

# TECHNICAL REPORT

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## Information technology — Learning, education and training — Learning environment components for automated contents adaptation

*Technologies de l'information — Apprentissage, éducation et formation — Composantes d'un milieu propice à l'apprentissage pour l'adaptation des contenus automatisée*



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## 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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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](http://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 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](http://www.iso.org/patents)).

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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](http://www.iso.org/iso/foreword.html).

This document was prepared by 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](http://www.iso.org/members.html).

## Introduction

Mobile learning is a term used to describe education conducted via digital learning environments where mobile devices are used. It is an evolved form of education that exploits the functionality and convenience provided via computers and the Internet. Mobile learning allows students to participate in classes via various devices regardless of the student's location, free from traditional time constraints while engaged in daily life. Providing content optimized for the student is the most important element of mobile learning, however, there is an exponentially increasing amount of customized educational content, often with the same context available. This content is increasingly created and shared in mobile learning environments that need to support many different device types. Content providers should be aware of various characteristics of user devices and learning environments so that they can provide optimized content. In order to select content meeting the requirements of both the end users' devices and the learning environment, profile data and metadata that describes the characteristics of those devices and learning environments is used.

This document describes a learning environment profile to support the establishment of mobile learning environments and defines a standard set of terms used to express device information and learning environments for mobile learning. It aims to energize a mobile learning market that is tailored to meet individual student's needs by allowing them to receive recommendations on, and use suitable content for, both their devices and learning environments.

This document contains two methods:

- The profile expression method is a technical method of displaying device information language that includes definitions of schema and vocabulary.
- The profile grouping method is a technical method of grouping and displaying terminal information language that includes a group profile example.

The standards herein express basic information needed to function successfully across different devices and environments. These standards will help establish a foundation for successful delivery of mobile learning.

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# Information technology — Learning, education and training — Learning environment components for automated contents adaptation

## 1 Scope

This document specifies two methods for adaptive content automation. Firstly, a learning environment profile for the expression of device and learning environment information required for mobile learning providers of both content and services, and for effective use of such services. Secondly, a grouping method is specified so that similar learning environment profiles can be bound into one and expressed collectively.

## 2 Normative references

There are no normative references in this document.