

Ministry of Education



National Standards on Essential Digital Skills for Ethiopian Teachers and School Leaders

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MoE

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Glossary

Introduction

The intensive growth of information technology and the rapid digitization of education dictate the requirements for the availability of adequate time-of-the-art competences for all participants in the educational process. The use of digital skills today is one of the conditions for the competitiveness of a specialist. And the education system has a task to work ahead of the curve. It is necessary to teach students today what will be in demand tomorrow. Therefore, a modern teacher must keep up with the times. They must know the various modern technologies, own them, and be able to apply them in practice depending on the goals and objectives of training.

The COVID-19 pandemic and the rapid transition to online learning around the world have made major changes in teaching practices. The question arose about the readiness of teachers for such changes, about the digital competence of participants in the educational process, about the emotional state of teachers and students associated with the process of organizing full-fledged online learning.

Digital competence refers to a set of knowledge, skills and attitudes that allow a person to achieve different life goals through digital technologies in the education system,

Digitalization dictates two tasks for teachers to develop their own digital skills, as well as to develop the skills necessary for students to function in the digital world.

The description of the common skills required in the 21st century is much more extensive than the description of digital skills. At the same time, the availability of common skills is not always supported by digital technologies (as opposed to digital skills). Based on data from two international studies by PIAAC (International Adult Competency Assessment Program) and TALIS (International Study of Teaching and Learning) the authors studied how digital skills, knowledge and digital relationships relate to teachers, how they relate to personal and contextual factors (gender, age, subject, teaching). The results showed that all teachers recognize the importance of using digital technology in learning. At the same time, there are marked differences in the skills and knowledge of teachers. For example, 42 % of teachers demonstrated weak digital skills, while 84 % felt they had the skills they needed to work. 11 % of teachers felt they had the necessary skills, but only 12 % of them showed strong skills. E3S Web of Conferences Volume 258 (2021)

Anyway, the standards set out the digital skills needed for teaching work and life across basic skills. The standards designed not only for teachers with no or little prior experience of using digital devices or the internet, as well as designed for teachers with some experience of using digital devices and the internet but lacking secure basic digital skills. This document consists of four domains and eight standards which reflect skill statements of the standard and performance criteria how digital skills are typically taught, learned and applied.

Understanding the structure

Skill Statements

Skill Statements describe in outcome terms the key areas of competence covered by the standard. Skill statements are focused on performance and are demonstrable.

Performance Criteria

The performance criteria identify the actions an individual would normally take to perform the area of competence detailed in the relevant skill statement. They are specific evidence of the achievement of a defined skill or knowledge level or the competent completion of a task.

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Rational

Teachers should be all rounded in their knowledge and skills competence. As they are expected to address students learning needs while teaching, particularly, teaching their students with the support of digital technology which is a demand of the 21st century.

In our country, the digital technology applicability in the education sector is so minimal; therefore, to address this, it needs to introduce the digital technology widely for the sector and train teachers in digital skills to enable them support their students in various teaching approaches and divers learning needs of students. For this, the development of digital skills standards for teachers and school leaders is essential for not remaining behind the digital world since we are part of the global.

Significance of the standard:

- To prepare teachers to become users of digital skills to help both the students and themselves benefit from the technology
- Train and assess teachers in digital skills to help them update themselves timely and teach effectively
- Create opportunity for both teachers and students to use digital devices and the internet through the acquisition of digital skills in their day to day activities
- Make one's accomplishments time and cost effective while using digital devices.

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Domain 1 Technology Operation and concepts

Demonstrate knowledge and skills in basic computer operation and other information devices

Standard 1: Using devices and handling information

Skill Statements	Performance Criteria
Using devices	<ul style="list-style-type: none">✓ Know what is meant by hardware, software, operating systems and applications; locate and install an application; apply system settings, including those for accessibility.✓ Know basic hardware devices (desktop computer, laptop, tablet, smartphone, e-reader, storage devices, projector, input and output devices)✓ Know main features and uses of devices.✓ Know the role of operating systems and applications.✓ Know that programs and data require storage, and that different devices have different storage capacities.✓ Know how to find and install an application.✓ Know how to select and adjust system settings.✓ Know how to check for OS and application updates, and to choose how and when an operating system or application is updated.
Finding and evaluating information	<ul style="list-style-type: none">✓ Know and understand terminology and concepts relating to web pages:<ul style="list-style-type: none">• Websites• hyperlink navigation• URLs• search engines• keywords• web browsers• types of information• documents and media✓ Searching on a device may include searching on:<ul style="list-style-type: none">• file names• partial file names• file content

	<ul style="list-style-type: none"> ✓ Use appropriate techniques include adopting an appropriate approach to searching based on the type of information sought. ✓ Know and understand the relevance and reliability of sources when searching online
Managing and storing information	<ul style="list-style-type: none"> ✓ Open, read and save information from/to a file using appropriate naming conventions; work with files and folders to store, organise and retrieve information using local and remote storage ✓ Organize and store information using files, folders, hierarchy and tagging to enable efficient information retrieval on a device and across devices. . ✓ Know and understand terminology and concepts relating to: <ul style="list-style-type: none"> • files and file types • file size • applications typically associated with file types • folders • digital storage (memory, hard drives) • local and remote storage. ✓ Know and understand folder structures, file information including metadata and tagging, and accessing data across devices. ✓ Know and understand limitations on file sizes when using some services (e.g. email attachments, file size upload limits) and the benefits of using file compression to make effective use of storage capacity and to reduce data transfer times. ✓ Understand and be able to use terminology describing data storage requirements: bytes, kilobyte (KB), megabyte (MB), gigabyte (GB), terabyte (TB). ✓ Understand and be able to use terminology describing data transfer speeds: Megabits per second (Mbps).
Identifying and solving technical problems	<ul style="list-style-type: none"> ✓ Recognize when a technical problem has been encountered, includes recognizing when there is a problem with a device or software and knowing that some problems are caused by user errors. ✓ Solve simple technical problems, and seek assistance when unable to solve a technical problem. ✓ Common technical problems refers to solving commonly encountered issues with a straightforward solution ✓ Identify and apply solutions to common technical problems, using online tutorials, FAQs and help facilities. ✓ Know and understand how to use help facilities, online forums and tutorials.
Developing digital skills	<ul style="list-style-type: none"> ✓ Identify and use appropriate online learning resources to maintain and improve digital skills.

Standard 2: Using appropriate application (office) and teaching productivity tools

Skill Statements	Performance Criteria
Creating and editing documents	<ul style="list-style-type: none"> ✓ Create a new document, save a document, open an existing document and print a document? ✓ Editing text includes entering or amending, selecting, copying, cutting and pasting text. ✓ Formatting text includes bold, underline, italics, font sizes and colours, text alignment, bulleted and numbered lists, control margins. ✓ Format tables/graphics/charts includes positioning, sizing, captioning, borders, flow of text. ✓ Identify and understand terminology and concepts relating to documents ✓ Understand the purpose of different applications and typical uses of different document types. ✓ Use applications to find and replace, bullet points and numbered lists, spell and grammar check ✓ Know and understand layout conventions and styles for different document purposes and audiences and be familiar with a range of formatting and layout features for different information including text, tables, images and charts. ✓ Print, store and retrieve text documents from a word processor
Creating and editing presentation	<ul style="list-style-type: none"> ✓ Understand presentation package <ul style="list-style-type: none"> • Create a new PowerPoint presentation file • Save a PowerPoint presentation file • Understand the text basics • Apply themes to your slides • Manage the transitions of your slide • Insert and format pictures • Insert videos and audio • Print presentation handout, store and present your slide show. • Make effective class presentations using the slides and LCD projector
Processing numerical data	<ul style="list-style-type: none"> ✓ Understanding spreadsheets <ul style="list-style-type: none"> • define basic spreadsheet terminology • identify a cell reference • enter, edit, or delete data into a cell • select a cell or a range of cells

- modify column width and row height
- format data: font, size, color, and style
- merge and center data
- align data within a cell
- fill a cell with color
- apply borderlines
- apply number formats to data
- alter the number of decimal places
- calculate the total number using AutoSum
- sort data alphabetically or numerically
- graph data
- format a graph to alter its appearance
- insert clip art or picture file
- scale, move, and rotate objects
- insert and delete columns or rows
- view a worksheet using the sheet tabs
- print a workbook or worksheet
- print preview a worksheet
- copy formatting from a cell to another
- cut, copy and paste a selection of cells
- fill cells with a series using AutoFill
- calculate data using formulas
- troubleshoot an error message
- use absolute cell references
- use statistical functions
- format a cell using conditional formatting
- apply an auto format to a selection of cells
- produce a pivot table and chart
- perform a what-if analysis
- hide or unhide columns

	<ul style="list-style-type: none"> • define a name for a cell • customize the header or footer • filter data • produce multi-level sorts • add a trend line to a graph • change the chart type • view a document in page break view • insert or delete worksheets • rename or color a sheet tab • copy a worksheet • customize print settings • set page breaks and print area • print and store data using a spreadsheet application • Format includes cell alignment, number formatting, merging/splitting cells, • Process and chart includes using an application’s functionality to carry out simple calculations (such as totalling), filtering, using simple formulae and creating simple charts (e.g. with a single data series, no trend lines or data labels etc.). • Know and understand terminology and concepts relating to entering and editing information in a worksheet, formatting using row and column size adjustment, cell borders and data types (including formatting currency, percentages, and number of decimal places for numeric data). • Know how to sort data on one criterion, use simple filters, complete calculations using relative cell references and formulae with up to two mathematical operators, and replicate values and formulae. • Know how to create and format charts from data, including bar/column charts, pie charts and line graphs with suitable titles, axis category labels, data labels and legends.
<p>Creating and editing digital media</p>	<ul style="list-style-type: none"> ✓ Know and understand terminology relating to digital devices and digital media, including common file types such as JPEG, MPEG and WAV. ✓ Play various media files using appropriate media players ✓ Crop, scale, color correct and enhance digital images ✓ To acquire digital images and other media from website, CD, flash driver ✓ Stitch together video footages and sound tracks and add simple enhancements, transitions, titles,

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| | <ul style="list-style-type: none">✓ Attach and configure scanners, cameras, cell phones to acquire digital data✓ Store digital data using secondary storage devices. |
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Standard 3: Communicating

Skill Statements	Performance Criteria
Communicating and sharing	<ul style="list-style-type: none">✓ Know and understand terminology and concepts relating to emailing, texting and using other messaging apps, contacts and groups, and video calls.✓ Modes of online communication include email, instant message, text message, social media, blog, collaboration tools and services.✓ Connect to the internet✓ Configure and use web browser and help application✓ Send and receive emails with/without attachments✓ Connect and use shared printers, folders and other devices within a network
Managing traceable online activities	<ul style="list-style-type: none">✓ Effectively use search engines, web directories and bookmarks✓ Download and install relevant application✓ Know and understand terminology and concepts relating to private and public communications✓ Managing online identity includes:<ul style="list-style-type: none">• using an appropriate online name and email address• understanding that online activities leave traces, and taking action such as being careful about the information shared and choosing appropriate location settings• searching for yourself online in order to understand what data you are sharing publicly• unsubscribing from mailing lists• deleting unwanted social media accounts, and old posts

Standard 4: Transacting

Skill Statements	Performance Criteria
Using online services	<ul style="list-style-type: none">✓ Know and understand terminology and concepts relating to online forms and data validation, verification checks, entering data✓ Online transactional services include:<ul style="list-style-type: none">• online shopping• finance (e.g. online banking)• utilities (e.g. electricity, water)• government services (paying council tax online)✓ Interact will include uploading/downloading of documents and images as required.✓ Manage includes setting account preferences.✓ Understand that file sizes, (e.g. for images can involve large amounts of data and the file size may need to be reduced before sending).
Buying securely online	<ul style="list-style-type: none">✓ Mobile payment✓ Mobile digital wallet services✓ Know how to establish and compare price and delivery options for products and services.✓ Know how to identify scam sites.

Standard 5: Being safe and responsible online

Skill Statements	Performance Criteria
Protecting privacy	<ul style="list-style-type: none"> ✓ Identify situations where personal information may be stored by devices and online activity ✓ Identify and use simple methods to protect personal information and privacy. ✓ Know and understand implications of sharing personal information. ✓ Know when personal information may be stored by devices. ✓ Know and understand key rights available under data protection law
Protecting data	<ul style="list-style-type: none"> ✓ Know and understand terminology and concepts relating to online risks and threats ✓ Identify and use simple methods to protect a device and data from online risks and threats ✓ Know that the security of digital devices can be compromised, ✓ Know and understand the advantages of backing up the data locally and to the cloud. ✓ Configure and use multifactor authentication to access and use online services.
Being responsible online	<ul style="list-style-type: none"> ✓ Know how to report concerns with online content. ✓ Know and understand that sending communications regarded as threatening abusive or grossly offensive to another person using an online method including email, instant messaging or social media could be committing a criminal offence such as harassment or malicious communication. ✓ Know personal obligations with respect to copyright and other intellectual property rights and why you should not access such content without permission/license, and the risks and consequences of music / TV / film piracy. ✓ Know how to block or filter inappropriate content or behavior.
Digital wellbeing	<ul style="list-style-type: none"> ✓ Apply simple methods to avoid physical and psychological health risks while using devices. ✓ Know and understand the terminology and concepts relating to potential physical stresses of using devices. ✓ Know that the effects can be minimized by using an adjustable chair which supports good posture, and not being too close or too far away from the screen/device and peripherals ✓ Knowing that setting time limits on device use reduces the risk of overuse and associated fatigue.

Domain 2 Social and Ethical

This Domain competency related to social ethical legal and human Issues, and community linkage.

Standard 6: Social and Ethical

Skill Statements	Performance Criteria
Legal practices in the use of technology	<ul style="list-style-type: none">✓ Understand the legal implications of Software Licenses and Fair Use✓ Understand and explain the basic concepts of Intellectual Property' Rights✓ Differentiate and identify' the Copyright, Trademark, Patent of various products
Ethical use of technology	<ul style="list-style-type: none">✓ Detect plagiarism in student work✓ Properly acknowledge sources used in own work✓ Advocate the responsible use of various technologies like computers, cell phones, etc.✓ Show respect for privacy and cyber etiquette, phone etiquette and similar use of technology
Supported learning environment	<ul style="list-style-type: none">✓ Demonstrate proper handling of computer devices and use of applications✓ Monitor how students use the computer✓ Maintain a clean and orderly learning environment for students✓ Promote and implement rules and regulations on properly using computers✓ Accurately report malfunctions and problems with computer software and hardware
Facilitate equitable access	<ul style="list-style-type: none">✓ Design class activities to minimize the effect on students being disadvantaged or left-out✓ Help minimize the effects of the digital divide by providing access to digital materials for all students✓ Prepare lessons and activities appropriate to the level of learning and cultural background of students✓ Adapt activities using specialized hardware and software for physically disadvantaged students

Domain 3 Professional

This domain includes competencies related to professional growth and development share experiences and collaboration.

Standard 7: Professional

Skill Statements	Performance Criteria
Proactively engage in exploring and learning	<ul style="list-style-type: none">✓ Identify educational sites and portals suitable to their subject area✓ Join online communities, subscribe to relevant mailing lists and online journals✓ Review new and existing software for education✓ Recommend useful and credible web sites to colleagues
Continuously evaluate and reflect	<ul style="list-style-type: none">✓ Conduct research on the use of technology in the classroom✓ Follow online tutorials✓ Actively participate in online forums and discussions
Share experiences	<ul style="list-style-type: none">✓ Share lesson plans, worksheets and teaching materials through course web sites

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Domain 4 Pedagogical

Competencies related to the use of technology in the following components of an instruction process: 1) planning and designing effective learning environments and experiences supported by technology; 2) implementing, facilitating and monitoring teaching and learning strategies that integrate a range of Information and communication technologies _to promote and enhance student learning; and 3) assessing and evaluating student learning and performances

Standard 8: Pedagogical

Skill Statements	Performance Criteria
Apply technology to develop students' higher order thinking skills and creativity	<ul style="list-style-type: none">✓ Make students use database, spreadsheet, concept mapping tools and communication tools etc.✓ Encourage students to do data analysis, problem solving ,decision making and sharing ideas etc.
Provide performance tasks that require students to locate and analyze information and to use a variety of media to communicate clearly the results	<ul style="list-style-type: none">✓ Use appropriately the slide presentation, video, audio and other media in the classroom.✓ Teach students to use various multimedia materials for reports and class presentation
Conduct open and flexible learning environments where technology is used to support a variety of interactions among students, cooperative learning and peer instructions.	<ul style="list-style-type: none">✓ Use various synchronous and asynchronous communication tools (emails, chat, white boards, forum, blogs)✓ To facilitate cooperative learning and exchange of ideas and information
Evaluate usage of ICT integration in the teaching-learning process and use results to refine the design of learning activities	<ul style="list-style-type: none">✓ Design rubrics for assessing student performance in the use of various technologies✓ Use electronic means of administering quizzes and examinations✓ Analyze assessment data using spreadsheets and applications
Use computers and other technologies to collect and communicate information to students colleagues, parents and others	<ul style="list-style-type: none">✓ Use emails, group sites, blogs etc. for disseminating information directly to students, colleagues and parents✓ Use emails, group sites, blogs etc. to collect information and feedback directly from students colleagues and parents
Apply technology to facilitate a variety of appropriate assessment and evaluation strategies recognizing the diversity of learners	<ul style="list-style-type: none">✓ Explore the use of electronic assessment tools like on line testing, submission of projects via email or on line facilities✓ Set up online databases or repositories of student works

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