

Information model for quality management methods in e-Learning

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Abstract

Quality in e-Learning has been focusing on. ISO/IEC 19796-1, which deals with the issue of quality management and assurance in e-Learning, was just published in 2005 as an international standard. This standard indicates the process that produces e-Learning. But it is indispensable to make clear quality concept and object in order to understand the quality approaches and to use its standard. Measurement method is useful to indicate contents of quality which should be assured. So this paper suggested a information model for quality methods.

1. Introduction

In this decade, both educational issues and technological issues have been focused on in e-Learning business and academic fields. Quality is becoming a significant issue in e-Learning. There are many guidelines or specifications related to quality. For example, E-Learning Course Certifications (ECC) by ASTD, the quality elements guideline by Sloan consortium, CWA quality assurance standards and RFDQ by CEN/ISSS,[1] quality management and assurance guideline in e-Learning by AEN, and so on. In this situation, ISO/IEC19796-1 was approved in 2004 as ISO specification. [2]

This paper is going to discuss about specification itself, harmonization of many type of quality approaches, and usage of ISO/IEC19796-1.

2. ISO/IEC 19796-1 and its issues

ISO/IEC19796-1 describes the processes as an e-Learning lifecycle. It is a referenced model with a high level of abstraction which has to be adapted to a certain organization. The model will be used as a framework for the description, comparison, and analysis of process-oriented quality approaches. In other words, the framework can be a meta-model for quality management and quality assurance approaches.

This means that no assumptions and prescriptive requirements of the quality approaches are made.

In ISO19786-1, quality process is divided into 6 processes. When someone try to measure quality approaches, it is important to identify what aspects should be measured and how value should be assessed. ISO19786-1 defined the life cycle processes of quality approaches as sequential stages, but it did not define the characteristics of quality approaches.

The main purpose of this paper is to define the methods and metrics for quality approaches, and to describe the elements and the attributes of quality approaches. Ways of measurement make clear the contents of abstract concepts such as “quality”.

Quality methods and metrics can be useful not only for evaluating, auditing, goal-setting and improving quality approaches in e-Learning, but also for defining quality requirements with substantial level. If one system provider and one customer communicate together and make an agreement with quality with substantial level using this draft, subjective claim will not occur after the end of learning and learning evaluation.

3. Quality assurance activity model

Quality will be produced in process. This process means production or development process, so ISO/IEC19796 -1 indicates the process of e-Learning products and services. Quality management and assurance activity should be performed at not only specific quality assurance and/or control process, but also on each development process and/or sub-process. Developers select and perform methods for development in process and sub-process, while from the viewpoint of quality management and assurance, the person of responsibility of development project basically should indicate the reason or evidence of these methods. Sometimes these methods have the function of development and the function of quality control and/or assurance. For example, both of “need analysis” and “fish-bone” methods are meaningful not only to identify the educational goal, but also to assure the framework analysis process.

It is needed that the methods are identified how to perform on development process and sub-process as a quality management and assurance activity. Figure 1 indicates the quality assurance activity on each development process and sub-process.

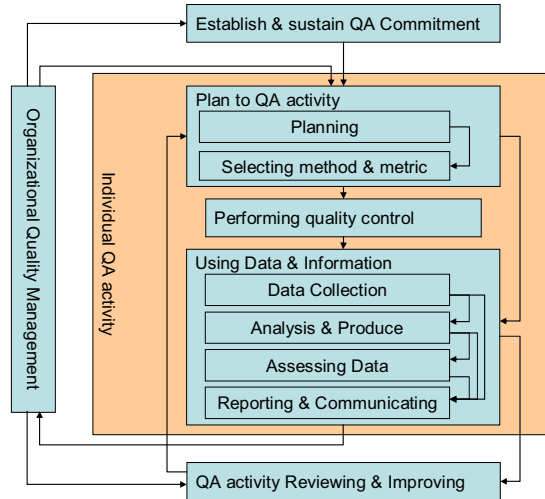


Figure 1 assurance activity model

4. Data model of quality methods

Some guidelines and standards related to quality and measurement/evaluation were reviewed for identifying quality concepts and approaches, ISO-VIM[3], ISO/IEC9126[4], ISO/IEC14598[5], ISO/IEC TR15504[6], ISO/IEC15939[7] and et al. Then 14 categories and some sub-processes could be picked up.

- Code: Identifying the number of category
- ID: Unique identifier of the method
- Name: Name or title of the method for quality management and assurance
- Objective: Objective of the method for quality management and assurance
- Description: Short description of the method/instrument
- Source: Origin of the method or the metric
- Rights: Right or property with the method should be written. If the value is “true”, sub-categories of “RightID” and “RightDescription” must be written.
- Context: Context indicates which quality characteristics assure or improve using the method.

- Method type: Characteristic of method processing or operation
- Method category type: Classification of method in the general methodology
- Measurement type; measurement method type: Generic description of a logical sequence of operations used in a measurement.
- Resource of method: Resources and services to perform the method
- Object of quality: The type of quality object to be assured will depend on the stage in the life cycle process and the purpose of the assurance and management. For example, in analysis process, final LMS product and/or educational content products are not to be quality objects, or rather, specification draft or activity of analysis become quality objects as process quality. And final LMS and/or educational content will become quality object as product quality or usability quality in evaluation stage.
- Process: This category is the life cycle process shown at ISO/IEC 19796-1. This category identifies which process or sub-process the method performs on.
- Actor/ responsible: Actors and their representative involved to perform the method.
- Relation: Relation with other methods to measure same item.
- Annotation: Explanatory Remarks.
- Experience: Experiences made with the method.

5. References

- [1] Project team quality assurance and guideline., “CWA quality assurance standards ver1.0.”, CEN/ISSS workshop on learning technologies..
- [2] ISO/IEC19796-1: Information technology- Quality management, assurance, and metrics-part1:General approach.
- [3] ISO VIM:2001 International vocabulary of basic and general terms in metrology...
- [4] ISO/IEC9126-1:2001 Software Engineering - Product Quality- Part1 Quality Model
- [5] ISO/IEC14598-1:1999 Information technology -Software product evaluation- Part 1: General Overview
- [6] ISO/IEC TR15504-1:1998 Information technology - Software process assessment- Part 1: Concepts and introductory guide.
- [7] ISO/IEC 15939:2002 Software engineering -Software measurement process.