

DRAFT FOR DEVELOPMENT

UK lifelong learner information profile (UKLeaP)

Part 2: Representation and terminology in implementing the UK Lifelong Learner Information Profile – Code of practice

ICS 03.180 ; 35.020

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It is being issued in the Draft for Development series of publications and is of a provisional nature so that information and experience of its practical application can be obtained.

A review of this Draft for Development will be carried out not later than 2 years after its publication.

Notification of the start of the review period, with a request for the submission of comments from users of this Draft for Development, will be made in an announcement in the appropriate issue of Update Standards.

According to the replies received, the responsible BSI Committee will judge whether the Draft for Development can be converted into a British Standard or what other action should be taken.

Observations which it is felt should receive attention before the official call for comments will be welcomed.

These should be sent to the Secretary of BSI Technical Committee IST/43 at British Standards House, 389 Chiswick High Road, London W4 4AL.

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Foreword

Publishing information

This British Standards Draft for Development was published by BSI and came into effect on 1 February 2006. It was prepared by Technical Committee IST/43, *Information technology for learning, education and training*. A list of organizations represented on this committee can be obtained on request to its secretary.

Information about this document

The draft for development is issued in three parts:

- *Part 1: UK Lifelong Learner Information Profile (UKLeaP) — Guide.*
- *Part 2: Representation and terminology in implementing the UK Lifelong Learner Information Profile (UKLeaP) – Code of practice.*
- *Part 3: UK Lifelong Learner Information Profile (UKLeaP) – Specification.*

Further details are to be found in the Introduction.

This publication does not purport to include all the necessary provisions of a contract. Users of a British Standard are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 107 and a back cover.

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Introduction

Within the United Kingdom and Europe there has been widespread use of ICT by organizations to develop records of learners and their learning. A priority for each of the governments within the UK is to join up the separate records about learners held by separate organizations in order to create lifelong learner records to form a lifelong learner profile.

DD 8788 is intended to be used to facilitate the exchange of learner information among learning management systems, human resource systems, student information systems, enterprise e-learning systems, knowledge management systems, Curriculum Vitae (CV)/résumé repositories, and other systems used in the learning process. In this Draft for Development such systems are referred to as “learner information systems” regardless of any other functionality they possess or roles they fulfil.

The activities DD 8788 is intended to support and enable include:

- recording and managing learning-related history, goals, and accomplishments;
- engaging a learner in a learning experience;
- discovering learning opportunities for learners;
- developing lifelong learner profiles.

DD 8788 is intended for practitioners who establish and maintain records of learning and profiles of learners (including, but not limited to):

- those who develop and implement e-learning systems, especially systems supporting the personal and educational development of learners and transitions between different periods of learning, including work based learning and training;
- those who develop and implement e-learning content;
- managers, HR professionals, employers, government departments, vendors and developers of administrative and record systems and managed learning environments.

The three separately published Parts of DD 8788 have different purposes and degrees

Part 1: UK Lifelong Learner Information Profile (UKLeaP) — Guide, contains guidance material which explains the relevance of UKLeaP, relates it to wider issues, and sets Parts 2 and 3 of the standard in context. It is primarily for use by decision-makers, who do not necessarily have a fluent understanding of the technicalities of software systems, and who, for example, are:

- responsible for the procurement or development of software which processes information about learners;

- considering whether or not to adopt or apply UKLeaP in their business or organization.

Part 1 references Parts 2 and 3, but it can be used as a stand-alone document by people who are not conversant technically with the contents of Parts 2 and 3. It might also be of general interest to the developers, programmers, and analysts who are the intended users of Parts 2 and 3.

Part 2: Representation and terminology in implementing the UK Lifelong Learner Information Profile (UKLeaP) – Code of practice, is for use by programmers, analysts and others involved in designing, specifying, and implementing records and systems that are to conform to Part 3. Part 2 is closely dependent on Part 3, and references it extensively. It contains:

- recommendations about how to apply Part 3;
- informative annexes concerning the practical application of Part 3, and the relationship between UKLeaP and specifications issued by the IMS Global Consortium, including the IMS LIP 1.0 specification upon which DD 8788 is based.

Part 3: UK Lifelong Learner Information Profile (UKLeaP) – Specification, is primarily for use by programmers who create systems for processing information about learners, and by developers who define the detailed structure of records about learners. It contains:

- the detailed structures, data definitions, and vocabularies against which conformity to the specification can be proven;
- XML schemas for use by developers who choose to represent a learner record using XML.

Other relevant international and national frameworks and emerging standards pertaining to metadata and interoperability include:

- ISO standards, in particular those produced by SC36;
- industry standards and specifications such as those issued by the Institute of Electrical and Electronics Engineers (IEEE), or the Dublin Core Metadata Initiative (DCMI);
- relevant CEN Workshop Agreements;
- public sector standards and specifications, such as the e-Government Metadata Standard (e-GMS) [1] embraced within the UK Government's e-Government Interoperability Framework (e-GIF) [2].

1 Scope

This Draft for Development gives guidance and recommendations for the use of the core structures specified in DD 8788-3.

NOTE 1 Many of the structures have the facility for types (represented in their respective “typename” parts), and these types are semantically significant in the domains in which the standard is to be used.

NOTE 2 Interoperability depends not only on the syntactic conformity to the DD 8788-3 specification, but also on whether the structures are used to represent the same kinds of things in real life.

NOTE 3 While the main purpose of these recommendations is to optimize interoperability between systems and portability of records, consideration is also given to simplicity, and feasibility of implementation.

This part of DD 8788 recommends what is represented by each structure, and what vocabulary terms should be used within the “typename” parts to ensure maximal interoperability.

It provides recommendations for how initial vocabularies can be amended and extended.

Annex A gives detail regarding the associated IMS specifications. Annex B provides information about the functionality to describe and package learning materials into interoperable, distributable packages. It is recommended that these interoperable packages are used to exchange packages of learner information and information about transport messaging and protocols.

Annex C provides an illustration of how this standard can be used, linked to the advanced example provided in Annex D.

Annex E provides information on how vocabularies can be used.

This part of DD 8788 does not cover accessibility considerations.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

BS EN 28601:1992, ISO 8601:1988, *Specification for representation of dates and times in information interchange*.

BS 5249-3:1983, ISO 6709:1983, *Representation of elements of data in interchanges using data processing systems –Specification for representation of latitude, longitude and altitude for geographical point locations*

ISO 8601, *Specification for representation of dates and times in information interchange*.

3 Terms and definitions

For the purposes of this Draft for Development, the following terms and definitions apply.

3.1 application profile

schemas consisting of data elements drawn from one or more namespaces, optimized for a particular application

NOTE 1 The purpose of an application profile is to adapt or combine existing schemas into a package that is tailored to the functional requirements of a particular application, while retaining interoperability with the original base schemas.

NOTE 2 Application profiles can have application-specific constraints such as the use of specific controlled vocabularies.

3.2 communications system

underlying communications architecture that is responsible for supplying a reliable end-to-end communications link

3.3 content packaging

functionality to describe and package learning materials into interoperable, distributable packages

3.4 Diploma Supplement

set of data agreed by the European Commission providing details of a learner who has completed the First Cycle of Higher Education (undergraduate programmes of three or more years) or Second Cycle (taught postgraduate programmes), in particular the units of study completed by the learner

NOTE The Diploma Supplement [3] contains all the information provided for the HE Transcript and some additional information and is to be offered to all students in England on completion of their programme from 2005.

3.5 HE Transcript

details of a learner, and the units of study on which a learner is enrolled, with any results, where the learner is registered on, or has completed, a programme of study of higher education

NOTE 1 The minimum set of data that should appear on an HE Transcript is agreed by the national bodies representing higher education in the UK [4]. HE Transcripts are not generally provided for Research Postgraduates.

NOTE 2 The HE Transcript can be issued before completion of the programme, but from 2005 students completing a programme of study will generally receive a Diploma Supplement.

3.6 learner information package

set of data for exchange between disparate ICT systems

3.7

learner information transaction

basic operation on the learner information

NOTE For example creation of a learner information structure, change to a learner information structure, deletion of a learner information structure.

3.8

messaging

messaging and object management system that is used to encapsulate the XML messages/objects

3.9

physical communications link

actual data network that is used to interconnect the communicating profile servers

3.10

profiles servers

server systems providing learner information and services to users

3.11

scenario

typical use of a system described as narratives or stories

3.12

stakeholders

people and organizations who have a vested interest in the system being developed

3.13

unified modelling language (UML)

open method used to specify, visualize, construct and document the artefacts of systems

3.14

use case

description of the major functions that the system will perform for the major actors, and also the goals that the system achieves for those actors along the way

4 Relationship to other specifications and activities

When implementing DD 8788-3 a list of other relevant specifications should be produced, and these specifications should inform implementation of DD 8788-3.

NOTE 1 This is particularly important for users developing interoperability for e-portfolios.

NOTE 2 Attention is drawn in particular to other IMS specifications with which the source of this standard, IMS Learner Information Package (<http://www.imsglobal.org/profiles/>), was designed to work. These include:

- IMS Enterprise specification (<http://www.imsglobal.org/enterprise/>);
- IMS Learning Design specification (<http://www.imsglobal.org/learningdesign/>);
- IMS Question and Test Interoperability (QTI) specification [6];
- IMS Accessibility specification (<http://www.imsglobal.org/accessibility/>);
- IMS Reusable Definition of Competency or Educational Objective (RDCEO) specification (<http://www.imsglobal.org/competencies/>);
- IMS Vocabulary Definition Exchange (VDEX) specification (<http://www.imsglobal.org/vdex/>).

Further information about IMS specifications and activities is included in Annex A.

NOTE 3 Attention is drawn to measures to ensure the equal treatment of disabled people and meet the requirements of legislation, such as the Special Educational Needs and Disability Act 2001 [7].

5 Structures

5.1 LearnerInformation

5.1.1 General

The component parts of the “LearnerInformation” are documented in the DD 8788-3 specification.

The relationships between the core structure instances are part of a full representation of the significance of the information represented by the core structures. A hierarchical representation only gives a proper sense of the relationship structure for a specific kind of relationship. All relationships can be represented explicitly in “Relationship” instances, rather than using the hierarchical nesting structures.

Users should represent relationships explicitly in order to fully denote the significance of learner information. Exceptions to this, where hierarchical representation is recommended, are noted in the appropriate places. In general, the “Activity” structure is not one of these exceptions.

In order to facilitate initial system implementations, where ease of processing is an important consideration, users can represent structures hierarchically, as it is easier to process hierarchies than more general networks of information. As “activity” hierarchies are useful for certain purposes, such as representing the structure of a programme of study, they can be used where ease of processing is an important consideration (see **5.2.14**).

NOTE 1 General information on activity hierarchies can also be found in DD 8788-1.

NOTE 2 There is no guidance given for the use of the “Accessibility” structure however provision is made in DD 8788-3 for any structures to be used within the “Accessibility” structure, to allow for current and future standards and specifications.

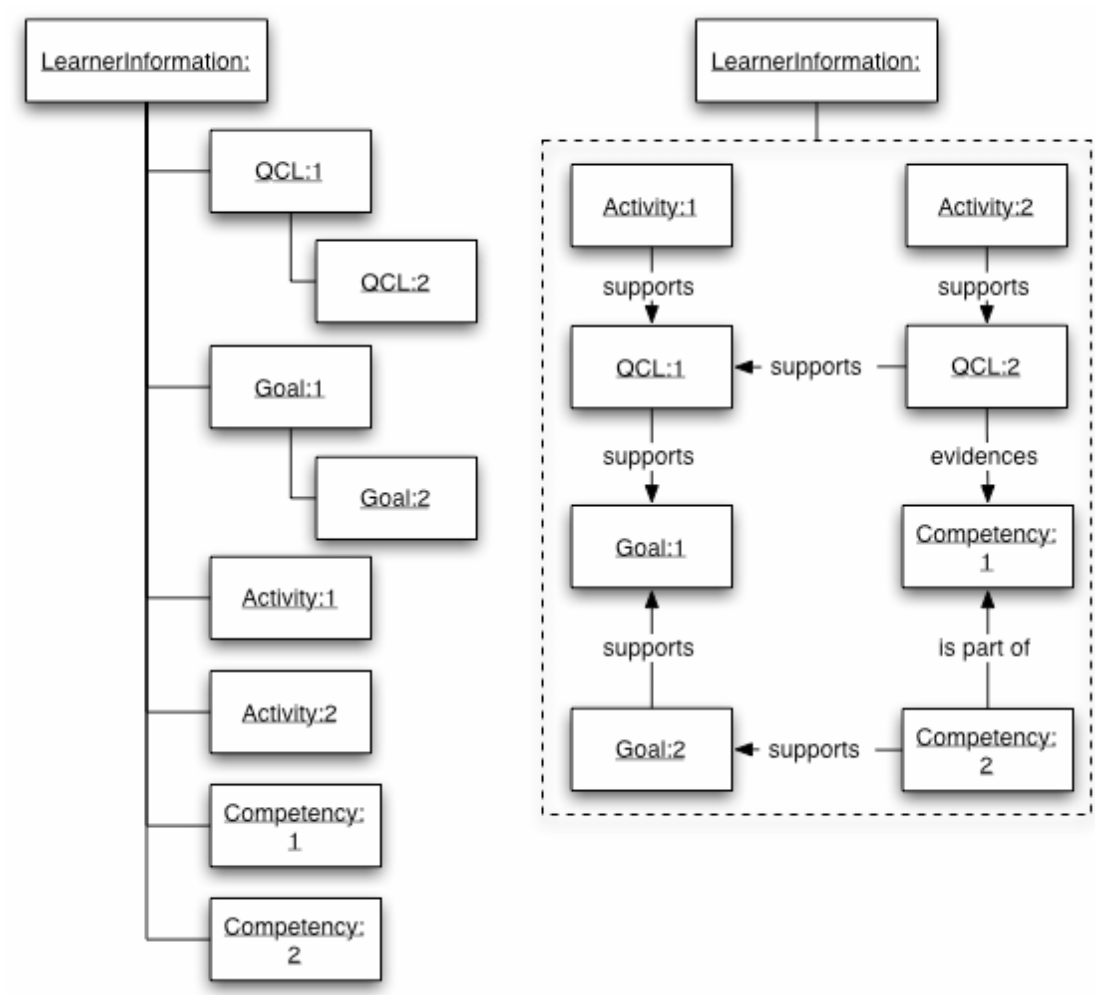


Figure 1 — Relationships between the core structures

5.1.2 Inclusion of the “Reflexion” and “Assertion” structures

If it is necessary to produce XML instances that validate against the appropriate XML schemas directly associated with DD 8788-3, instances of the “Reflexion” and “Assertion” structures should be represented within an “Extension” structure, and contained within an “ext_learnerinfo” part of the “LearnerInformation” instance (see 5.9).

5.2 Activity

5.2.1 General

The “Activity” structure is used to represent all kinds of activities in which the subject has participated, is participating, or plans to participate. There are many kinds of activities, of which educational activities are particularly important for learner profiles. Other kinds of activity are also of interest, and should be recorded where considered necessary. Recording activities is central to compiling evidence (“evidencing”), and vital to provide the material for later reflection or comparison.

The UML diagram in Figure 2 represents the specification of the composition of the “Activity” structure, as context for these recommendations.

Activity
typename [0..1]: TypeName comment [0..1]: Comment contenttype [0..1]: Content Type date [0..*]: Date status [0..1]: Status units [0..1]: Unit learningactivity [0..*]: LearningActivityRef definition [0..*]: Definition product [0..*]: Product testimonial [0..*]: Testimonial evaluation [0..*]: Evaluation description [0..1]: Description ext_activity [0..1]: Extension

Figure 2 — Activity expressed as UML

Several parts of the “Activity” structure offer ways of representing information specifically connected to educational activities. Some of the detail can be seen in the structure diagram in Figure 3.

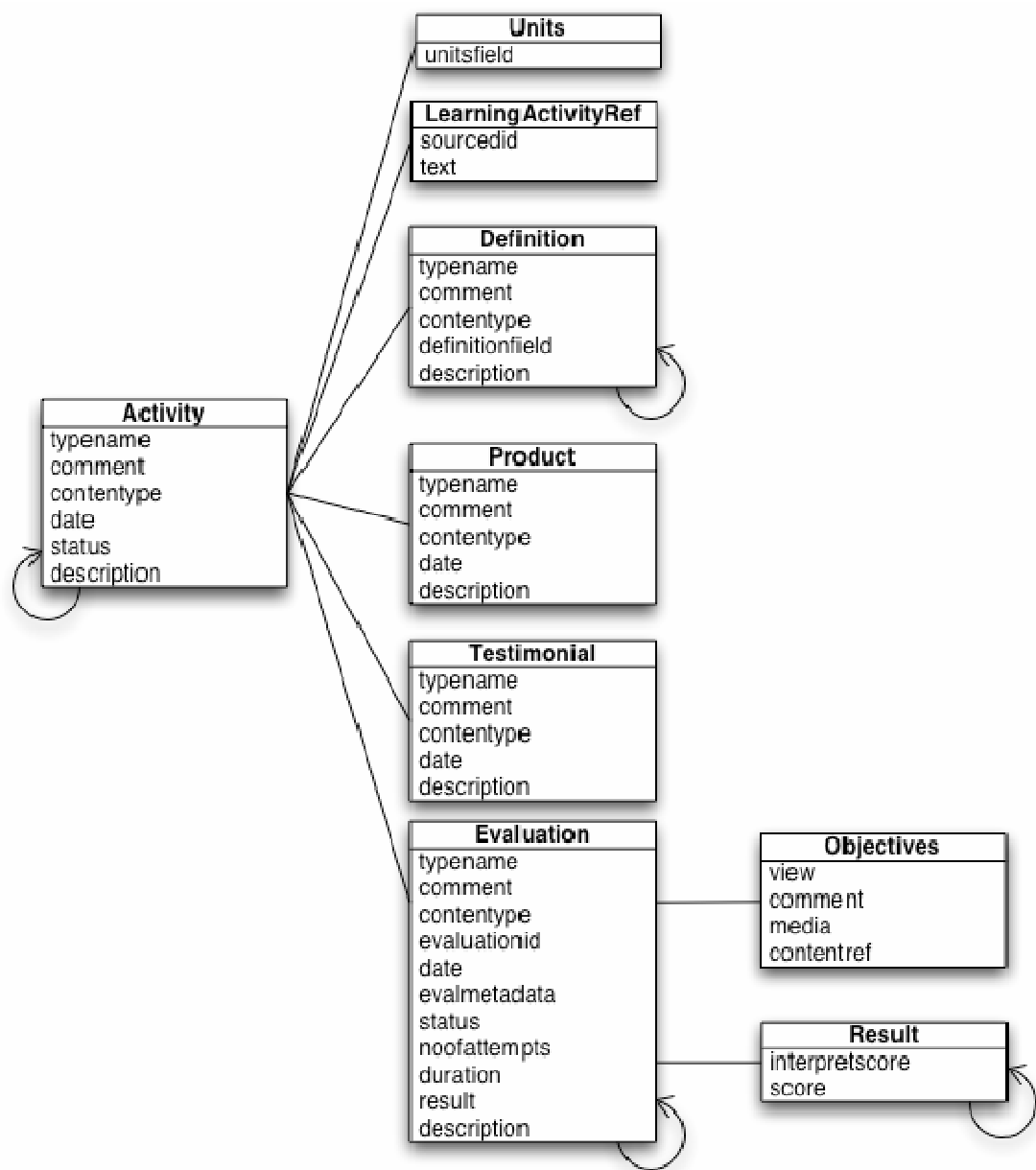


Figure 3 — Activity structure

5.2.2 *typename*

The type of the “Activity” instance should reflect the context in which the activity takes place, and should be the same as similar activities represented in the same system or other systems.

An “Activity” instance should be represented with the type “Work” if the activity is paid work, or if it is unpaid work experience of the type which would otherwise be paid.

An “Activity” instance should be represented with the type “Education” if the activity is primarily intended to be educational, either within the context of an educational institution or organization, or within the context of compulsory education.

An “Activity” instance should be represented with the type “Training” if the activity is part of a course of training in any competency, but is not considered to be “Education”.

An “Activity” instance should be represented with the type “Placement” if the activity is a work placement done as a required part of an educational programme or activity.

An “Activity” instance should be represented with the type “Development” if the activity is primarily intended for personal or professional development, involving the development of one or more competencies, but is not considered to be “Education”, “Training” or “Placement”.

An “Activity” instance should be represented with the type “Service” if the activity is voluntary and unpaid. This type should not be used to cover care, compulsory military or national service, slavery, or any kind of employment such as paid domestic service.

An “Activity” instance should be represented with the type “Personal” if the activity is undertaken for personal recreation or leisure, such as a sport, hobby, or activity connected with an interest.

An “Activity” instance should be represented with the type “Care” if the activity is unpaid caring where the care giver is taken to have some kind of responsibility for the person cared for, such as a family responsibility.

An “Activity” instance should be represented with the type “Productive” if the activity is simply an empty holder for a “Product” instance.

An “Activity” instance should be represented with the type “TimeSlice” if the activity represents a part of a greater activity, and the part is delimited by time rather than by any other natural division of the greater activity into its constituent parts. This should be used for temporally regular recording of information about an activity. A diary or log should be represented as a series of these activities if it is desired further to analyse the log entries in a way similar to the analysis of an activity. This representation should not be used if the records are reflective entries about activities documented separately in which case “Reflexion” instances should be used.

An “Activity” instance should be represented with the type “List” if there is a need to represent a list of activities, and that list cannot be separated

into its individual constituent activities. In this case, the range of activities covered by the list should be recorded in the description, short part, and the list itself given in the description, long part.

5.2.3 comment

The recommended general treatment of the comment part (see **5.13.2**) should apply.

5.2.4 contenttype

The recommended general treatment of the contenttype part (see **5.13.3**) should apply.

5.2.5 date

If an activity has already occurred, the starting and finishing dates should be recorded where available and have the types “Start” and “Finish”.

If an activity has credits awarded to it, the date of the awarding of credits for the activity should be represented with a date of type “Award”.

NOTE Where an activity is planned for the future, there might not be definite start and finish dates.

If the activity is part of a project plan, or similar structure, and there are limits on the possible starting and finishing dates, dates of types “EarliestStart”, “LatestStart”, “EarliestFinish” and “LatestFinish” should be used.

5.2.6 status

The status of the activity should have a standard type, which can then be thought of as a property of the activity.

Before its start, an activity should have a “Prospective” status; when in progress, “InProgress”; and when finished, “Completed”. An activity which has missed the chance of being completed, or which has been abandoned, should be given the status type “Expired”, representing the idea that the time available for its completion has expired.

5.3 Units

The “units” should be expressed as a unit name (the “UnitsField” “fieldlabel”) and a value (the “UnitsField” “fielddata”). There is no place for controlled vocabularies in the “Units” structure, so a unit name which is recognized and meaningful should be used. The “fielddata” part should contain a number, or string representing a numerical value.

Units should be used for whatever credit value is of most relevance to the activity, typically where an activity is performed in an educational context where a certain number of credit units are required to fulfil part of the requirements of some courses. They should be used where completion of the course itself results in the units being credited, independently of any performance by the learner or assessment of the learner’s performance.

5.4 LearningActivityRef

5.4.1 General

Used typically in an academic context, the “learningactivityref” holds the code at the relevant level for the activity, which can be a programme

code, a course code, a module code or a unit code, etc. A particularly useful case is where it is used for an activity defined in a catalogue available through a Web service.

The effective use of the `learningactivityref` part will depend on the provision, by an educational institution or other body, of a unique course identifier for the relevant managed or provided activities.

5.4.2 *sourcedid*

The reference of the `learningactivityref` is given in the `sourcedid` part, and within the `sourcedid` the `source` part should be used to uniquely identify the information source which holds details of the activity, and the `id` part should distinguish the activity in that context.

For example the `source`, or the whole `sourcedid`, could contain a URI which provided access to a course information server.

5.4.3 *text*

The `text` part of the `learningactivityref` should be used as a human-readable backup in case the `sourcedid` fails. Substantive information about the activity should not be placed here.

5.5 Definition

5.5.1 *Use for representation*

The `definition` part should represent the official definition of an activity as planned, e.g. an educational programme, course, module or unit, or specific procedure in the work context. It should not be used to represent the description of the actual occurrence of any particular activity instance.

The nesting of `Definition` structures should be minimal, especially where the activity is to be evaluated as a single entity.

EXAMPLE If a particular academic module has certain discrete topics associated with it, but those topics are not associated with separate activities or separate assessments, the topics could be represented as `Definition` sub-structures with type `Topic` nested within a `Definition` structure of type `Module`.

5.5.2 *typename*

The recommended general treatment of `typename` (see 5.2.2) should apply.

5.5.3 *comment*

The recommended general treatment of `comment` (see 5.2.2) should apply.

5.5.4 *contenttype*

The recommended general treatment of `contenttype` (see 5.2.2) should apply.

5.5.5 *description*

The recommended general treatment of `description` (see 5.2.2) should apply.

5.5.6 *definitionfield*

Any number of definitionfield parts should be used to give the detail appropriate to the definition, e.g. individual lectures in a lecture course, or individual steps in an administrative procedure.

As the “DefinitionField” structure contains simply “fieldlabel” and “fielddata” parts without any provision for controlled vocabularies, these should be co-ordinated if they are to be processed automatically and used interoperably.

5.6 Product

5.6.1 *General*

The “product” part, expressed using the “Product” structure, is used to contain information about works created, or partly created, by the learner.

Such created products can include works of art, essays or literary works, physical objects that have been crafted by the learner, and digital works including any kind of software. Products are not necessarily enduring: an event can be represented as a product, and a performance that is directed or orchestrated by the learner can be best represented as a product.

If a product is entirely associated with exactly one activity, it can be represented within an activity as specified by DD 8788-3. This will be changed if the underlying information model is changed so that products come to be represented as top-level structures.

NOTE It is envisaged that in a future release of DD 8788 and related standards and specifications, the “Product” structure will be moved to take its place as a core structure alongside “Activity” and the others.

The parts of the “Product” structure are used similarly to their use in other structures. The “comment”, “contenttype” and “description” parts are used as if “Product” is a core structure, in accordance with the general recommendations.

There is no controlled vocabulary proposed for use in product instances. Whether products are embedded in activities, or related to them by relationships, much of the context and significance of the products will come from the related activity.

5.6.2 *date*

Where available, the dates relevant to the product should be recorded. If the start and finish of the creation process, event, or performance, are recorded, dates of type “Start” and “Finish” should be used to represent, respectively, the date at which the product is initiated, and the date it is completed. If these are not available, a date of type “Create” should be used. If the product is durable but then destroyed, a date of type “Delete” should be used. A date of type “Update” should be used to represent modifications to the product itself, not to the records about it.

Modifications to the record rather than the product itself should be represented in temporal metadata within the “contenttype” part.

5.6.3 *typename*

The recommended general treatment of *typename* (see 5.2.2) should apply.

5.6.4 *comment*

The recommended general treatment of *comment* (see 5.2.2) should apply.

5.6.5 *contenttype*

The recommended general treatment of *contenttype* (see 5.2.2) should apply.

5.6.6 *description*

The recommended general treatment of *description* (see 5.2.2) should apply.

5.6.7 *Structural relationship of products to activities*

NOTE 1 Some products may be the direct result of a single activity which is represented in the learner profile, while other products may be either the result of more than one represented activity, or the result of some activity which is not represented.

If there is not exactly one related activity, the product should be represented within an otherwise empty activity, and that activity should be given the special type “Productive”, indicating that it should be kept devoid of other information.

NOTE 2 This approach can also be taken if there is just one associated activity.

Any associated activity that contributed to the product but whose instance does not actually contain the product instance, should be linked to the product by means of a relationship of type “Supports”, where the activity “Supports” the product.

NOTE 3 If there is exactly one activity which is wholly responsible for the creation of the product, then alternatively the product can be represented within the relevant “Activity” instance.

5.6.8 *product metadata*

The same metadata should be associated with a product as would be the case were it represented as a core structure.

Where the product is created by other people as well as the learner, this fact should be recorded in any suitable metadata associated with the product.

5.6.9 *Relationships involving products*

NOTE 1 The relationships in which a product “Supports” an activity is described in 5.3.10.3.

NOTE 2 A product can be evidence of an activity, with a relationship of type “Evidences”, or of a competency.

If it is seen as positive evidence, there should be a relationship of type “Evidences” from product to competency. If it is seen as negative evidence, revealing a lack of the competency, a similar relationship should have the type “ShowsUp”.

5.7 Testimonial

The “testimonial” part should not be used, because its functionality is better covered by the “Assertion” structure (see 5.15), which allows one testimonial or similar text to refer to any number of activities. The instance of “Assertion” should be accompanied by one or more relationships of type “Attests”.

5.8 Evaluation

5.8.1 General

The “evaluation” part contains information about any formal evaluation of the containing activity. A separate “evaluation” part is used for each distinct evaluation.

This structure is capable of supporting the summary results that would be obtained from an examination based upon the IMS QTI specification [6].

Informal evaluations that can be represented as a single block of text should rather be represented using “Reflexion” or “Assertion” structures (see 5.9).

The “comment” and “contenttype” parts are treated according to the general recommendations.

The UML diagram in Figure 4 represents the specification of the composition of the “Evaluation” structure, as context for these recommendations.

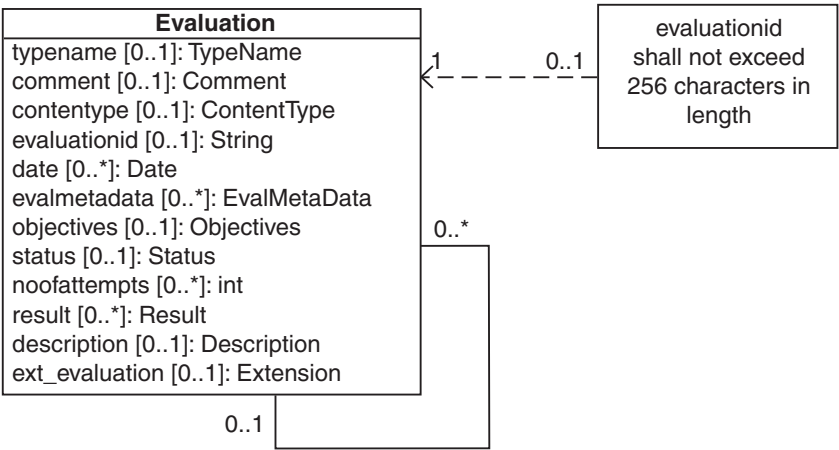


Figure 4 — Evaluation expressed as UML

5.8.2 *Typename*

The type of evaluation should correspond to any formal type defined in relation to a VLE or other learning technology system, e.g. (for IMS QTI) QTI_Assessment, QTI_Section, QTI_Item).

NOTE No controlled vocabulary of these terms has been agreed at the time of preparing this Draft for Development.

5.8.3 *evaluationid*

The “evaluationid” should contain the identifier assigned to the evaluation. If an evaluation taken from IMS QTI is represented, the identifier should be the same as that assigned to the relevant component referred to in IMS QTI as “ASI”.

5.8.4 *date*

If available, the date at which the evaluation processes involving the learner started should be represented by a “date” of type “Start”, and the date at which the evaluation processes involving the learner finished by a “date” of type “Finish”. A “date” of type “Effective” should be used to represent the date at which the whole evaluation process was completed. If the evaluation results directly in an award, the date of the award should be represented by a “date” of type “Award”.

5.8.5 *evalmetadata*

The “evalmetadata” should be used to hold the groups of metadata that are directly associated with the evaluation mechanism. If an evaluation taken from IMS QTI is represented, the “evalmetadata” should be used to store the corresponding metadata known in IMS QTI as “ASI metadata”.

5.8.5.1 *objectives*

The “objectives” should be used to hold the objectives of the evaluation.

NOTE There are no detailed recommendations here for the use of the “objectives” part, though it would be reasonable to try to ensure that the information held is compatible with other specifications that represent objectives of evaluation, such as IMS QTI [6].

5.8.6 *status*

If the status of an evaluation is significant, it should be represented using a standard type in the “typename” part of the “Status” structure. An evaluation in progress should have the status “InProgress”. A completed evaluation should have the status “Completed”. An evaluation that has not yet been started should have the status “Prospective”.

5.8.7 *noofattempts*

The “noofattempts” part of an evaluation should hold an integer giving the total number of times the containing activity has been attempted. If the definition of the activity has substantially changed, the number should not be carried over the change.

5.8.8 *duration*

The “duration” part of an evaluation should hold information about the duration of the evaluation of the activity.

5.8.9 *result*

The “Result” structure comprises “interpretscore” and “score” parts, so the “result” part of an evaluation should hold the actual score, which can be numerical or otherwise in the “score” part, while any other information to help in the interpretation of the score or explain its significance should be held in the “interpretscore” part.

The “result” part should have nested “result” parts within it only if the containing evaluation has parts which are separately scored. A nested result structure should not be used to represent the results of nested evaluations, or nested activities.

5.8.10 *Nesting of evaluations*

Evaluations should only be nested where an evaluation of an activity is composed of a number of sub-evaluations, and not to contain evaluations of separate activities which are parts of the containing “Activity” structure.

5.8.11 *description*

The “description” part of the evaluation should be used to provide a back-up in case the structured representation of the evaluation cannot be interpreted.

In the case where the only part of the evaluation used is the description, a “Reflexion” or “Assertion” structure should be used instead, which allows one piece of text to cover the evaluation of more than one activity, and allows the authorship of the “Reflexion” or “Assertion” instance to be represented.

5.8.12 *Nesting of activities*

In the case of related activities where one activity is strictly a part of another activity, and where simplicity of processing the structures is the highest priority, it is recommended that the lesser activity is represented as contained within the greater activity.

NOTE 1 When representing a structured programme of activities, such as is done for an HE Transcript or Diploma Supplement, it is possible to use nested activities, even where the lesser activities themselves (such as modules) are not uniquely part of the greater activities (such as the whole programme of study).

NOTE 2 If an activity hierarchy is output by a system (e.g. administrative) representing a transcript, Diploma Supplement, etc., an interoperating system (e.g. e-portfolio) receiving the information could store this in a form compatible with the non-hierarchical structure using relationships, by representing the implicit relationships explicitly as if they had been given as “IsPartOf”, together with reproducing any information that is inherited through the hierarchy into each separate “Activity” instance.

In all other cases, activities should not be represented as nested within other activities. The relationships between activities should instead be represented in “Relationship” structures. Where one activity is a part of more than one greater activity, relationships should be represented so that the lesser one “IsPartOf” the greater ones.

5.8.13 *Relationships involving activities*

Where an “Activity” instance represents the activity which is designed and undertaken to result in an achievement such as a qualification or certificate, there should be a “Relationship” instance of type

“Supplements” between the “Activity” instance as source and the “QCL” instance as destination.

If any action planning is represented in the profile, the relationships between activities and between goals and activities should be represented. Where activities contribute to other items, relationships of the type “Supports” should be represented, where the “Activity” instance is the source and the other item the destination. Where one limited activity is a part of a greater activity, their relationship should be represented so that the limited activity “IsPartOf” the greater activity, the destination.

5.9 Affiliation

5.9.1 General

The “Affiliation” structure contains information about the affiliations of the subject, that is, organizations to which the subject belongs, has belonged or will belong, or organizations with which the subject is registered, either as a matter of obligation, or to receive some benefit or service.

There is increasing flexibility in the privileges associated with, and services provided by, affiliations of different kinds, and they no longer fall into clearly distinguishable categories in those terms. Thus, all affiliations of any kind can be represented with the “Affiliation” structure.

Because the “Activity” structure does not have a place for the organization, records of the organization managing or providing the activity have to be kept in an “Affiliation” instance, linked to the activity by a “Supports” relationship.

Affiliation does not imply support for or alignment with the organization.

The UML diagram in Figure 5 represents the specification of the composition of the “Affiliation” structure, as context for these recommendations.

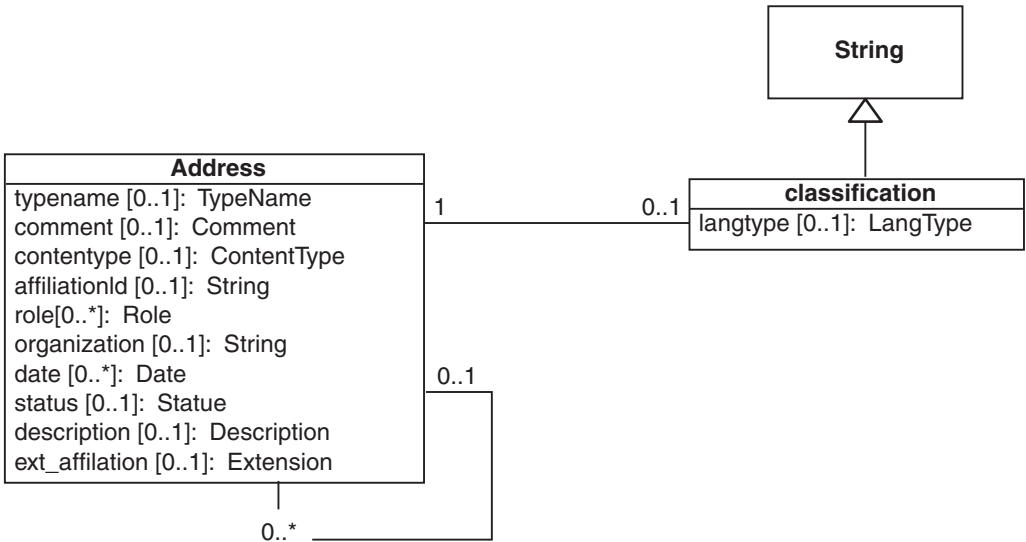


Figure 5 — Affiliation expressed as UML

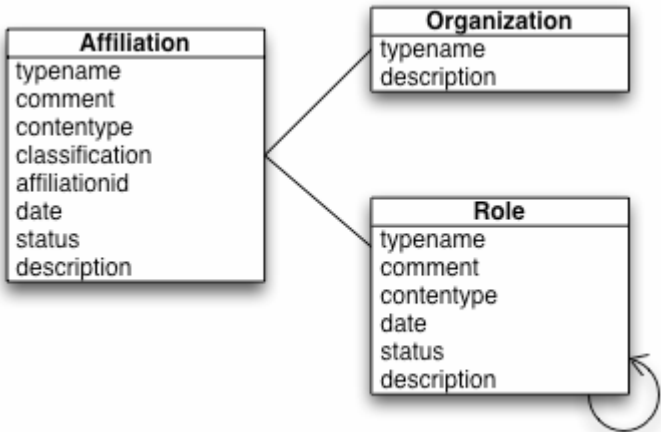


Figure 6 — Affiliation structure

5.9.2 *typename*

The type of the “Affiliation” should reflect the area of life in which the affiliation is relevant to the subject.

An “Affiliation” should be represented with the type “Employment” when the subject is an employee of the organization.

An “Affiliation” should be represented with the type “Educational” when the organization is an educational institution where the subject is educated.

An “Affiliation” should be represented with the type “Professional” when the organization is a professional body of which the subject is a member.

An “Affiliation” should be represented with the type “Personal” when the subject is a member of a club, society or similar organization for leisure or recreational purposes, or where the subject has voluntarily registered for a service which is not officially required.

An “Affiliation” should be represented with the type “Official” when the subject is registered with a body for administrative purposes, and the affiliation is not also of another type.

NOTE Where the relationship with the organization is just for the awarding to the subject of qualifications, certificates, or licences, it could be more convenient to hold this information in the “organization” part of the “QCL” instance, rather than in a separate affiliation.

5.9.3 *comment*

The recommended general treatment of comments (see 5.13.2) should apply.

5.9.4 *contenttype*

The recommended general treatment of the contenttype part (see 5.13.3) should apply.

5.9.5 *classification*

The “classification” part should not be used. Instead, the “role” part should hold any relevant information (see 5.9.7).

5.9.6 *affiliationid*

The “affiliationid” should contain the number or code associated with the subject by the organization.

5.9.7 *role*

5.9.7.1 *General*

A subject can potentially have several distinct roles within an overall affiliation, at the same time. The role parts can specify which roles are active for which dates. The information about roles in organizations or corporate entities is an important aspect of a learner profile.

The “comment”, “contenttype” and “description” parts should be treated according to the general recommendations (see 5.13).

NOTE No controlled vocabulary for the “typename” part has yet been agreed.

5.9.7.2 date

The date on which the role begins should be represented with a date of type “Start”, and if it has ended, the date on which it finishes should be represented with a date of type “Finish”. If the start and finish dates are not known, then any single date for which the role is active should be represented with a date of type “Effective”.

5.9.7.3 status

If the status of a role is significant, it should be represented using a standard type in the “typename” part of the “Status” structure. An “Active” role should be one that is currently engaged with, that is, the subject undertakes activities relevant to the role. A “Retired” role should be one where the subject used to perform the role but has retired from that post. A role that has not yet been started should have the status “Prospective”, as when the subject has been elected to a position but not yet taken office.

5.9.8 organization

The “organization” part should contain identifying details of the organization. The “short” part of the “description” should contain the name of the organization (institution, company or other body), and the “long” part of the “description” should contain any more detailed description, together with any address or contact details.

NOTE The “Organization” structure (see DD 8788-3, 6.15) has no component parts designed to hold such details as address or contact details. This means that if contact details are to be included, they will have to be put into the description part of the organization part, and will therefore not be generally interoperable.

5.9.9 date

The date on which the overall affiliation begins should be represented with a date of type “Start”, and if it has ended, the date on which it finishes should be represented with a date of type “Finish”. If the start and finish dates are not known, then any single date for which the affiliation is active should be represented with a date of type “Effective”. If the affiliation as a whole is subject to recurrent expiry and renewal, the most recent date on which the affiliation was renewed should be represented with a date of type “Renewal”, and the next date on which the affiliation will expire should be represented with a date of type “Expiry”.

5.9.10 status

The status of the affiliation should have a standard type, which can then be thought of as a property of the affiliation. An “Active” affiliation should be one that is currently engaged with, that is, the subject undertakes activities relevant to the affiliation. A “Retired” affiliation should be one where the subject used to be affiliated but has retired from situations where the affiliation would be relevant. An “Expired” affiliation should be one where the affiliation has been lost through expiry. An “Inactive” affiliation should be one where the subject is not undertaking any activities relevant to the affiliation. A “Pending” affiliation should be one where the subject has applied for the affiliation as a whole, but a decision has not yet been reached by the organization on whether to accept the subject.

5.9.11 description

The recommended general treatment of description parts (see **5.19.4**) should apply.

5.9.12 Nesting of affiliations

Affiliations should only be represented as nested within other affiliations where the possibility of one affiliation is completely dependent on the existence of another affiliation. Otherwise, where one affiliation contributes to a second affiliation, the relationship should be represented as being that the first one “Supports” the second.

5.9.13 Relationships involving affiliations

Where an affiliation is regarded as instrumental in the creation, achievement or undertaking of something else within the learner profile, a “Relationship” instance of type “Supports” should be recorded to relate the affiliation as source to the other part as destination.

EXAMPLE In an educational context, a common example will be that an affiliation supports an activity (e.g. a course) if it provides or manages that activity, and supports a qualification if it provides the educational programme that leads to that qualification.

5.10 Competency**5.10.1 General**

The “Competency” structure represents any activity-related characteristic of the subject such as knowledge, skill, ability, attitude, behaviour, physical ability, and personal quality. These are central to a learner profile. They can comprise much of both what individuals want to provide evidence for, and what they want to display to such people as admissions departments of educational institutions, potential employers, clients, partners, or even employees.

Educational institutions are concerned both with specific competencies within the subject areas taught, and general competencies that are related to further study and employment. They can each have their own models and frameworks for these competencies.

One way of documenting competency definitions is with the IMS specification for the Reusable Definition of Competency or Educational Objective (RDCEO: <http://www.imsglobal.org/rdceo/>). But it is possible to document a competency in many ways, and this is allowed through the “exrefrecord” part.

Learners might want to develop competencies in areas which are not covered by the framework of their educational institution, and either not defined formally, or not thus defined in a way that is acceptable to the learner.

“Competency” instances have no type, and are not nested.

EXAMPLE A European body establishes a registry of competences providing detailed descriptions and relationships to other competences, in all main European languages. A URI in the “exrefrecord” part of the “Competency” structure links to the definition of this competency within the registry. Thus a reader of the profile can understand the nature of the

competency claimed, without the learner having to detail it in the profile itself.

The UML diagram in Figure 7 represents the specification of the composition of the “Competency” structure, as context for these recommendations.

Competency
comment [0..1]: Comment
contenttype [0..1]: ContentType
exrefrecord [0..1]: ExRefRecord
description [0..1]: Description
ext_competency [0..1]: Extension

Figure 7 — Competency expressed as UML

5.10.2 *comment*

The recommended general treatment of comments (see **5.13.2**) should apply.

5.10.3 *contenttype*

The recommended general treatment of the contenttype part (see **5.13.3**) should apply.

5.10.4 *exrefrecord*

Where the competency is defined externally to the learner profile, a reference to it should be given in the “exrefrecord” part, e.g. a definition file in an appropriate format, referenced by URI; a Web page, referenced by URI; a document, referenced by URI, or if it is packaged with the learner profile, referenced internally.

Where possible, definitions referenced by other profile systems should be used to maximize the interoperability of those systems i.e. the same definitions should be used to represent competencies that are effectively the same.

5.10.5 *description*

In cases where the “exrefrecord” part is not used, the “description” part should be used.

NOTE The “description” part can also be used to supplement the “exrefrecord”.

The “short” part of the “description” should hold a short description of the competency, suitable for displaying in lists. The “long” or “full” part of the description should hold a detailed description of the competency.

5.10.6 *Relationships involving competencies*

Where a competency possessed by the subject at the time positively affects the performance of an activity, a relationship should be represented as the source competency “Supports” the destination activity.

If a competency is part of a larger competency, a relationship should be represented with the type “IsPartOf”.

NOTE If competencies are represented externally (such as by the RDCEO specification) there may be externally defined relationships between them. These are beyond the scope of these recommendations, but attention is drawn to the possibility of conflict between such externally-defined relationships and ones defined within the learner profile.

If a competency contributes or helps towards a goal, a relationship should be represented as the source competency “Supports” the destination goal.

If a competency is in the field of an interest, a relationship should be represented as the source competency “Evidences” the interest destination.

If a competency contributes or helps towards a qualification, certificate, licence, or other achievement, a relationship should be represented as the source competency “Supports” the destination achievement.

5.11 Goal

5.11.1 General

The “Goal” structure can be used to represent any kinds of goals of the subject, including those which have been completed, so that the goal can be compared with the actual achievement, which might be different, or be represented differently. Goals have a vital role in action planning, and comparing goals with what is actually achieved is an important source of feedback towards personal or professional development.

Careful distinction should be made between goals, which should represent future situations which are aimed for, and the actual achievement, qualification, product, competency, or whatever it is that is aimed for. In making this distinction, it can be helpful to note the specific criteria for success of the goal, and any time constraints.

The UML diagram in Figure 8 represents the specification of the composition of the “Goal” structure, as context for these recommendations.

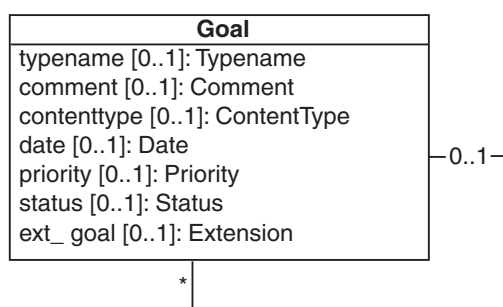


Figure 8 — Goal expressed as UML

5.11.2 *typename*

The type of the “Goal” should reflect the context in which the goal is set and worked towards, e.g. “Work” and “Education”. “Personal” goals can be used to represent goals related to sports, hobbies or interests.

A “Goal” should be represented with the type “Development” when it is primarily aimed at personal, professional or career development. This

might overlap particularly with “Education” type goals, and consistent decisions should be made on which examples to represent as each type.

If there is a case in action planning for representing an obstacle (where there is an implied goal to overcome or circumvent the obstacle) this should be represented with a “Goal” of type “Obstacle”, and the obstacle itself should be described in place of the goal.

If it is necessary to represent a list of goals which cannot be distinguished into individual goals, the type “List” should be used, and the description of the “Goal” should hold the list. In this case, the short description of the “Goal” should describe the collection of goals, and its long description should give the list itself.

5.11.3 *comment*

The recommended general treatment of comments (see **5.13.2**) should apply.

5.11.4 *contenttype*

The recommended general treatment of the contenttype part (see **5.13.3**) should apply.

5.11.5 *date*

If the information is available, the target date of completion should be represented with a date of type “Target”, and if it has been completed, the actual date of completion should be represented with a date of type “Finish”.

5.11.6 *priority*

As there is no provision for a typename for the “priority” part, the interoperable aspect of priority should be regarded as a representation of just the ordering of the set of goals within one profile. This should be done by representing the priority as a number, with a lower number representing a more important goal. The same number should be used to represent goals of equal priority.

NOTE 1 Any numbers can be used which preserve the rank ordering, e.g. “1” to mean highest priority, “2” to mean high priority, “3” to mean medium priority, “4” to mean low priority, “5” to mean lowest priority.

NOTE 2 This means that priorities are only comparable between different learner profiles by agreement of a specific mapping.

5.11.7 *status*

The status of the goal should have a standard type, which can then be thought of as a property of the goal. An “Active” goal should be one that is actively being pursued or aimed at. A “Completed” goal should be one that has been completed to the satisfaction of whoever set the goal. An “Inactive” goal should be one that could be sought, but is not currently determining any choices of action, including one that is under consideration but has not been adopted. A goal which has missed the chance of being completed, or which has been abandoned, should be given the status type “Retired”.

5.11.8 *description*

The recommended general treatment of descriptions (see 5.13.4) should apply.

5.11.9 *Nesting of goals*

Goals should not be represented as nested within other goals. The relationships between goals should be represented in “Relationship” structures. Where one goal contributes to a greater goal, the relationship should be represented as that the lesser one “Supports” the greater.

5.11.10 *Relationships involving goals*

If any action planning is represented in the profile, the relationships between goals and between activities and goals should be represented. The case of other items contributing to goals should be represented as relationships of type “Supports” from the other item as source to the “Goal” instance as destination. Where one goal is a sub-goal of a greater goal, the relationship should be represented as that the lesser one as source “Supports” the greater as destination.

Where a goal is conceived primarily as the achievement of a competency, qualification or other kind of achievement, or as the completion of a product, a relationship should be represented or type “AimsAt”, so that the goal “AimsAt” the other thing.

5.12 Identification

5.12.1 *General*

The “Identification” structure is rather disparate, holding together straightforward name, address and contact details on the one hand, with various details called “demographics” and information about agents of the learner.

Provision is made for multiple names, either all in one piece, or broken down into parts. Provision for addresses now includes a structure to hold addresses in the form in which they are most often encountered in current databases: a series of undifferentiated lines. This is the “formaddress” part.

The UML diagram in Figure 9 represents the specification of the composition of the “Identification” structure, as context for these recommendations.

Identification
comment [0..1]: Comment
contenttype [0..1]: ContentType
formname [0..*]: FormName
name [0..*]: Name
formaddress [0..*]: FormAddress
address [0..*]: Address
contactinfo [0..*]: ContactInfo
demographics [0..*]: Demographics
agent [0..*]: Agent
ext_identification [0..1]: Extension

Figure 9 — Identification expressed as UML

5.12.2 comment

The recommended general treatment of comments (see **5.13.2**) should apply.

5.12.3 contenttype

The recommended general treatment of the contenttype part (see **5.13.3**) should apply.

5.12.4 formname

The “formname” should hold any formatted names that are wanted in the profile, that is, any name represented as a whole in a single text field, in the form in which it is expected to be used, e.g. full name; former name.

The “formname” should use the same controlled vocabulary in the “typename” part as does the “name”.

The “comment” and “contenttype” parts of the “formname” should be treated according to the general recommendations (see **5.13**).

5.12.5 name**5.12.5.1 General**

The “name” part holds names in a structured fashion, that is, each component of each “name” part is held separately in a “partname” part.

The “comment” and “contenttype” parts of the “name” are treated according to the general recommendations (see **5.13**).

5.12.5.2 typename

The current main full name of the subject should be represented by a name of type “Full”. This should be the full, legally recognized name.

Any former names should be represented with names of type “Former”.

NOTE A former name held as a child and changed upon marriage can be represented with the type “Maiden”.

Any aliases should be represented with names of type “Alias”.

If the subject has a preferred name, for instance for authorship, this should be represented with type “Preferred”.

5.12.5.3 partname

Each “partname” should represent a distinct part of the name. The type of part should be represented within a “typename” part of the “partname” by the standard controlled vocabulary.

A “partname” of type “Surname” should be used for the subject’s surname or family name.

A “partname” of type “Given” should be used to represent all the subject’s forenames together.

A “partname” of type “Nickname” should be used to represent a single name as used by friends.

A “partname” of type “Prefix” should be used to represent any desired title which occurs before the other parts of the name.

5.12.6 *formaddress*

If information about a particular address is stored in differentiated parts, an “address” part should be used rather than the “formaddress”.

Each “formaddress” should contain a postal address divided into separate address lines, where there is no fixed correspondence between particular lines and the logical parts of the address.

The “comment” and “contentype” parts of the “formaddress” should be treated according to the general recommendations.

The “formaddress” should use the same controlled vocabulary in the “typename” part as does the “address”. Where the “formaddress” is supplemented by some parts of the address appearing separately (typically the postal code and country) the typename for the “formaddress” should match the typename for the “address”.

Any “formaddress” parts should be represented within an “ext_identification” part.

5.12.7 *address*

5.12.7.1 *General*

The “address” parts hold structured addresses. The use of most parts of the “address” is clear from the definitions given in DD 8788-3, and no extra recommendations are necessary here.

Even where the address is otherwise unstructured, it might be desired to hold any postal code separately. In this case the relevant address part works together with the formaddress of the same type.

5.12.7.2 *typename*

The “address” should have a “typename” part which indicates its type. Not more than one address of each type should be recorded. If extra addresses are needed, beyond those provided in the standard vocabulary, non-standard “typename” parts should be used.

An “address” of type “Domicile” should be used to represent the officially registered domicile of the subject.

An “address” of type “BirthPlace” should be used to hold any relevant recorded details of the place of birth.

NOTE Domiciles and places of birth can be just countries, or more detailed.

5.12.7.3 *street*

The “street” part of the “address” should contain the most local part or parts of the postal address.

If the most local parts of the address are held in a highly structured form, with the parts of the street differentiated, the corresponding parts of the “Street” structure should be used.

If those parts of the address are not so held, the “nonfieldedstreetaddress” part should be used.

If the whole address is held in the common form in which the city, etc. is held separately, differentiated from the more local parts of the address, all

those more local parts should be held together in the “nonfieldedstreetaddress” part.

NOTE If this is done that means that the “nonfieldedstreetaddress” part will cover the whole of the street part, and can also cover what would have been stored in the “locality” part of the address.

5.12.7.4 *geo*

NOTE The “Geo” structure of the DD 8788-3 specification does not conform to ISO 6709.

If it is desired to have a geographical part which conforms to ISO 6709, it is recommended to put a conformant string directly in the “geo” part, and not to use the smaller parts “lat” and “long”.

5.12.8 *contactinfo*

The “contactinfo” parts should contain information about effective methods of contacting or finding more information about the subject, using any kind of means other than physical delivery (which is covered in the “address” and “formaddress” parts). This information should be grouped together according to the type of contact.

Where possible, the standard types should be used within the “typename” part of the “contactinfo”, that is, “Work”, “Private” or “Campus” if those are differentiated, or “General” if not. If it is desired to represent other types of contact information, non-standard terms should be used in the “typename” part.

The “comment” and “contentype” parts of the “contactinfo” should be treated according to the general recommendations (see **5.13**).

For telephony contact information, including telephone, facsimile, pager, mobile and text messaging, the number parts should be represented so that any complete number, composed of a “countrycode”, “areacode” if applicable, and “indnumber” should allow successful operation from any country when prefixed by their international access code. No punctuation of any kind should be used within these numbers.

The “countrycode” should be represented in all cases, and this should conform to the current recommendations of the International Telecommunication Union [8].

The “areacode” (code that does not need to be dialled from another subscriber sharing the same area code) should be represented if it is appropriate. The area code should not include any digit which is not used in conjunction with the country code.

An “extnumber” part should be used for an extension number which is not to be dialled along with the indnumber, and which can be used from inside the relevant private exchange.

NOTE An “extnumber” can be used whether or not the apparatus can be reached by direct dialling from outside the private exchange. If the “indnumber” part connects directly, the “extnumber” represents the number to be dialled within the private exchange.

5.12.9 *demographics*

5.12.9.1 *General*

Each “demographics” part represents a disparate collection of information. A good way of thinking about it is as a composite snapshot of

varied identification details at a certain time. One main “demographics” part should be represented, with current information. This should be distinguished as having the most current date, and should be as full a record as is available, including date of birth. Other previous “demographics” parts can be stored, for instance as a method of keeping old identification photographs and numbers from previous walks of life, and these need not be full.

One advantage of the representation of demographics in this way is that it allows the subject’s gender to be different in different walks of life.

However, the “demographics” part has no location for some information normally regarded as demographic, such as marital status, number of children, ethnicity, etc. If these are required to be represented, they should be as extensions.

The UML diagram in Figure 10 represents the specification of the composition of the “Demographics” structure, as context for these recommendations.

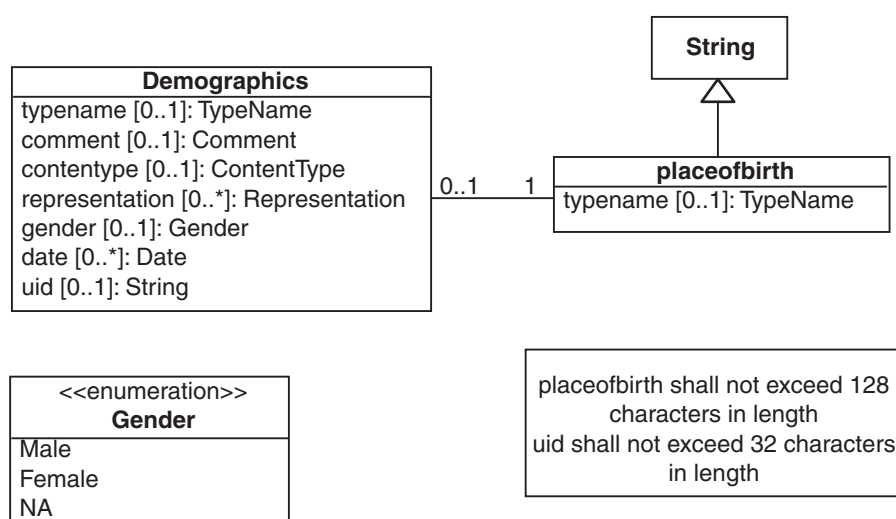


Figure 10 — Demographics expressed as UML

5.12.9.2 *typename*

The “typename” part should be used to represent the walk of life in which the subject is at the time of the collection of the demographic information.

5.12.9.3 *representation*

The “representation” parts should contain any photographs, voice prints, etc. either current, or relating to the particular walk of life of the containing “demographics”. The “date” part of the “representation” should contain the date at which the representation was created, and should not contain a type.

5.12.9.4 *date*

The “date” part of the “demographics” should contain a date representing the date at which the information was last verified as being, or believed to be, current. This part should not contain a type.

5.12.9.5 *placeofbirth*

It is recommended that this should not be used. Instead, an “address” part should be used, of type “BirthPlace”.

5.12.9.6 *uid*

NOTE 1 “uid” is a common abbreviation for a unique or user identifier.

It is recommended that this part should not be used.

NOTE 2 There is typically not exactly one unique identifier associated with any individual in any particular time.

NOTE 3 The “Demographics” structure does not contain parts properly adapted to represent the name of an organization with which the uid is associated.

For a unique identifier associated with the subject for the institution maintaining the learner profile, an identifier should be recorded in the “contenttype” part of the “LearnerInformation” instance.

Unique identifiers for all other organizations and bodies should be recorded either as an “affiliationid” part of a relevant “Affiliation” instance, or as a “registrationno” part of a relevant “QCL” instance.

5.12.10 *agent*

The “agent” parts should contain information about agents of the learner, each of which should have its own type represented in a “typename” part. Where applicable, type names should be chosen from the standard controlled vocabulary.

The “comment”, “contenttype” and “description” parts of the “agent” should be treated according to the general recommendations.

If it is desired to specify a domain of competence of the agent, this should be represented in the “agentdomain” part of the “agent”.

5.12.11 *ext_identification*

The “ext_identification” part should be used to contain any “formaddress” parts.