
Assessment of outcomes of learning services — Guidance

Évaluation des acquis de la formation — Recommandations

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 ISO documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO 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).

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.

This document was prepared by Technical Committee ISO/TC 232, *Learning services outside formal education*.

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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.

Introduction

Assessment is used for two fundamental purposes in learning services: (i) making a decision about the level of competence achieved by learners and (ii) identifying areas of improvement for learners. The intent of this document is to provide a framework for the development, implementation and use of results from assessments of learning outcomes in different contexts for different purposes and to address the needs of different stakeholders.

This document identifies the stages of assessment development, implementation and usage of results, and recommends criteria for each stage. It provides guidance on the selection, development, validation, planning, administration and use of assessments in a range of learning outcomes.

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Assessment of outcomes of learning services — Guidance

1 Scope

This document provides guidance on the planning, development, implementation and review of assessments of the outcomes [knowledge, competence, performance] of learning services. It is intended for use by organizations providing learning services and organizations selecting, using or developing assessments.

This document is applicable to the development and use of assessments for the measurement of individual learners' outcomes and the use of assessments for determinations of learner progress.

The document does not apply to the direct evaluation of programs of instruction or the evaluation of learning service providers. It also excludes the technology requirements for the delivery of assessments.

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 terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

assessment

test, examination, observation, or other process, designed to measure an examinee's knowledge, competence, or performance in a defined area against specific reference points or standards (educational or professional)

[SOURCE: ISO/IEC 23988:2007, 3.1, modified — “against specific reference points or standards (educational or professional)” added.]

3.2

assessor

person or organization responsible for interpreting an examinee's performance on the assessment tasks and providing appropriate reporting and feedback to examinees and the client

Note 1 to entry: Assessors are competent to make decisions about the use and interpretation of assessment procedures. In relation to psychological testing, in some countries they are referred to as “test users” to distinguish them from “test proctors”, “test administrators” or “monitors”. Assessors can be employees of the service provider or the client, or third parties contracted for the purposes of the assessment.

[SOURCE: ISO 10667-1:2011, 2.5, modified — aligned to assessment of learning services.]

3.3

competence

ability to apply knowledge and skills to achieve intended outcomes

Note 1 to entry: The ability to apply knowledge and skills means that the learner demonstrates appropriate attitudes and behaviour in different contexts or situations with responsibility and autonomy.

[SOURCE: ISO 29991:2014, 2.5, modified — Note 1 to entry added.]

**3.4
diagnostic assessment**

assessment which identifies what the learner already knows and/or the nature of difficulties that the learner might have

**3.5
proctor**

invigilator
authorised person who administers or supervises an assessment

**3.6
scorer**

rater
qualified and trained person who assigns a score to an examinee's performance based on defined criteria

**3.7
hand scoring**

human scoring of an examinee's response to an item using an answer key in which all acceptable responses are predetermined

**3.8
live scoring**

human scoring of an assessment during or immediately following the administration of an assessment

**3.9
machine scoring**

automatic scoring of an item using technology

Note 1 to entry: Machine scoring is an emerging technology where, for example, a computer program automatically scores a computer-based assessment.

**3.10
assessment developer**

organization or individual responsible for the planning, development, delivery and quality assurance of assessments

**3.11
skill**

ability to perform a task or activity with a specific intended outcome acquired through education, training, experience or other means

[SOURCE: ISO/IEC/TS 17027:2014, 2.74]

**3.12
assessment sponsor**

organization or individual accountable for the acquisition, development or selection of assessments

**3.13
qualification**

demonstrated education, training, and work experience, where applicable

[SOURCE: ISO/IEC 17024:2012, 3.7]

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4 Assessment planning

4.1 General

Planning is a phase of the assessment life cycle that begins with needs analysis and resource planning and includes the assessment framework.

4.2 Needs analysis

The selection or development of an assessment should be based on the needs of the assessment sponsor, relative to the intended use of the assessment. To ensure that the assessment is appropriate for its intended use, the assessment sponsor should conduct a needs analysis before selecting or developing any assessments, and ensure that any selected assessments meet those needs.

The needs analysis should include consultation with stakeholders, to maximize opportunities for coordination and minimize duplication of effort. The input should be documented.

At a minimum, the needs analysis should cover the following:

- the goals and objectives of the organization(s) that will use the assessment and their clients;
- the field of knowledge, skills, capacities or competencies to be assessed;
- the timing of the assessment relative to the learning event;
- the type of decisions that will be made on the basis of assessment;
- the parties responsible for the assessment;
- the target population for the assessment and any accommodations required due to disability;
- the environment and location of the assessment;
- any constraints on the assessment;
- the duration of the validity of the scores of the assessment.

The needs analysis should be documented for future reference and revision.

4.3 Resource planning

Because there are so many components to assessment planning, assessment sponsors that wish to select or develop assessments should develop a plan for resource allocation in order to complete the steps recommended in this document, to include:

- selecting or designing and developing an assessment;
- administering the assessment;
- ensuring the security of the assessment;
- reviewing the assessment, as needed;
- ensuring the fair and ethical administration of the assessment.

4.4 Assessment framework

Assessment developers should develop a framework document in close coordination with the assessment sponsor and other relevant stakeholders, with input from outside assessment experts as

needed. The assessment framework is based on the needs analysis and provides the answers to the questions asked in 4.2. The assessment framework should contain the following:

- the scope of the assessment;
- the decisions to be made on the basis of assessment scores;
- the intended consequences of the assessment use;
- an explanation of the links between the goals of the assessment and the means of the assessment;
- an explanation of the links between assessment scores and their interpretations, uses and consequences;
- how the scores are reported to stakeholders.

The assessment framework should also contain:

- the conditions for developing and implementing assessments, including diagnostic assessments;
- timelines and costs;
- the environment of the assessment, whether a classroom, the working environment, an assessment centre, online or another environment;
- any prerequisites required for taking the assessment;
- standards to be applied, for example minimum or average scores to be achieved;
- tools and methods used for assessing learning outcomes;
- quality assurance mechanisms;
- qualifications parties involved in the development or administration of the assessment;
- the maintenance plan for the assessment;
- the rules of conduct of the assessment (see 8.5);
- the availability of existing assessments, and the degree to which they meet the requirements of the framework.

The assessment framework should be approved by the assessment sponsor.

5 Assessment development

5.1 General

The following subclauses provide a structure for reflection on the development of an assessment.

5.2 Timing of the assessment

The design phase should specify when the assessment should be administered, as shown in Table 1.

Table 1 — Assessment timing

What is to be assessed?	Timing
Existing knowledge and abilities	Pre (before learning)
Growth in skills and knowledge of content areas	Ongoing during learning event at appropriate intervals
Attainment of (course) learning goals	End of learning event

Assessments may be independent of the learning event, in which case the recommended timing will not apply.

5.3 Qualifications of assessment developers

Assessment developers' main tasks are the planning, development and quality assurance of the assessment. They should be trained and qualified to undertake activities and tasks related to the development of assessments assigned to them.

Their roles, responsibilities and qualifications should be clearly defined and documented, whether they are internal or external resources for the organization developing the assessment.

They should guarantee impartiality and avoid conflicts of interest. They should:

- have appropriate knowledge and experience in the relevant field;
- be trained and qualified to analyse and interpret the data, give feedback and document the assessment process;
- be trained in validation of assessment processes;
- be familiar with different assessment methods and tools.

5.4 Means of assessment

The means of assessment should be specified and linked to the goals of the assessment, which have been determined through the needs analysis (see 4.2). The assessment may be performed in many ways, depending on what is to be assessed. Examples of means of assessments are given in Figure 1; these are not exhaustive or mutually exclusive. Further examples may be found in the references in the Bibliography.

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5.5 Assessment specifications

The assessment specifications document should provide detailed specifications regarding the design, content, scoring, reporting and intended use of the assessment.

For assessment administration and technological requirements, the descriptions should include required training and qualification information for any assessment administration personnel and any materials or technology needed to administer the assessment. Examples include, but are not limited to:

- physical assessment environment or setting;
- time allotted to assessment administration;
- assessment administration personnel (including training and qualification requirements);
- documents, materials and tools required by examinees or administrators;
- hardware and software (including version, bandwidth, security requirements);
- how long the assessment report will be retained.