Technical Report

ISO/IEC TR 9858

Information technology — Use cases on advanced learning analytics services using emerging technologies

Technologies de l'information — Cas d'utilisation concernant les services avancés d'analytique de l'apprentissage utilisant des technologies émergeantes

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Foreword

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Introduction

The ISO/IEC 20748 series on learning analytics provides reference and guidance for learning analytics services.

ISO/IEC TR 20748-1:2016 [1]

ISO/IEC TR 20748-2:2017 [2]

ISO/IEC TS 20748-3:2020 [3]

ISO/IEC TS 20748-4:2019 [4]

Emerging technologies, such as cloud computing, big data technologies, AR/VR, Digital Twin, and AI are being adopted and explored throughout learning, education, and training environments. Learning analytics play a pivotal role in enhancing learning effectiveness, customizing learning content, as well as real-time learning tool adaptations. Significant advantages of emerging technologies can be seen when they are used in learning analytics services.

This document provides abundant use cases of advanced learning analytics services and presents the current development status of learning analytics services. And it provides insights for potential standardization fields related to learning analytics.

The study of advanced learning analytics services explored in this document focuses on the following aspects,

a) to improve individual learning achievements;

b) to promote learning outcome-based decision-making, learning resource design, learning activity selection and more;

c) to help teachers achieve improved instructional effectiveness;

d) to provide data-based learning evidence that can be used to support teaching planning;

e) to enable the integration of learner competencies and knowledge;

f) to incorporate standards and specifications for the purposes of data privacy protection and data security;

g) to exemplify innovative technical implementation such as skill embedding, deep knowledge tracing and more.

In order to encourage a more well-rounded and active discussion with stakeholders and to investigate potential standardization items, a large number of private, public and non-profit institutions were invited to share their use cases by using a use case template

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