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Information technology for learning, education and training — Evaluation of the quality of online learning: Maturity model and methodology

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Foreword

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This document was prepared by Technical Committee ISO/JTC 1, Subcommittee SC 36.

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.

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Introduction

There has been a significant rise in the facilitation of online learning . In recent years this has continued to exponentially grow particularly in light of global events such as the COVID-19 pandemic. Institutions increasingly acknowledge that online learning is crucial to their long-term strategy and highlight the need to promote and encourage quality in online learning and provide guidance in the development and enhancement of online learning environments.

The maturity model described in this standard, provides guidance to organisations and educators using standardised criteria to evaluate the quality of online learning and guide the quality of development.

The maturity model and evaluation process provide a measure of performance for evaluating online learning environments that can be externally validated, benchmarked and compared broadly across the global tertiary education sector.

A maturity model evaluation can occur at any point in the life cycle of an online learning environment, assisting organisations and educators identify gaps in performance and opportunities for improvement against an established benchmark.

The maturity model evaluation process further aims to:

— raise awareness of exemplary practices in the design of quality online learning environments;

— encourage and motivate excellence in the design of quality online learning environments and the utilization of digital technologies in learning and teaching;

— promote and recognize exemplary innovation and practice in the design of quality online learning environments and the use of educational technologies to progress pedagogical practice.

Context

This standard focuses on the quality of the online learning environment which is one component of the delivery of learning. This standard does not address these other components for example course and student administration.

It is assumed that the content of the learning resources meets curriculum descriptions. This standard addresses the quality of the online component for delivery of the curriculum.

The online learning environment is implemented with an organisational IT environment. The management of privacy and security will occur within the overall organisational environment, and therefore has not been separately addressed in this standard.

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Information technology for learning, education and training — Evaluation of the quality of online learning: Maturity model and methodology

1 Scope

This document defines a maturity model and gives guidance on the evaluation criteria and methodology for evaluation of the quality of online learning across four key practice domains:

— online learning environment;

— learner support;

— learning and assessment tasks;

— learning resources.

The scope of this document includes the following:

— maturity model definition;

— principles of evaluation questionnaires for maturity model components;

— guidance for a maturity model evaluation method.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC TS 17027:2014, *Conformity assessment — Vocabulary related to competence of persons used for certification of persons*

ISO/IEC TR 20748-1:2016, *Information technology for learning, education and training — Learning analytics interoperability — Part 1: Reference model*

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 General terms

3.1.1
learning, noun
acquisition of knowledge, skills or attitudes

[SOURCE: ISO/IEC 2382-36:2019 [1], (3.5)]

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3.1.2
online learning, noun
learning (3.1.1) enabled via connection to an IT system

[SOURCE: ISO/IEC 2382-36:2019 [1], 3.1.4]

3.2 Users, organisations, roles

3.2.1
learner, noun
entity (3.7.1) that learns

[SOURCE: ISO/IEC 2382-36:2019 [1], 3.2.1]

3.2.2
teacher
entity (3.7.1) that teaches

Note 1 to entry: Within a specific context (e.g. collaborative learning) the same person can play the roles of *learner* (3.2.1) and teacher.

[SOURCE: ISO/IEC 2382-36:2019 [1], 3.2.2]

3.3 Systems and tools

3.3.1
online learning environment, noun
virtual environment in support of *online learning* (3.1.2)

3.4 Supportive processes

3.4.1
learner support, noun
assistance provided to help *learners* (3.2.1) with their *learning* (3.1.1)

Note 1 to entry: Learner support may be provided by administrators, counsellors, technical support staff, facilitators or technology (e.g. artificial intelligence).

[SOURCE: ISO 29994:2021 [2], (3.14)]

3.4.2
practice domain
area of knowledge, influence, or activity relating to the practice of *online learning* (3.1.2)

3.4.3
learning analytics
measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing *learning* (3.1.1) and the environments in which it occurs

[SOURCE: ISO/IEC TR 20748-1:2016, 3.11]

3.4.4
digital literacy
ability to use digital technologies to find, evaluate, create, and communicate information, solve problems, and participate in online environments

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3.5 Resources and content

3.5.1
learning resource, noun
entity (3.7.1) that can be referenced and used for *learning* (3.1.1), education and training

[SOURCE: ISO/IEC 2382-36:2019 [1], 3.9.5]

3.5.2
learning outcome
what a person is expected to know, understand or be able to do at the end of a *learning* (3.1.1), training or education, programme, course or module

[SOURCE: ISO/IEC TS 17027:2014, 2.57 amended to include learning and education]

3.6 Individualized adaptability and accessibility

3.6.1
accessibility
usability of a product, service, environment or facility by individuals with the widest range of capabilities

Note 1 to entry: Although “accessibility” typically addresses users who have a disability, the concept is not limited to disability issues.

[SOURCE: ISO/IEC 2382-36:2019 [1], 3.8.3]

3.6.2
diversity
characteristics of differences and similarities between people

Note 1 to entry: Diversity includes factors that influence the identities and perspectives that people bring when interacting in *learning* (3.1.1).

Note 2 to entry: Diversity can support the development of workplace environments that foster *learning* (3.1.1) from others to gain diverse perspectives on inclusiveness.

Note 3 to entry: Diversity dimensions include the demographic and other personal characteristics of the *learner* (3.2.1), for example age age, ability, sexual orientation, gender, gender identity, colour, nationality, ethnic or national origin, religion or belief, as well as characteristics related to the socio-economic context. These are often identified and agreed-upon dimensions, which can be associated with legal requirements in different jurisdictions.

[SOURCE: ISO 30400:2022 [3], 3.7.1, modified - Note 1,2 and 3 to entry modified for the context of learning, inclusive terminology.]

3.6.3
communication
⟨accessibility⟩ transfer of meaning among individuals by means of transmission of signals in a manner which supports *accessibility* (3.6.1)

Note 1 to entry: From a content perspective, communication includes languages, display of text, Braille, tactile communication, large print, accessible multimedia as well as written, audio, plain-language, human-reader and augmentative and alternative modes.

Note 2 to entry: From an ICT perspective, communication includes the means and formats of communication, such as accessible information and communication technology.

[SOURCE: ISO/IEC 20016-1:2014 [4], 3.031]

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3.7 Metadata for learning resources

3.7.1
entity
any concrete or abstract thing that exists, did exist, or might exist, including associations among these things

EXAMPLE Person, object, event, idea, process, etc.

Note 1 to entry: An entity exists whether data about it are available or not.

[SOURCE: ISO/IEC 2382-36:2019 [1], 3.9.5]

3.8 Quality management, assurance and metrics

3.8.1
quality
⟨Quality management⟩ degree to which a set of inherent characteristics of an object fulfils requirements

Note 1 to entry: The term "quality" can be used with adjectives such as poor, good or excellent.

Note 2 to entry: "Inherent", as opposed to "assigned", means existing in the object.

[SOURCE: ISO/IEC 2382-36:2019 [1], 3.12.3]

3.8.2
maturity
state of a system, demonstrated by special characteristics and behaviour, that permits it to operate better in accordance with its business goals as a result of transformation and adoption

Note 1 to entry: Adapted from OSIMM.

[SOURCE: ISO/TR 13054:2012 [5], 2.4]

3.8.3
maturity model, noun
means of and scale for evaluating and assessing the current state of *maturity* (3.8.2)

[SOURCE: ISO/TR 13054:2012 [5], 2.5 modified — Note to entry removed]

3.8.4
maturity evaluation, noun
method for determining the *maturity level* (3.8.10) of an *online learning environment* (3.3.1) using responses to the *evaluation questionnaire* (3.8.6)

[SOURCE: ISO 22549-2:2020 [6], 3.4 modified to replace industrial enterprise with online learning environment]

3.8.5
evaluation, noun
systematic determination of the extent to which an *entity* (3.7.1) meets its specified criteria

[SOURCE: ISO/IEC TR 4339:2022 [7], 3.3]

3.8.6
evaluation questionnaire, noun
list of questions used to evaluate whether the the *entity* (3.7.1) meets the specified criteria for a particular *maturity level* (3.8.10)

[SOURCE: ISO 22549-2:2020 [6], 3.3]

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3.8.7
quality objective, noun
objective related to *quality* (3.8.1)

[SOURCE: ISO 9000:2015 [8], 3.7.2, modified — Notes to entry removed.]

3.8.8
performance outcome
observable result of the successful achievement of a specified expectation of a *practice domain* (3.4.2)

3.8.9
success indicator, noun
characteristic of required performance to be achieved

3.8.10
maturity level indicator, noun
maturity level, noun
identified extent of measured effect within the *maturity model* (3.8.3)

Note 1 to entry: The extent of measured effect is divided into segments, referred to as levels, of increasing competence to achieve enterprise objectives.

[SOURCE: ISO 22549-2:2020 [6], 3.4]

3.8.11
maturity level score
score, noun
numeric value associated with a *maturity level indicator* (3.8.10)

3.8.12
learning enviroment maturity level
overall *maturity level* (3.8.10) for the *online learning environment* (3.3.1) representing an aggregation of *evaluation* (3.8.5) of individual components

Note 1 to entry: The overall learning environment maturity level can be expressed by an equivalent numeric overall *maturity level score* (3.8.11).

3.8.13
Likert scale, noun
rating scale using words for labels for each rating

Note 1 to entry: The scale may be used to measure the degree of agreement, extent or frequency of a specified indicator or statement, by assigning numerical values to predefined response levels for the purpose of evaluation.

3.8.14
spider web chart
chart that consists of multiple performance indicators which are set in a circle like a spider web

[SOURCE: ISO/IEC TR 20913:2016 [9], 3.1.2]

3.9 Delivery of assessment

3.9.1
assessment, noun
test, examination or similar, designed to assess a candidate's knowledge, understanding or skills in a defined area

Note 1 to entry: Can be high-stakes or low-stakes.

[SOURCE: ISO/IEC 2382-36:2019 [1], 3.13.1]

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