson plans or prepare for class with similar frequency.

Usage declines with task complexity.

However, usage drops off with more complex tasks. For instance, 58% of teachers and 39% of teacher educators “rarely” or “never” monitor student progress using online tools. Similar patterns are seen among PoE and DoE staff. While almost all (91%) of respondents say they “always”, “often”, or “sometimes” send and track invitations for online events, only two-thirds (66%) report monitoring school initiatives using digital tools with the same frequency.

Barriers include infrastructure, language, and demographics.

The FGDs provided insights into potential reasons for limited technology use. Participants highlighted the lack of computers, internet access and other technological equipment in their work places. English was seen as a necessary skill to engage with digital tools, posing an additional barrier. Finally, age was identified as a factor, with older teachers and staff perceived as less likely to use technology⁹ and potentially hesitant to seek help from younger colleagues.

DMIL competencies

Teachers report low levels of digital skills, but MoEYS staff have higher confidence in their abilities.

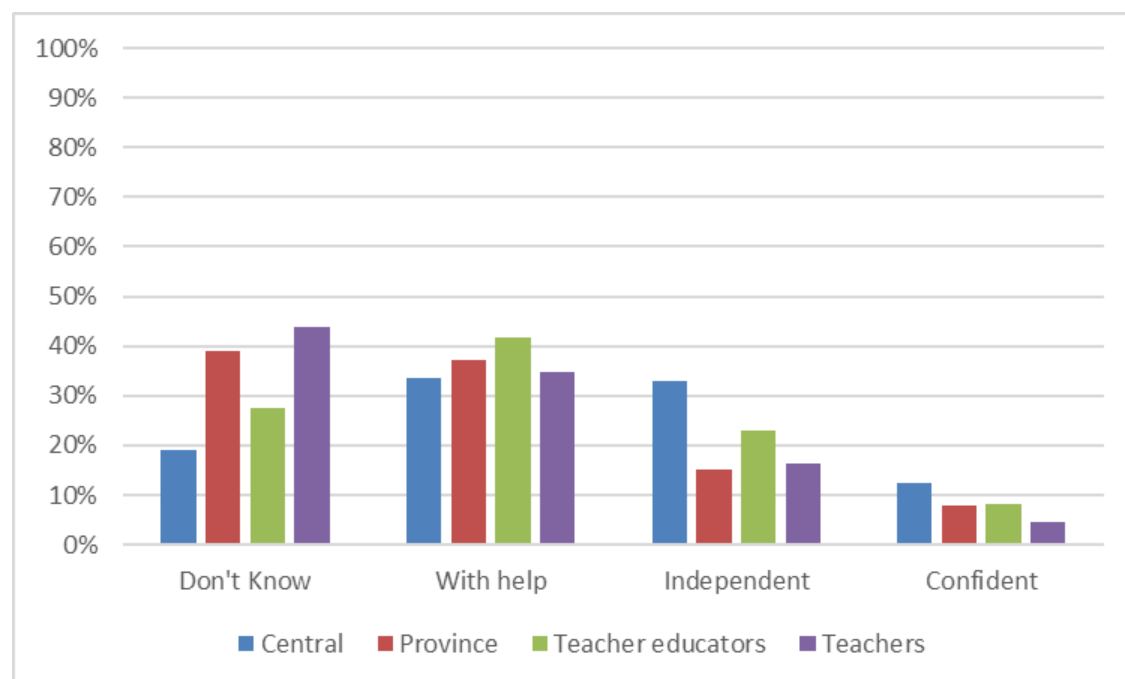
Overall, the self-assessment section of the survey indicates low levels of digital skills. Across various tasks, 20-30% of all respondents reported not knowing how to perform them, and few teachers (between 4-6% for almost all tasks) said they were able to do tasks with confidence.¹⁰ On average across tasks, 44% of teachers chose “I don’t know how to do it.” In contrast, central MoEYS reported higher digital proficiency. On average

⁹ Survey results find that the oldest staff, those 55 years or older, did have a higher percentage of “Never” responses compared to other age groups. However, overall, the responses from this age group follow similar patterns to the 25-34 and 35-44 year old age groups.

¹⁰ See Annex (separate document) for more details.

across tasks, 13% reported being able to do them with confidence and 33% reported being able to do them independently.

Figure 3. Average self-reported ability to perform digital tasks, by stakeholder



Information and data literacy

Table 4. Responses to information and data literacy self-assessment items

Question	Response	Teachers	Teacher educators	POE/DOE	Central
I know how to copy and move files (e.g. documents, images, videos) between folders or devices	I don't know how to do it	19.05%	15.09%	11.76%	6.00%
	I can do it with help	27.89%	24.53%	31.37%	23.00%
	I can do it on my own	40.14%	37.74%	40.20%	42.00%
	I can do it with confidence and, if needed, I can support/guide others	12.93%	22.64%	16.67%	27.00%
	No response	0.00%	0.00%	0.00%	2.00%
I know how to identify if the information I find online is reliable or true.	I don't know how to do it	39.46%	28.30%	48.04%	23.00%
	I can do it with help	36.05%	35.85%	34.31%	29.00%

Question	Response	Teachers	Teacher educators	POE/DOE	Central
	I can do it on my own	21.77%	32.08%	10.78%	38.00%
	I can do it with confidence and, if needed, I can support/guide others	2.72%	3.77%	4.90%	10.00%
	No response	0.00%	0.00%	1.96%	0.00%
I know how to manage and analyse data using software (e.g. sorting, filtering, calculations).	I don't know how to do it			51.96%	32.00%
	I can do it with help			34.31%	33.00%
	I can do it on my own			4.90%	25.00%
	I can do it with confidence and, if needed, I can support/guide others			7.84%	6.00%

Question	Response	Teachers	Teacher educators	POE/DOE	Central
	No response			0.98%	4.00%
I know how to upload and maintain learner's data (attendance, grades, etc) on a learning management system (LMS)	I don't know how to do it	53.06%	33.96%		
	I can do it with help	27.89%	43.40%		
	I can do it on my own	12.24%	18.87%		
	I can do it with confidence and, if needed, I can support/guide others	6.12%	3.77%		
	No response	0.68%	0.00%		
	I don't know how to do it	65.99%	37.74%		

Question	Response	Teachers	Teacher educators	POE/DOE	Central
I know how to view and analyse learners' progress using a learning management system (LMS)	I can do it with help	21.09%	41.51%		
	I can do it on my own	5.44%	15.09%		
	I can do it with confidence and, if needed, I can support/guide others	6.12%	3.77%		
	No response	1.36%	1.89%		

Many can't assess the veracity of online information or assess credibility.

Alarming, nearly 40% of teachers and 50% of POE and DOE staff reported “I don't know how” to identify information found online is reliable or true. The ability to search, select and evaluate information found on the web and assess a source's credibility is essential for educators ([Gouseti et al, 2021](#)). With the rise of mis- and dis-information and the increasing use of AI to generate information, this gap is particularly concerning if teachers and MoEYS staff struggle to ensure the materials they are sharing have objective and accurate information.

Teachers and MoEYS staff have limited capacity to use and analyze data for monitoring learning.

Furthermore, teachers and MoEYS staff's use of data to monitor and evaluate learning or progress and their ability to evaluate these data using software is limited. In the FGD with technical staff, participants identified advanced technical skills like using big data and statistical analysis as a gap in their knowledge and requested professional development in these areas, as they believed these skills would enable them to better perform their job.

Digital devices and software operations

Respondents are comfortable with digital devices, with teachers more likely to use smartphones while ministry staff use computers.

Generally, respondents feel comfortable with using smartphones and computers to complete digital tasks, although device use varies by task and role. Smartphones are commonly used for communication or attending meetings, while most other tasks are performed on a computer. Teachers were more likely to report using smartphones for digital tasks, while provincial, district, and central ministry staff report using personal computers.

AI use is limited but higher among central staff; some educators use tools like ChatGPT for teaching tasks.

In regards to artificial intelligence (AI) use, 23% of POE and DOE staff report using AI “sometimes” while 52% say “Never”. Central staff reported higher usage, with 23% saying they use AI “often” and 37% “sometimes”. In the FGDs, there was a mix of participants with familiarity with AI; some had no experience using AI, while others seemed very familiar with these tools. Teacher educators and Ministry staff reported using specific tools such as ChatGPT, Gemini and Microsoft Copilot. Although teachers did not refer to any specific application, they reported using AI for preparing lesson slides, helping solve exercises, research and translation.

Communication and collaboration

Table 5. Responses to communication and collaboration self-assessment items

Question	Response	Teachers	Teacher educators	POE/DOE	Central
I know how to use cloud services (e.g. Google Drive, DropBox and OneDrive) to share my files.	I don't know how to do it	25.85%	20.75%	19.61%	9.00%
	I can do it with help	46.94%	37.74%	46.08%	39.00%
	I can do it on my own	22.45%	32.08%	24.51%	35.00%
	I can do it with confidence and, if needed, I can support/guide others	4.76%	9.43%	9.80%	15.00%
	No response	0.00%	0.00%	0.00%	2.00%
	I don't know how to do it	40.82%	24.53%	26.47%	14.00%

I know how to invite others and give appropriate permissions to collaborate on a shared document.	I can do it with help	42.18%	47.17%	41.18%	27.00%
	I can do it on my own	11.56%	18.87%	22.55%	43.00%
	I can do it with confidence and, if needed, I can support/guide others	5.44%	9.43%	8.82%	14.00%
	No response	0.00%	0.00%	0.98%	2.00%
Teachers/Teacher educators: I know how to use advanced online teaching platform features (breakout rooms, interactive whiteboards, etc) to facilitate an online class.	I don't know how to do it	53.06%	32.08%	46.08%	24.00%
	I can do it with help	36.05%	47.17%	37.25%	39.00%
	I can do it on my own	6.80%	15.09%	10.78%	26.00%
	I can do it with confidence and, if needed, I can support/guide others	4.08%	5.66%	4.90%	10.00%
	No response	0.00%	0.00%	0.98%	1.00%
POE/DOE/Central: I know how to use advanced video conferencing features (e.g. moderating, recording audio and video).					
POE/DOE/Central: I know how to use advanced video conferencing features (e.g. moderating, recording audio and video).	I don't know how to do it	53.06%	32.08%	46.08%	24.00%
	I can do it with help	36.05%	47.17%	37.25%	39.00%
	I can do it on my own	6.80%	15.09%	10.78%	26.00%
	I can do it with confidence and, if needed, I can support/guide others	4.08%	5.66%	4.90%	10.00%
	No response	0.00%	0.00%	0.98%	1.00%

Teachers lag behind other groups in online collaboration skills.

The results from this section indicate that teachers and MoEYS staff are familiar with basic tasks like using cloud storage services and changing permissions on collaborative documents, a key skill identified in the DMIL. However, more teachers reported not knowing how to collaborate on online documents compared to other stakeholder groups. This may be that teachers are using offline versions of software like Microsoft Word and Powerpoint, which was reported in the FGDs, and are not collaborating online.

There is a culture of sharing digital content among teachers.

However, digital collaboration is also being used in the classroom; the survey indicates that many teachers use and share online content with learners for teaching purposes; over 52% report showing videos to demonstrate an idea or process “always”, “often” or “sometimes”, and 61% share online resources with the same frequency. Additionally, 54% of teachers and 74% of teacher educators report encouraging students to collaborate online always, often or sometimes.

All groups report sufficient training in video conferencing but struggle with its advanced features.

Interestingly, all stakeholder groups identified using online video conferencing software like Zoom or Google Meet as a topic they were receiving enough training in. However, in the self-assessment section of the survey, a significant portion of participants indicated they did not know how to or needed help with using advanced online video conferencing features. This suggests a disconnect between basic functionality and deeper understanding for pedagogical or professional purposes.

Digital content creation

Table 6. Responses to digital content creation self-assessment items

Question	Response	Teachers	Teacher educators	POE/DOE	Central
I know how to create and edit digital text files (e.g. Word, OpenDocument, Google Docs).	I don't know how to do it	25.85%	20.75%	19.61%	9.00%
	I can do it with help	46.94%	37.74%	46.08%	39.00%
	I can do it on my own	22.45%	32.08%	24.51%	35.00%
	I can do it with confidence and, if needed, I can support/guide others	4.76%	9.43%	9.80%	15.00%
	No response	0.00%	0.00%	0.00%	2.00%
	I don't know how to do it	40.82%	24.53%	26.47%	14.00%
	I can do it with help	42.18%	47.17%	41.18%	27.00%

Teachers/Teacher educators: I know how to create multimedia presentations that incorporate text, images, audio, and video to enhance student engagement and learning.	I can do it on my own	11.56%	18.87%	22.55%	43.00%
	I can do it with confidence and, if needed, I can support/guide others	5.44%	9.43%	8.82%	14.00%
POE/DOE/Central: I know how to produce a multimedia presentation with text, images, audio and video elements.	No response	0.00%	0.00%	0.98%	2.00%

Teachers regularly use digital tools to create lesson plans and prepare for class but still seek more training in digital content creation.

Teachers and MoEYS staff indicated relatively high familiarity and comfort with skills within the digital content creation domain. A majority of teachers and teacher educators report using digital tools to create lesson plans or prepare for class, with 61% of teachers and 87% of teacher educators practising this always, often or sometimes. In the focus groups, teachers and teacher educators described using a range of technologies to create lessons, exercises and assignments. Commonly used tools include Microsoft Office suite, like Word, Excel, and Powerpoint, while teacher educators reported also using Canva, Kahoot and Photoshop. However, despite frequent use, digital content creation is an area where stakeholders are looking for additional support, as over 40% from each stakeholder group expressed interest in additional training in this domain, suggesting there are other tools that they want to learn to use, or other competencies under this domain that can be addressed, such as respecting copyright or accessing free and open-source resources ([Gouseti et al, 2021](#)).

Security and safety

There are significant gaps in teachers' and MoEYS staffs' knowledge of online safety and security, with nearly half unable to identify secure websites.

Although the survey only had one question related to security and safety, the results suggest this is a significant gap and more can be done to ensure teachers and staff are able to navigate the online world safely. Nearly half (45%) of all respondents reported not knowing how to identify if a website is secure. This finding is concerning, as all stakeholder groups should know how to manage secure accounts and understand the risks of digital media ([Ministry of Post and Telecommunications, 2024](#)). For educators in particular, it is important to be aware of issues such as cyber-bullying and how to prevent it, in order to ensure a safe learning environment for all ([Gouseti et al, 2021](#)).

Online safety is the most requested training area, with strong interest from both educators and officials.

Participants appear to be aware that this is an area where they need support; online safety was the most requested type of training, with 170 (42%) of respondents indicating that they wanted additional training on this topic. In addition, POE and DOE officials also identified online safety as a priority area for teacher training. However, there is evidence of awareness and proactive behavior around online security and safety; a number of teachers were concerned that the survey invitation messages from DDT were spam and sought its legitimacy, suggesting that they exercise caution when engaging with unfamiliar digital communications.

Problem solving

Teachers and staff are open to engaging with digital learning tools, but require guided support to use these platforms effectively.

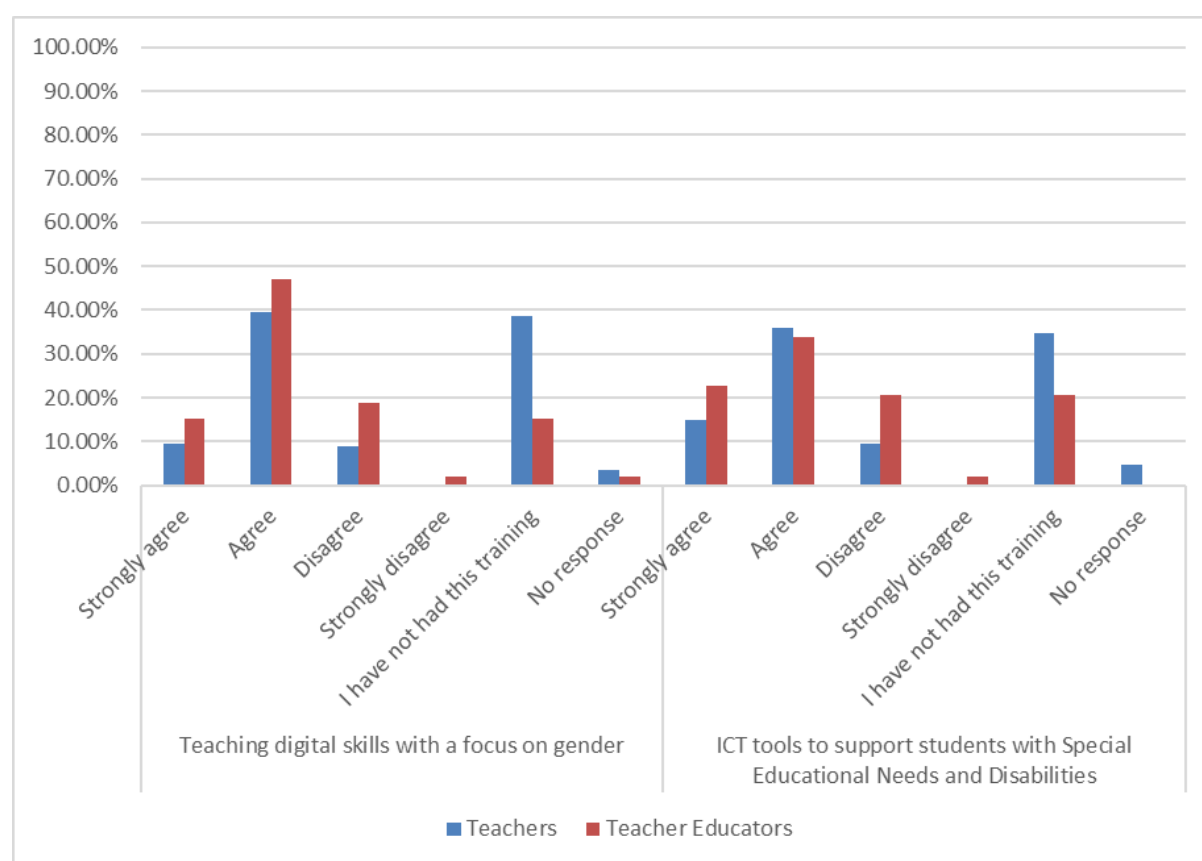
Under the problem solving competency, the DMIL identifies a key skill as the ability to recognise one's digital competency gaps and know where to seek improvement ([Ministry of Post and Telecommunications, 2024](#)). There was near universal agreement among respondents that they try to find a technological solution to help them address a professional need, indicating a strong willingness to use digital tools. Despite this openness, approximately one-third of respondents from each stakeholder group reported needing help to use online learning tools to improve digital skills,

except for teacher educators, where 47% said they could do this skill independently.

There is a significant lack of training on using digital tools to support inclusion, including gender-responsive teaching and support for learners with special needs.

Another aspect of the problem solving competency in the DMIL framework is the awareness of how digital tools can be used to promote inclusion and support diverse learner needs. Findings from this report indicate that a significant portion of teachers report not having training on topics like teaching digital skills with a gender-inclusive focus or how to use ICT tools to support learners with special educational needs.

Figure 4. *Teacher and teacher educator response to gender and accessibility training: “I am receiving enough training about...”*



Lifelong learning

Most respondents show strong curiosity and motivation to improve their digital skills.

Lifelong learning applies to not only the development of skills for professional purposes, but is also essential to enable Cambodians to adapt quickly to the changing digital landscape ([Ministry of Post and](#)

[Telecommunications, 2024](#)). It is important to note that these types of learning can take place in both formal and non-formal settings ([Gouseti et al, 2021](#)). Despite infrequent or low use of digital technology that is found in other sections of this report, respondents express strong interest in expanding their digital skills. A large majority (86%) of respondents reported being curious about new digital devices and applications and were eager to experiment with them. Additionally, the FGDs revealed that teachers and MoEYS staff are actively seeking opportunities to learn, drawing on knowledge from colleagues and online resources. Many also requested additional training and resources to improve their digital competencies.

Equity and inclusion

To ensure that professional development courses effectively meet the needs of teachers and MoEYS staff across Cambodia, it is important to take into account different demographics, such as gender and location.

Gender

ASEAN girls and women have limited access to advanced digital skills, jobs, entrepreneurship, and leadership roles in the digital economy.

Research on women in ASEAN has shown that there is a small digital gender divide in respect to basic access metrics, but there is a larger divide in more advanced forms of access, including access to digital-related skills, jobs, and careers ([Marsan and Sey, 2021](#)). Furthermore, research on adolescents girls in East Asia and the Pacific, which includes girls from Cambodia, finds that girls' lack confidence in their digital skill ability ([UNICEF EAPRO, 2023](#)).

Women report lower confidence in their digital skills than men, suggesting a need for targeted support.

The survey shows there are clear differences between men and women's self-assessment of their digital skills and perceived skill level. For all skills, on average, women were more likely to choose the lower confidence responses ("I don't know how to do it" and "I can do it with help") resulting in lower average scores compared to men (See [Figure 6](#)). A much higher proportion of women rated their skill level as "much lower" compared to males (See [Table 7](#)). More male respondents rated their skills as "about the same" or better (56%) compared to female respondents (48%). Since these findings rely on self-reported data from respondents, they do not necessarily indicate that women's skills are lower than men's; however,

these differences have important implications for support strategies in professional development efforts.

Figure 5. Average confidence responses (1-4 scale) by gender

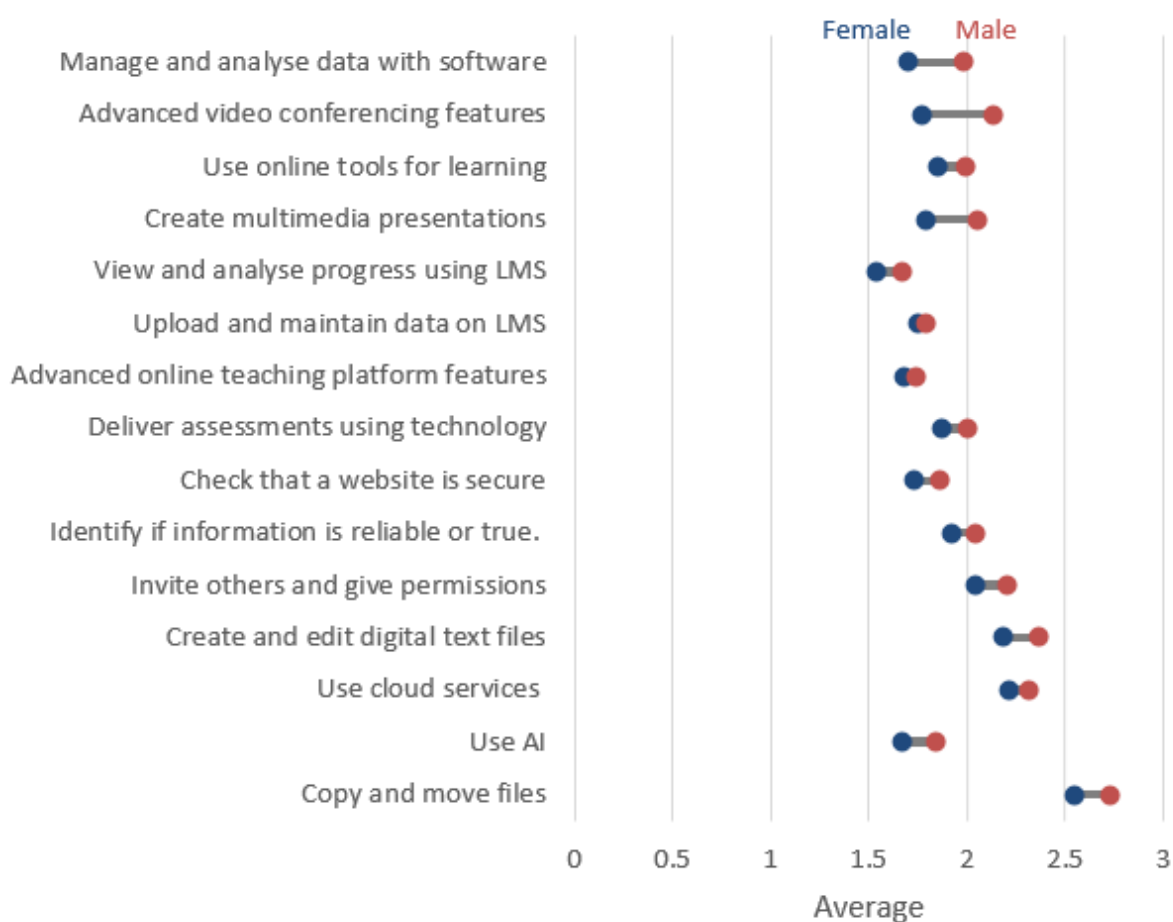


Table 7. Response to “Compared to my peers, my level of digital skills is...” by gender

	Female	Male
Much lower	31.72%	21.76%
A little lower	19.89%	22.22%
About the same	30.65%	36.11%
A little better	13.98%	14.35%

Much better	3.76%	5.56%
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Location

Technology use among education staff is broadly similar across regions, excluding central-level staff in Phnom Penh.

The results from the survey indicate there are relatively similar trends in technology use across regions among teachers, teacher educators and provincial and district staff. As all central level staff are located in Phnom Penh, they are not included in this part of the analysis. [Table 8](#) shows the percentage of each response for each region across all questions about using technology in their role.¹¹

Across all five regions, “Sometimes” was the most frequent response, while there were few “Always” responses. The Plateau region, which includes the provinces Kampong Speu and Mondul Kiri, has the highest proportion of “Never” responses, and the lowest “Always,” indicating a need for targeted support. In contrast, Phnom Penh has the lowest percentage of “Never” responses, and the highest “Sometimes” and “Often” responses. As the urban centre of the country, this could be a reflection of relatively high access to internet and devices, which enables teachers and MoEYS staff to utilise technology more frequently.

Table 8. *Frequency of technology use by region*

	Coastal	Plain	Plateau	Tonle Sap	Phnom Penh
Always	9%	8%	4%	11%	7%
Often	21%	19%	22%	21%	23%

¹¹ Participants were asked how often they performed various digital tasks in their role. For teachers and teacher educators, these included tasks such as using digital tools for assessment or using digital tools to create content or plan lessons. For MoEYS staff, tasks included collaboration on shared documents and filtering and doing calculations in spreadsheets. See [Appendix](#) for more details.

Sometimes	33%	33%	34%	33%	43%
Rarely	14%	15%	10%	14%	12%
Never	23%	25%	31%	21%	15%

Recommendations

Figure 6. The dimensions and sub-dimensions of the Critical Digital Literacies framework. Source: *The DETECT Project*

TECHNOLOGY USE • Critical technical skills • Computational thinking • Technology risks & troubleshooting	DATA LITERACIES • Data analytics • Data protection & data safety • Big and open data • Data visualisation	INFORMATION LITERACIES • Digital media use • Online reading comprehension • Online inquiry process • Source validation & verification	DIGITAL CONTENT CREATION • Creative digital expression • Co-creation • Multimodal production • Digital publishing • Remixing
DIGITAL TEACHING & LEARNING • Digital pedagogical methods • Learning analytics • Digital learning ecologies	DIGITAL CITIZENSHIP • Rights & responsibilities • Sustainable use • Digital civic engagement	DIGITAL WELLBEING & SAFETY • Empowerment • Online safety • Digital overexposure • Digital selfhood • Digital belonging • Ergonomics	DIGITAL COMMUNICATION & COLLABORATION • Online communication • Online collaboration • Digital empathy • Networking • Digital identity & profiles • Online privacy

Based on these findings, we are able to present a set of recommendations targeted at building key digital competencies aligned with the Critical Digital Literacies framework illustrated above.

We propose that the MoEYS follow a phased approach that prioritizes building the competencies and skills which have significant gaps or are widely applicable to both teachers and ministry staff. These are followed by critical but less foundational skills and finally, skills which target specific sub-groups. Along with these recommendations, DDT should consider the

priorities of broader education policy goals and alignment with upcoming programming or initiatives.

Table 9. Recommendations of digital competencies to prioritize, by phase

Phase	Digital Competency	Skill gaps identified	Description
Phase I <i>MoEYS should prioritize digital competencies that are foundational in nature and where there is evidence of significant skill gaps among teachers and staff.</i>	Information and data literacies	Learning analytics: Limited use of online tools to monitor student progress. Significant gap in knowing how to manage data using software.	Develop content that covers how to utilise both general tools (such as spreadsheets) and specialty tools (such as an LMS or EMIS) to view and analyse student or school-level data. In addition to addressing general technical skills to use software, specialty courses targeting specific staff should be designed to demonstrate how data can be used in their role. For teachers, this could be a course about how to use data to provide targeted support and personalise learning. For POE and DOE staff, this could be a course which covers how to interpret and use education data to inform school or sub-national policies and programmes.
		Source validation and verification: Significant gap in knowledge of how to ensure information found online is true or reliable	Design a course that builds skills in finding, verifying and cross-checking information to ensure it comes from credible and reliable sources. The content should cover how to assess and validate AI-generated content.

Phase	Digital Competency	Skill gaps identified	Description
		Critical technical skills: Limited familiarity with AI and associated learner safety protocol	Design a set of courses that equips teachers and staff with foundational knowledge of artificial intelligence, including guidelines of when AI can and cannot be used. These courses should complement and align with ongoing AI capacity-building initiatives.
	Security and safety	Online safety: Significant gap in knowledge in how to identify if a website is secure	Provide content that covers important skills such as recognising and managing risks in digital environments, and understanding how to safeguard personal information when using digital tools.
Phase II <i>MoEYS should focus on competencies and skills that are critical to build</i>	Devices and software use	Critical technical skills: Limited use of artificial intelligence as a teaching and learning tool	Design a series of courses aimed at supporting teachers to integrate AI into their daily practice including but not limited to classroom instruction, learning and classroom management, content curation, and professional development.

Phase	Digital Competency	Skill gaps identified	Description
<i>capacity, but are less foundational than those in Phase I</i>		Critical technical skills: Unfamiliar with MoEYS developed tools and LMS platforms and features (Teachers only)	Provide continuous training on using MoEYS developed tools and LMS features. In addition offering offline and asynchronous resources, in-person and synchronous training should include hands-on practice which allows participants to become familiar with the tools and demonstrate how they can use it in their day-to-day routine.
	Communication and collaboration	Online communication and online collaboration: Limited experience using advanced features of open-source tools such as google suite or video-conferencing tools	Provide a course on advanced features in video-conferencing applications, such as using breakout rooms and digital whiteboards. The course could also cover troubleshooting so staff are able to effectively address technical issues when they arise.
Phase III <i>Following the more widely relevant competencies in Phases I and II, MoEYS should</i>	Digital content creation	Multimodal production: Limited experience with creating content which utilises multiple forms of media such as text, images, audio, and video	Training should go beyond introducing tools or applications which can be used to create videos, images, or other content. Courses should also build awareness of free and open source resources, as well as key concepts like intellectual property rights and copyright.

Phase	Digital Competency	Skill gaps identified	Description
<i>consider building competencies and skills where there are gaps in knowledge, but are less relevant for all teachers and staff</i>	Problem solving	Critical technical skills: Limited knowledge of ICT tools for students with special needs (Teachers only)	Provide a course for teachers about assistive technologies that can support learners with disabilities. These should focus on tools that are widely available and do not require specialised software, such as screen-to-text readers.

Cross-cutting recommendations

In addition to the specific skills identified for educators and MoEYS staff, we have made the following cross-cutting recommendations to enhance delivery and accessibility of digital skill development courses, ensure inclusivity and accessibility, and nurture motivation and positive attitudes towards digital skill development.

Delivery

- 1. Leverage tools teachers and MoEYS staff already have access to and are familiar with:** The study finds that teachers and MoEYS staff are primarily using smartphones and computers to perform digital tasks, and report high levels of comfort with using these devices. The delivery of professional development content should be made available for both types. Content on how to perform specific tasks should also cover how they can be performed on different devices, as users may access them in different ways.

Although teachers and staff do not report using tablets frequently in their roles, they report high levels of comfort using them. Therefore, tablets can be considered for the delivery of professional development courses and accessing digital tools. Provisions for tablets may be needed, as their limited use may be due to lack of access, rather than lack of interest or relevance.

- 2. Prioritise in-person or hybrid delivery:** While this report aims to inform self-directed professional development courses online professional development courses, consideration should be given to hybrid models that incorporate in-person learning experiences. This model could allow teachers and staff to complete self-directed modules independently and the in-person sessions could reinforce learning and encourage collaboration. Respondents from all stakeholder groups expressed strong preference for in-person training. A participant from the teacher educators FGDs noted that in-person training was preferable since the internet connectivity was not strong enough, therefore considerations of bandwidth and connectivity should also be taken into account. To ensure all teachers and staff can access training materials, an offline version should be made available.
- 3. Encourage professional learning communities (PLCs):** Teacher and teacher educators report learning from colleagues, which presents an opportunity to develop or leverage existing PLCs. These networks

can be leveraged to encourage peer-to-peer learning, promote the exchange of digital teaching strategies and support the adoption of new tools in classroom practice. School leadership can play a key role in fostering a collaborative culture and modeling digital tool use, which helps create a supportive environment for digital skill development and can be reinforced through continuous professional development and PLC policies. In addition to strengthening formal professional development efforts, these communities offer opportunities for teachers and teacher educators to build their collaborative and communication competencies.

Content development

4. Include teachers in the design of courses to better align

expectations: While there was alignment between teachers' self-assessed training needs and the priorities that provincial and district staff identified, the study found some areas of disconnect. For example, POE and DOE staff identified video conferencing software as an area where teachers needed more training. However, this topic was an area where teachers reported the highest agreement in having sufficient training. Similarly, while POE and DOE officials felt that teachers need more training to use the computer effectively, teachers in the survey indicated that they generally felt comfortable using a computer for professional tasks. These examples suggest differing expectations between teachers and education officials about the depth of these skills required. Aligning expectations and setting clear goals for the desired skills to be developed is important to ensure training targets the appropriate areas.

5. Align training content with teacher and staff's day-to-day

responsibilities: Although survey participants expressed interest in developing their digital skills, this may not translate to participation in professional development courses. One FGD participant from the technical staff noted that training was frequent, but participation was low, and believed a change in mindset towards professional development was needed. Although this perspective was not shared by others, it suggests that motivational factors, such as the relevance of training may play a role. To enhance not only participation, but application of digital tools and competencies, training content should be aligned with teacher and staff's day-to-day responsibilities, as highlighted by a participant in the POE/DOE FGD group.

-
- 6. Invest in targeted capacity building on the effective and ethical use of AI tools for education.** Capacity building efforts should prioritise training in effective and ethical use of AI for teacher and subnational staff (POEs and DOEs) to reduce disparities in AI adoption. As these tools become more widespread in education settings, training is needed not only for the practical applications of AI, but also its ethical and responsible use. Training content could include building awareness of tools like ChatGPT, Gemini, and Microsoft Copilot already in use among some teachers and staff. This will help ensure more equitable and informed use of AI across the education system.

Access and equity

- 7. Include guidance and alternatives to accommodate varying levels of hardware availability and connectivity:** It is important to consider teachers' location and the availability of connectivity and technology in schools to ensure that teachers can implement the tools and pedagogies taught in training or workshops. During the FGDs, teachers emphasised that they lacked equipment in the classroom, such as computers and slide projectors. Therefore, training content should include guidance and alternative approaches for low-tech environments and encourage the use of tools with offline capabilities, so that all teachers can apply what they have learned regardless of their school environment.
- 8. Provide targeted support to ensure equitable participation across genders:** Given differences in women's perceptions in digital skills, professional development courses should consider measures to build confidence and targeted support to ensure equitable participation across genders. Ensuring equal representation in the delivery and demonstration of course content, for example, could help reinforce the visibility of women as confident and capable users of digital technology. Furthermore, targeted support for older teachers and staff should also be considered. Participants in the FGDs perceived their older colleagues as less likely to use technology, and therefore this demographic may require additional support to build both skills and confidence.

Resources

Digital, Media Literacy and Information Framework: Ministry of Post and Telecommunications. (2024). *Digital, Media and Information Literacy Competency Framework*. <https://go.gov.kh/#/fileviewer?url=mptc/dmil-english.pdf>

DETECT Framework: Gouseti, A., Bruni, I., Ilomäki, L., Lakkala, M., Mundy, D., Raffaghelli, J. E., Ranieri, M., Roffi, A., Romero, M., & Romeu, T. (2021). *Critical Digital Literacies framework for educators—DETECT project report 1*. Zenodo. <https://doi.org/10.5281/ZENODO.5070329>

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Appendix: Research tools

Survey

Table 9. *Survey section description and question types*

Description	Question types
Part 1: Demographics Gathers participants' characteristics including gender, age, geographical location, and education level. Teachers were asked to provide the school level they taught and subjects. MoEYS staff were asked to provide their designation.	Multiple choice Checkboxes
Part 2: Current state of training Identifies the types of professional development training participants have completed in the past, either virtual or in-person, facilitated by the MoEYS or other organisations. MoEYS staff are asked to reflect on the amount of training their staff have received for various topics. Identifies if participants have attended any professional development training in the past six months and reasons for not attending, if applicable Identifies how participants learn new skills for their job	Likert scale multiple choice Multiple choice Checkboxes Multiple choice
Part 3: Device use Identifies the type of device (smartphone, tablet or computer) participants use to complete work-related tasks, or if they do not know how to do the task or do not use technology to do it.	Multiple choice

Identifies participants' comfort level with using different devices (smartphones, tablet, computer)	Multiple choice
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Part 4: Current use of technology

Frequency multiple choice

Identifies how often participants use technology in their day-to-day tasks in their role

Part 5: Assessment of skills

Multiple choice

Identifies how participants self-assess their ability to do a variety of digital tasks

Identifies the percentage of teachers and technical staff that MoEYS staff perceive to be proficient in a variety of digital tasks

Part 6: Self-reflection

Multiple choice

Identifies how participants perceive their digital skill level and willingness to engage with digital technology

Survey Instrument

Introduction

You have been selected to participate in a survey to assess the current ICT capacity across MoEYS central, provincial, district and Teacher Education Institutions (TEI). Your responses will help formulate recommendations to inform the development of ICT related courses for the education personnel at all levels.

Your participation is voluntary. Furthermore, your participation and responses will not have any bearing on professional progression or incentives. Names will be collected for tracking and monitoring responses only. Identifying information will not be used in the report.

Thank you for taking the time to complete this survey. It will take approximately 15-20 minutes to complete.

Demographics

First, we would like to know a little bit about you.

-
1. What is your name? This information will only be used for the purpose of tracking responses, but will not be used for analysis.
 2. What is your gender?
 - a. Male
 - b. Female
 3. What is your age?
 - a. 18-24 years old
 - b. 25-34 years old
 - c. 35-44 years old
 - d. 45-54 years old
 - e. 55 years or older
 4. What is the highest degree or level of school you have completed?
 - a. High school graduate, diploma or the equivalent
 - b. Some college credit, no degree
 - c. Technical/vocational training
 - d. Associate degree
 - e. Bachelor's degree
 - f. Master's degree
 - g. Doctorate degree
 5. Where are you located? *(drop down of all provinces)*
 - a. Banteay Meanchey
 - b. Battambang
 - c. Kampong Cham
 - d. Kampong Chhnang
 - e. Kampong Speu
 - f. Kampong Thom
 - g. Kampot
 - h. Kandal
 - i. Koh Kong
 - j. Kratie
 - k. Mondul Kiri
 - l. Phnom Penh
 - m. Preah Vihear
 - n. Prey Veng
 - o. Pursat
 - p. Ratanak Kiri
 - q. Siem Reap
 - r. Preah Sihanouk
 - s. Stung Treng
 - t. Svay Rieng
 - u. Takeo
 - v. Otdar Meanchey
 - w. Kep
 - x. Pailin
 - y. Tbong Khmum

Teachers

-
6. What level of education do you teach?
 - a. Primary school
 - b. Lower secondary school
 - c. Upper secondary school
 7. What subjects do you teach? (select all that apply)
 - a. Khmer (Literature, Language)
 - b. Mathematics
 - c. Sciences (physics, chemistry, biology, etc)
 - d. Information Communications and Technology (ICT)
 - e. Social Studies (History, Geography, etc)
 - f. Foreign Language (English, French, etc)
 - g. Physical education and sports

Teacher educators

8. Which teacher educator institute do you teach at?
 - a. Banteay Meanchey Provincial Teacher Training Center
 - b. Kampong Cham Provincial Teacher Training Center
 - c. Kampong Speu Provincial Teacher Training Center
 - d. Kampong Chhnang Provincial Teacher Training Center
 - e. Kampot Provincial Teacher Training Center
 - f. Kampong Thom Provincial Teacher Training Center
 - g. Kandal Provincial Teacher Training Center
 - h. Kratie Provincial Teacher Training Center
 - i. Pursat Provincial Teacher Training Center
 - j. Prey Veng Provincial Teacher Training Center
 - k. Preah Vihear Provincial Teacher Training Center
 - l. Preah Sihanouk Provincial Teacher Training Center
 - m. Svay Rieng Provincial Teacher Training Center
 - n. Stueng Treng Regional Teacher Training Center
 - o. Siem Reap Provincial Teacher Training Center
 - p. Takeo Provincial Teacher Training Center
 - q. Pre-School Teacher Training Center
 - r. Phnom Penh Teacher Education College
 - s. Battambang Teacher Education College
 - t. Kampong Cham Regional Teacher Training Center
 - u. Kandal Regional Teacher Training Center
 - v. Prey Veng Regional Teacher Training Center
 - w. Takeo Regional Teacher Training Center
 - x. National Institute of Education

MoEYS Central

9. What is your position?
 - a. Director of Technical Department
 - b. Deputy Director of Technical Department
 - c. Technical staff
 - d. General Director
 - e. Deputy General Director

PoE/DoE

10. What is your position?

Current state of training

In this section, please think about professional development trainings you have attended in the past. They can be trainings that were in-person or virtual, facilitated by the MoEYS or another organisation.

1. How much do you agree with each statement? I am receiving enough training about... (*Likert scale: Strongly agree, Agree, Disagree, Strongly disagree, I have not had this training*)

All demographics

- a. Online safety
- b. Using video conferencing software (Google Meet, Zoom, etc.)
- c. Using artificial intelligence ethically

Teacher and teacher educators

- d. Teaching digital skills with a focus on gender
- e. ICT tools to support students with Special Educational Needs and Disabilities
- f. Digital tools to create an engaging learning experience
- g. Digital tools for assessment and tracking student progress
- h. Creating digital content for teaching
- i. Using online learning management systems (LMS)

PoE/DoE/MoEYS

- j. Creating digital content for professional development courses
- k. Analysing data from online education management information system (EMIS)
- l. Digital tools to communicate with internal and external partners
- m. Digital tools for project management
- n. Digital tools for gathering and analysing feedback from school leaders
- o. Using digital tools to track professional development progress

2. What topics would you like more training on? (*Select three*)

All demographics

- a. Online safety
- b. Using video conferencing software (Google Meet, Zoom, etc.)
- c. Using artificial intelligence ethically
- d. Other:

Teachers and teacher educators

- e. Teaching digital skills with a focus on gender
- f. ICT tools to support students with Special Educational Needs and Disabilities
- g. Digital tools to create an engaging learning experience
- h. Digital tools for assessment and tracking student progress
- i. Creating digital content for teaching
- j. Using online learning management systems (LMS)

PoE/DoE/MoEYS

- k. Creating digital content for professional development courses

-
- l. Analysing data from online education management information system (EMIS)
 - m. Digital tools to communicate with internal and external partners
 - n. Digital tools for project management
 - o. Digital tools for gathering and analysing feedback from school leaders
 - p. Using digital tools to track professional development progress
 3. Have you completed any professional development training (in-person or virtually) in the past six months?
 - a. Yes (*skip to 7, if yes*)
 - b. No
 4. (If No above): Why did you not complete any professional development trainings? (check all that apply)
 - a. I did not know about any trainings
 - b. There were no trainings offered
 - c. The trainings were too far away from me
 - d. I did not feel that I needed the training
 - e. I did not have the time to attend the trainings
 - f. I did not have the money to attend the trainings
 - g. Other:
 5. How often do you learn new skills for your job **independently (self-study)**?
 - a. Always
 - b. Often
 - c. Sometimes
 - d. Rarely
 - e. Never
 6. How often do you learn new skills for your job **from your peers**?
 - a. Always
 - b. Often
 - c. Sometimes
 - d. Rarely
 - e. Never
 7. What is your preferred way to learn new skills for your job?
 - a. In-person training
 - b. Online training
 - c. Independent self-study (using apps, watching videos, reading books, etc)

MoEYS Central

How much do you agree with each statement? **Technical staff** are receiving enough training about... (*Likert scale: Strongly agree, Agree, Disagree, Strongly disagree, This training is not offered*)

1. Technical staff are receiving enough training about...
 - a. Online safety
 - b. Using video conferencing software (Google Meet, Zoom, etc.)
 - c. Creating digital content for professional development courses

-
- d. Analysing data from online education management information system (EMIS)
 - e. Digital tools to communicate with internal and external partners
 - f. Digital tools for project management
 - g. Digital tools for gathering and analysing feedback from school leaders
 - h. Using digital tools to track professional development progress
 - i. Using artificial intelligence (AI) ethically
2. What topics do technical staff need more training on? (*Select three*)
- a. Online safety
 - b. Using video conferencing software (Google Meet, Zoom, etc.)
 - c. Creating digital content for professional development courses
 - d. Analysing data from online education management information system (EMIS)
 - e. Digital tools to communicate with internal and external partners
 - f. Digital tools for project management
 - g. Digital tools for gathering and analysing feedback from school leaders
 - h. Using digital tools to track professional development progress
 - i. Using artificial intelligence (AI) ethically
 - j. Other:

How much do you agree with each statement? **In general, MoEYS staff** are receiving enough training about... (*Likert scale: Strongly agree, Agree, Disagree, Strongly disagree, This training is not offered*)

3. MoEYS staff are receiving enough training about...
- j. Online safety
 - k. Using video conferencing software (Google Meet, Zoom, etc.)
 - l. Creating digital content for professional development courses
 - m. Analysing data from online education management information system (EMIS)
 - n. Digital tools to communicate with internal and external partners
 - o. Digital tools for project management
 - p. Digital tools for gathering and analysing feedback from school leaders
 - q. Using digital tools to track professional development progress
 - r. Using artificial intelligence (AI) ethically
4. What topics do MoEYS staff need more training on? (*Select three*)
- a. Online safety
 - b. Using video conferencing software (Google Meet, Zoom, etc.)
 - c. Creating digital content for professional development courses
 - d. Analysing data from online education management information system (EMIS)
 - e. Digital tools to communicate with internal and external partners
 - f. Digital tools for project management
 - g. Digital tools for gathering and analysing feedback from school leaders

- h. Using digital tools to track professional development progress
- i. Using artificial intelligence (AI) ethically
- j. Other:

PoE/DoE

How much do you agree with each statement? In my province/district, **teachers** are receiving enough training about... (*Likert scale: Strongly agree, Agree, Disagree, Strongly disagree, This training is not offered*)

1. **Teachers** are receiving enough training about...
 - a. Online safety
 - b. Using video conferencing software (Google Meet, Zoom, etc.)
 - c. Teaching digital skills with a focus on gender
 - d. ICT tools to support students with Special Educational Needs and Disabilities
 - e. Digital tools to create an engaging learning experience
 - f. Digital tools for assessment and tracking student progress
 - g. Creating digital content for teaching
 - h. Using online learning management systems (LMS)
 - i. Using artificial intelligence ethically
2. What topics do teachers need more training on? (*Select three*)
 - a. Online safety
 - b. Using video conferencing software (Google Meet, Zoom, etc.)
 - c. Teaching digital skills with a focus on gender
 - d. ICT tools to support students with Special Educational Needs and Disabilities
 - e. Digital tools to create an engaging learning experience
 - f. Digital tools for assessment and tracking student progress
 - g. Creating digital content for teaching
 - h. Using online learning management systems (LMS)
 - i. Using artificial intelligence ethically
 - j. Other:

Use of digital devices

This section will ask you to think about the digital devices that you use to complete different tasks. If you use different devices for the same tasks, please select the choice which you use most often.

1. Which device do you usually use to... (*MCQ: Smartphone, Tablet, Personal computer, I don't use technology to do this task, I never do this task, I do not know how to do this task*)

All demographics

- a. Communicate with peers or colleagues (send email, send a message, etc)
- b. Attend virtual meetings
- c. Share documents about student or school level reports with colleagues or superiors
- d. Gather feedback (from a survey, performance review, etc)

Teachers and Teacher educators

-
- e. Access learning management system (LMS)
 - f. Create content for a lesson
 - g. Analyse data about students' learning outcomes

PoE/DoE/MoEYS

- h. Access education management information systems (EMIS)
 - i. Create content for professional development trainings
 - j. Send and track invitations to an event
 - k. Track progress on a project
 - l. Analyse data to assess the results from a project or initiative
2. How comfortable are you with using a **smartphone** to do professional tasks? (sending an email, sharing and downloading documents, etc)
- a. Very comfortable
 - b. Somewhat comfortable
 - c. Not very comfortable
 - d. Very uncomfortable
 - e. I don't use a smartphone for professional tasks
3. How comfortable are you with using a **tablet** to do professional tasks? (sending an email, sharing and downloading documents, etc)
- a. Very comfortable
 - b. Somewhat comfortable
 - c. Somewhat uncomfortable
 - d. Very uncomfortable
 - e. I don't use a tablet for professional tasks
4. How comfortable are you with using a **computer** to do professional tasks? (sending an email, sharing and downloading documents, etc)
- a. Very comfortable
 - b. Somewhat comfortable
 - c. Somewhat uncomfortable
 - d. Very uncomfortable
 - e. I don't use a computer for professional tasks

Use of technology in role

This section will ask you to think about how often you use technology in your day-to-day activities at work. Remember, your responses will NOT be shared with anyone, and we ask that you answer honestly.

1. How often do you... (*Frequency scale: Always, Often, Sometimes, Rarely, Never*)

Teacher and teacher educators

- a. Have learners submit assignments online
- b. Use digital tools to create lesson plans or prepare for class
- c. Show videos to demonstrate an idea or process
- d. Find online resources to share with learners (links to educational videos, interactive materials to practice a skill)

-
- e. Use technology to give feedback or invite students to reflect on their performance
 - f. Encourage students to collaborate online on forums
 - g. Monitor student learning progress using digital tools (dashboards, spreadsheets)

Teacher educators only

- h. Deliver formative assessments using technology (for example, online quizzes or polls)
- i. Deliver summative assessments using technology (for example, online tests)

PoE/DoE/MoEYS

- j. Send and track invitations for online events (virtual meetings, webinars, etc)
- k. Collaborate on documents or presentations with peers online (using Google Docs, MS Word, etc)
- l. Filter, sort and do calculations using spreadsheets
- m. Monitor school initiatives using digital tools (dashboards, spreadsheets, etc)
- n. Utilise digital tools for project management
- o. Utilise digital tools to gather feedback on trainings
- p. Use artificial intelligence (AI)

Assessment of skills

This section will ask you to rate your ability to do different ICT tasks. Remember, your responses will NOT be shared with anyone, and we ask you to answer honestly. (MCQ: *I don't know how to do it, I can do it with help, I can do it on my own, I can do it with confidence and, if needed, I can support/guide others*)

All demographics

- a. I know how to copy and move files (e.g. documents, images, videos) between folders or devices
- b. I know how to use cloud services (e.g. Google Drive, DropBox and OneDrive) to share my files.
- c. I know how to create and edit digital text files (e.g. Word, OpenDocument, Google Docs).
- d. I know how to invite others and give appropriate permissions to collaborate on a shared document.
- e. I know how to identify if the information I find online is reliable or true.
- f. I know how to check that the website where I am asked to provide personal data is secure (e.g. https sites, safety logo or certificate).

Teacher and teacher educators

- g. I know how to create multimedia presentations that incorporate text, images, audio, and video to enhance student engagement and learning.
- h. I know how to deliver formative or summative assessments using technology (for example, online quizzes or tests)
- i. I know how to use advanced online teaching platform features (breakout rooms, interactive whiteboards, etc) to facilitate an online class.

-
- j. I know how to use online learning tools to improve my digital skills (e.g. video tutorial, online courses).
 - k. I know how to upload and maintain learner's data (attendance, grades, etc) on a learning management system (LMS)
 - l. I know how to view and analyse learners' progress using a learning management system (LMS)
 - m. I know how to use artificial intelligence to personalise learning.

PoE/Doe/MoEYS

- n. I know how to produce a multimedia presentation with text, images, audio and video elements.
- o. I know how to use advanced video conferencing features (e.g. moderating, recording audio and video).
- p. I know how to use online learning tools to improve my digital skills (e.g. video tutorial, online courses).
- q. I know how to manage and analyse data using software (e.g. sorting, filtering, calculations).
- r. I know how to use artificial intelligence to assist with developing professional outputs (guides, communications, etc)

MoEYS Central

Now, please think about **central technical staff**. This section will ask you to estimate the percentage of staff who are proficient in various ICT skills. (*Almost no staff have the required skills (0%-20%), Few staff have the required skills (21%-40%), Around half of the staff have the required skills (41%-60%), A majority of staff are proficient (61%-80%), Almost all staff have the required skills (81%-100%)*)

- 1. Copy and move files (e.g. documents, images, videos) between folders or devices.
- 2. Use cloud services (e.g. Google Drive, DropBox and OneDrive) to share my files.
- 3. Create and edit digital text files (e.g. Word, OpenDocument, Google Docs).
- 4. Invite others and give appropriate permissions to collaborate on a shared document.
- 5. Produce a multimedia presentation with text, images, audio and video elements.
- 6. Use advanced video conferencing features (e.g. moderating, recording audio and video).
- 7. Use online learning tools to improve digital skills (e.g. video tutorial, online courses).
- 8. Manage and analyse data using software (e.g. sorting, filtering, calculations).
- 9. Identify if the information found online is reliable or true.
- 10. Check that the website is secure (e.g. https sites, safety logo or certificate).
- 11. Use artificial intelligence to assist with developing professional outputs (guides, communications, etc.)

PoE/DoE

Next, please think about **teachers** in your province/district. This section will ask you to estimate the percentage of teachers who are proficient in various ICT skills.

1. Know how to copy and move files (e.g. documents, images, videos) between folders or devices
2. Know how to use cloud services (e.g. Google Drive, DropBox and OneDrive) to share my files.
3. Know how to create and edit digital text files (e.g. Word, OpenDocument, Google Docs).
4. Know how to invite others and give appropriate permissions to collaborate on a shared document.
5. Know how to create multimedia presentations that incorporate text, images, audio, and video to enhance student engagement and learning.
6. Know how to use advanced online teaching platform features (breakout rooms, interactive whiteboards, etc.) to facilitate an online class.
7. Know how to use online learning tools to improve their digital skills (e.g. video tutorial, online courses).
8. Know how to upload and maintain learner's data (attendance, grades, etc.) on a learning management system (LMS).
9. Know how to view and analyse learners' progress using an LMS.
10. Know how to identify if the information found online is reliable or true.
11. Know how to check that the website is secure (e.g. https sites, safety logo or certificate).
12. Know how to use artificial intelligence to personalise learning.

Self reflection

In this final section, we would like you to reflect on your feelings and attitudes towards digital technology and your skill level.

All demographics

1. Compared to my peers, my level of digital skills is....
 - a. Much lower
 - b. A little lower
 - c. About the same
 - d. A little better
 - e. Much better
2. How would you best describe your digital competency in your role?
 - a. Newcomer: I am aware of how digital technologies can affect my work
 - b. Explorer: I have tried using digital technology in my role
 - c. Integrator: I regularly use digital technology to complete tasks for my work
 - d. Expert: I use digital technologies confidently, and use them to improve my work
 - e. Leader: Other people recognise my expertise in using digital technologies and I share my knowledge with my peers.
3. I am curious about new digital devices and applications and I am keen to experiment with them whenever I find the opportunity.

-
- a. Not at all
 - b. Not much / very little
 - c. Yes I am
 - d. Very much!
4. I usually try to find out if there is a technology solution that might help me address a professional need.
- a. Not at all
 - b. Not much / very little
 - c. Yes I do
 - d. Very much!

MoEYS Central

5. How would you best describe the digital competency of **central technical staff**?
- a. Newcomer: Central technical staff are aware of how digital technologies can affect their work
 - b. Explorer: Technical staff have tried using digital technology in their role
 - c. Integrator: Technical staff regularly use digital technology to complete tasks for their work
 - d. Expert: Technical staff use digital technologies confidently, and use them to improve their work
6. How would you best describe the digital competency of **sub-national technical staff (including teachers)**?
- a. Newcomer: Central technical staff are aware of how digital technologies can affect their work
 - b. Explorer: Technical staff have tried using digital technology in their role
 - c. Integrator: Technical staff regularly use digital technology to complete tasks for their work
 - d. Expert: Technical staff use digital technologies confidently, and use them to improve their work

Focus group discussions

Focus group participants and description of topics

Participants	Description
Teachers	Section 1: Technology in the classroom Section 2: Current use of technology in your role Section 3: Level of comfort with technology Section 4: Self-reflection of ICT skills

Teacher Educators	Section 1: Current use of technology in your role Section 2: Level of comfort with technology Section 3: Self-reflection of ICT skills Section 4: Perceptions of ICT skills of teacher trainees
Provincial and district level staff	Section 1: Current use of technology in your role Section 2: Level of comfort with technology Section 3: Self-reflection of ICT skills Section 4: Perceptions of ICT skills of MoEYS staff
Technical staff	Section 1: Current use of technology in your role Section 2: Level of comfort with technology Section 3: Self-reflection of ICT skills Section 4: Recommendations for improving ICT skills among MoEYS technical staff

Focus Group Questions

Current use of technology (*all groups*)

- Can you describe how you use technology in your role?
Probe by asking:
 - How often do you use technology at a normal day at work? If never, what is preventing you from using technology?
- What types of digital tools or technology are you using?
Probe by asking:
 - What kind of guidance did you receive about how to use them?
 - Who or what helped you learn how to use these tools?
- Do you see your peers using technology in their role? Who are they?
Probe by asking:
 - What are some ways that they are using technology?

Comfort with technology (*all groups*)

- How comfortable do you feel using technology or digital tools?
Probe by asking:
 - Which tools or softwares do you feel most comfortable with?
 - Which tools or softwares do you feel are challenging? Why?
- How familiar are you with emerging technologies like artificial intelligence?
Probe by asking:
 - What do you know about them? Do you use them yourself?
 - Even if you do not use these emerging technologies, where do you go to learn about them?
 - What kind of emerging technologies do you think will be most helpful for you in the future?

Self-reflection (*all groups*)

1. What do you think are the skills or topics **you** need the most to learn about to use digital technology in your job more effectively? Why?

Probe by asking:

- What resources or support do you need to enhance your ICT skills?
2. What are barriers to using technology in your role?

Technology in the classroom (*Teachers only*)

1. What kind of training did you receive about using technology in the classroom before you started teaching?

Probe by asking:

- Did you feel prepared to use technology in a classroom when you started?
2. What kinds of trainings about using digital technology have you had after you finished your teacher training programme?

Probe by asking:

- What were the topics? How have you been able to integrate what you have learned in your practice? If you haven't, why haven't you been able to incorporate digital tools in your practice?
- What guidance about using technology in your classroom do you have from the school?

Perceptions of ICT skills of teacher trainees (*Teacher educators only*)

1. In your experience, what knowledge and skills do teachers need to use digital technology in the classroom effectively?

Probe by asking:

- Are teacher trainees receiving these skills and knowledge in pre-service training? Why or why not?
2. What gaps in ICT skills do you see when teacher trainees enter teacher training programmes?

Probe by asking:

- How are these gaps addressed in the teacher training curriculum?

Perception of ICT skills of MoEYS staff and teachers (*DOE and POE only*)

1. In general, what is the level of ICT skills among staff at the provincial and district level? Are there any significant differences?

Probe by asking:

- Why do you think there are differences between the departments?
 - Which areas or departments should be prioritised for capacity building efforts?
2. What is the level of ICT skills among teachers in your respective province/district? Are there any significant differences between the age-group, level of education, etc.?

Probe by asking:

- Why do you think there are differences between groups?

-
3. What recommendations do you have to ensure that education staff at sub-national level including teachers continue to develop and improve their ICT skills?

Probe by asking:

- What kind of support or resources do you think would be most helpful?

Recommendations for improving ICT skills among MoEYS technical staff (Technical staff only)

1. What suggestions do you have to ensure that you and others in your department continue to develop and improve your ICT skills?

Probe by asking:

- What skills should be prioritised for staff in your department?

Province and location

Table 11. *Cambodian regions and provinces*

Region¹²	Provinces
Coastal	Kampot, Kep, Koh Kong, Preah Sihanouk
Plain	Banteay Meanchey, Kampong Cham, Kandal, Phnom Penh, Prey Veng, Svay Rieng, Takeo, Tbong Khmum
Plateau	Kampong Speu, Kratie, Mondul Kiri, Otdar Meanchey, Pailin, Preah Vihear, Ratanak Kiri, Stung Treng
Tonle Sap	Battambang, Kampong Chhnang, Kampong Thom, Pursat, Siem Reap

¹² Follows geographic areas used for National Student Assessment