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**Information technology for learning,  
education, and training — Human  
factor guidelines for virtual reality  
content —**

**Part 2:  
Considerations when making VR  
content**

*Technologies de l'information pour l'apprentissage, l'éducation et la  
formation — Lignes directrices relatives aux facteurs humains pour  
les contenus en réalité virtuelle —*

*Partie 2: Éléments à prendre en compte lors de la création de  
contenus en réalité virtuelle*

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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.

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)) or the IEC list of patent declarations received (see <http://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](http://www.iso.org/iso/foreword.html).

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

A list of all parts in the ISO/IEC 23842 series can be found on the ISO website.

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

As industries related to virtual reality (VR) have grown, attempts have been made to bring these technologies into the learning, education and training (LET) domain. VR technology is expected to be introduced into the world of primary and secondary education in the next two to three years.<sup>[1]</sup> However, there are gaps in criteria between educational experts and content makers when it comes to developing VR content. For example, educational experts say that it is necessary for the learner to distinguish between the virtual world and reality. On the other hand, content makers try to enhance immersion by not distinguishing between the virtual world and reality. Requirements of devices, such as hardware specifications, currently cover only minimum levels for content making.

Many of the issues raised in this document are not limited to the LET domain and can be applied in any environment that uses VR contents.

[Annex A](#) provides an example of guidelines for users.



# Information technology for learning, education, and training — Human factor guidelines for virtual reality content —

## Part 2: Considerations when making VR content

### 1 Scope

This document presents considerations for making VR content for the learning education and training (LET) domain.

This document addresses VR content that uses a head-mounted display (HMD) in the LET domain. It does not address VR content using immersive technology and does not address augmented reality, mixed or merged reality content.

### 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

##### **virtual reality**

##### **VR**

virtual reality has a high level of immersiveness, fidelity of information representation, and degree of active learner participation compared to other forms of mixed reality

[SOURCE: ISO/IEC TR 18121:2015, 3.6]

#### 3.2

##### **mixed reality**

display continuum in which both real and virtual images are combined in some way and in some proportion

Note 1 to entry: Augmented reality (AR) and virtual reality (VR) are considered to be on the mixed reality continuum.

#### 3.3

##### **immersive technology**

tools that enable the integration of virtual content and the physical environment in a manner that supports user engagement with the resulting blended reality

Note 1 to entry: Some types of immersive activities and experiences include virtual reality, augmented reality, pervasive games, digital twins, telepresence and holography.