TECHNICAL REPORT

ISO/IEC TR 4339

First edition
2022-01

Information technology for learning, education and training — Reference model for information and communications technology (ICT) evaluation in education

Technologies de l'information pour l'apprentissage, l'éducation et la formation — Modèle de référence pour l'évaluation des technologies de l'information et de la communication (TIC) dans l'éducation

This document is a preview generated by EVS

Reference number
ISO/IEC TR 4339:2022(E)

© ISO/IEC 2022

This document is a preview generated by EVS

COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

© ISO/IEC 2022 – All rights reserved

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Abstract model of the evaluation of ICT in education **1**
4.1 Evaluation of ICT in education 1
4.2 Abstract model 2
4.2.1 General 2
4.2.2 Core indicators 3
4.2.3 Optional indicators 3
4.2.4 Extended indicators 4
4.3 Indicators for candidates 4
5 Framework of the evaluation indicator of ICT in education **5**
5.1 Indicators framework 5
5.2 How to use the indicators 6
Annex A (informative) **Assessment indicators of ICT in education** **8**
Bibliography **12**

This document is a preview generated by EVS

© ISO/IEC 2022 – All rights reserved

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see https://patents.iec.ch).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 36, *Information technology for learning, education and training*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

This document is a preview generated by EVS

© ISO/IEC 2022 – All rights reserved

Introduction

Information and communications technology (ICT) has been pervasive in the modernization of society. ICT in education has become integral to achieving quality learning and supporting lifelong learning. The Reference Framework for the Description of Quality Approaches (RFDQ) (ISO/IEC 40180) is an elaborate and extensive process model. It harmonizes existing concepts, specifications, terms and definitions for learning, education and training.

Evaluation of ICT in education is a key issue for policy and strategy development in education. It is also integral to quality assurance of ICT development in education, but also essential to management and decision-making.

This document provides a standard reference for evaluation reports, education policies, related research and significant issues related to ICT in education. As such it aims to support the quality processes related to ICT in education by informing governmental agencies, management organizations, local evaluation units and schools.

This document presents a scientific and rational indicator model and framework of ICT in education to support evaluation and development of ICT deployment in education. Specifically, this document aims to:

i) establish an evaluation indicators framework for ICT in education with respect to data collection, performance monitoring and decision support services based on the investigation of typical ICT evaluation cases;

ii) outline approaches to reflect the development level of ICT in education for description or comparison between different regions or schools;

iii) take localized demand into consideration, proposing optional indicators and expanded indicators based on the information gaps.

This document is a preview generated by EVS

© ISO/IEC 2022 – All rights reserved

This document is a preview generated by EVS

Information technology for learning, education and training — Reference model for information and communications technology (ICT) evaluation in education

This document is a preview generated by EVS

1 Scope

This document defines an abstract model and an indicator system framework for the evaluation of information and communications technology (ICT) in learning, education and training (LET). The abstract model accommodates requirements domains, including K12 education, vocational education, higher education and continuing education. The framework describes ICT service levels in the areas of learning, education and training, and aims to assist in quality processes associated with ICT in LET contexts.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
indicator
quantitative, qualitative or descriptive measure

3.2
performance
way in which an individual, group or organization carries out, accomplishes and fulfils its important functions and processes, usually with regard to effectiveness

3.3
evaluation
systematic determination of the extent to which an entity meets its specified criteria

4 Abstract model of the evaluation of ICT in education

4.1 Evaluation of ICT in education

Evaluation of ICT in education refers to the use of information technology and scientific performance assessment methods to reflect the development process and level of the implementation, execution, benefits or other aspects scientifically according to the goals and performance standards of ICT in education. The definition of evaluating indicators is beneficial in analysing the situation, achievements and limitations for the development of ICT in education.

The evaluation indicators of ICT in education have two levels: macro and micro. For the macro level, evaluation indicators provide scientific and reasonable assessment system and empirical data to reflect

© ISO/IEC 2022 – All rights reserved