

MHeL

Transfer of Innovation

Millenium Hospital / E-Learning

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List of Abbreviations

MHeL: Millenium Hospital e-Learning |

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1 Introduction

1.1 Introduction

Millenium Hospital e-Learning Project (MHeL) is an ongoing European project to develop an innovative program of continuing medical education (CME) in the field of minimally invasive endoscopic gynecological surgery. The scope is to implement an e-learning platform that will host interactive CME events in the form of virtual simulations of reality (i.e. serious games). MHeL integrates scientific content, provided by the Italian Society of Gynaecological Endoscopy (SEGI)/P0 and affiliated partners, the two Italian societies of Gyneacology (AOGOI/P4 and SIGO/P5), with the experience and technologies developed in two completed EU projects ("Mirror" and "mEducator").

MHeL will be a module-based, open-learning type of platform where individual learners trace their own training path according to their competences and needs. In its developmental stage, MHeL will first undergo dynamic testing by all project's partners for technological functionality. It will then be pilot-tested for usability with a select sample of health professionals. When all tests are satisfactory, the e-learning platform will be presented to the Italian and European CME Authorities.

1.2 Description and objectives of the mEducator project

Educational material for medical education is available in EU academic institutions, although it is not easy to discover and retrieve it due to lack of standardised content sharing mechanisms. Institutions, to support their teaching, often use a variety of web-based Learning (Content) Management Systems (LCMS). The aim of the mEducator project (www.meducator.net), a project funded by the eContentPlus Programme, was to implement standards and models in the field of e-learning in order to enable specialized state-of-the-art medical educational content to be discovered, retrieved, shared and re-used across European higher academic institutions.

The mEducator consortium consisted of 14 partners, representatives of 9 EU member countries, which acted in close collaboration towards the objectives of the project. Some partners, mainly Medical Schools, acted as content providers of educational content for medical education, while others as technology providers who provided state-of-the-art technological solutions or expertise for sharing and repurposing of multi-type content in medical education. There were also partners who acted as pedagogic experts and/or users and played a major role in the project evaluation of the sharing solutions and the specification of recommendations.

Specific objectives of the mEducator project included:

- implement and extend specifications and standards on a critical mass of medical educational content and provide recommendations for standards adoption and promotion across Europe;
- implement learning resource discovery and retrieval specifications, standards and commonplace technologies, to facilitate the seamless exchange of existing medical

education content over the web, supporting semantic interoperability, and content discovery and retrieval management;

- support the efficient and seamless sharing and use of formal, specialized, state-of-the-art and pedagogically sound medical educational content across Europe;
- compare best practice solutions referring to both user generated and professional generated content;
- utilise open educational resources and provides an opportunity to compare practices of standardising Web2.0 content alongside with Medical Research Academic content for educational purposes;
- experiment with the impact on technology enhanced user interaction and community learning (Web2.0);
- builds upon previously funded research and experience while involving new member states and quite good geographic coverage and aimed impact.

As a Best Practice Network, mEducator has developed and compared two alternative and contemporary ways (solutions/frameworks) of achieving content sharing, namely:

- 1st Solution: mEducator 2.0, based on Web2.0 technologies and mashups in specific
- 2nd Solution: mEducator 3.0, based on semantic web technologies and linked data in specific.

Web2.0, or else the social web, a term coined in some 6 years ago, has highlighted the importance of openness, social collaboration and participation, social networking and crowd intelligence. Web 2.0 applications have offered new opportunities for health education as well, since they allow open access to information, sharing of ideas, questions, and opinions etc. “Mashup” technologies have recently been used to implement efficient brokerage mechanisms for educational content sharing.

Moreover, semantic service-oriented approaches previously developed in EC funded projects, have provided the underlying, commonplace technology (semantic web services) towards federating educational repositories or LCMSs together. Recent advances in the semantic web front, have shed light and emphasis on the notion of linked data, which basically concerns the publishing of structured data so that it can be interlinked more effectively and hopefully become more useful.

The mEducator project managed to elaborate on pedagogical, technical, standardization, cultural, social and legal issues and to develop a standard-based infrastructure to enable the sharing of state-of-the-art digital medical educational content among medical educators and students in higher academic institutions.

Content sharing solution 1: mEducator2.0¹

Target users such as residents & specialized Doctors, medical educators and medical students are able to see mEducator educational material through the mEducator2.0 portal and access it through their own systems using mashup technologies.

mEducator partners acting as content providers implemented the mashup of mEducator 2.0 in their own LCMSs. Pilot content testings have been performed to allow the implementation of the relevant functionalities for repurposing, in both platform and mashups.

¹ The term **Web 2.0** is associated with web applications that facilitate collaboration on the World Wide Web, including social networking sites, blogs, wikis, video sharing sites, hosted services, web applications, mashups and folksonomies

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mEducator users across multiple institutions may utilise the mashups for uploading, creating, and editing content metadata, as well as for the search and retrieval of content. Alternatively, for users without access to a specific LCMS, an independent platform has been created which applies web 2.0 techniques and facilitates user collaboration, allows the creation of social networks for medical education, knowledge exchange and second opinion.

The mEducator2.0 platform is accessible at: www.meducator2.net

Content sharing solution 2: mEducator3.0²

mEducator 3.0 allows for exchanging of content via Semantic Web Services technologies for federated LCMSs.

The consortium has finalized the development, evaluation and customization of the Semantic Web Services brokerage, exposing educational services and LCMS in a Linked Data-oriented way (“Linked Services”) to enable the automated discovery/execution of distributed services. Tools and services (API's) have also been developed in order to allow the integration of federated LCMSs. Different instantiations have been created to achieve semantic interlinking of repositories based on mEducator3.0. All mEducator 3.0 instantiations expose metadata from educational repositories by the use of APIs being queried on the fly, returning resources described in the mEducator schema.

The mEducator3.0 technology and instantiations are accessible at: www.meducator3.net

² The term **Web 3.0** is associated with the Semantic Web.

2 eHealth and Learning Standards

Healthcare and Medical education has been modernised lately by means of ICT (Information and Communication Technologies). Many individual Healthcare and academic institutions use LCMSs (Learning Content Management Systems) in order to include educational e-resources in their curriculum while advanced technologies for the transfer of educational material and the access to a variety of educational material have been developed.

2.1 The Synthesis of the mEducator standards' space

2.1.1 Standards and specifications

The e-learning community colloquially uses the word standard to denote one of the following concepts:

- **Official standard:** a set of definitions, requirements, formats, and design guidelines for elearning systems or their components that a recognised standards organisation has documented and approved.
- **De facto standard:** the same as an official standard, but widely accepted only by the community and industry—that is, lacking formal approval from a recognised standardisation body.
- **Specification:** a document on the same issues as an official standard, but less evolved; usually developed and promoted by organisations or consortia of partners from academia, industry, and educational institutions. It captures a rough consensus in the e-learning community and is used as a de facto standard in system and content development.
- **Reference model:** an adapted and reduced version of a combination of standards and specifications focusing on architectural aspects of an e-learning system, definitions of parts of the system, and their interactions

For every standard, specification, or reference model that is suggested and implemented, there is no certainty that it is going to be widely adopted and maintained through the years, because this depends on the needs covered by it, the organisation that proposed it, the date of its creation and other factors.

The mEducator project has identified several standards and reference models relevant to the Healthcare education and solicited the need for binding of learning material with several available standards. The synthesis of those standards includes:

- **Procedures for describing content items.** Both structure and packaging of content items must be considered according to existing and extended educational packaging standards. Standards need to be able to include all content types, such as Web 2.0 artifacts (blogs/wikis/discussion forums and others), or serious games (2D/3D), or web anatomical traces, so that their search and retrieval can be facilitated.
- **Competencies.** Metadata that represent characteristics of competence are needed, so as to enhance the interoperability of competence based learning systems in the form of learning outcomes or learning pre-requisites.
- **The learner's profile space.** Information about the learner, or the profile of the learner attempting the interaction with the learning content items/objects may reveal valuable information.
- **Evaluation.** Evaluation includes the dual notion of course evaluation and learner assessment (student assessment, self-evaluation, etc) and it is an important feature of traditional and online medical education.
- **Quality assurance.** The quality of learning objects (LOs) and courseware from the pedagogical, technical, design, and accessibility perspectives is an important aspect;

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description of methods and metrics are required for implementing quality management and quality assurance systems

- **Intellectual Property Rights (IPR).** Rights clearance for educational content (textbooks, medical videos, images and audio) are important because they apply to both provided and re-purposed content and they may have rights appending to the hospitals or clinics in which they are acquired. Standards can enable their open exchange in a context where educators and learners create and shape knowledge in common.

2.1.2 Metadata in e-Health

Metadata elements grouped into sets designed for a specific purpose, e.g. for a specific domain or a particular type of information resource, are called metadata schemas. For every element the name and the semantics (i.e. the meaning of the element) are specified. Many current schemes use Standards Generalized Mark-up Language -SGML (W3C, 2009) or Extensible Markup Language -XML (W3C, 2009) to specify their syntax (NISO, 2004). Metadata standards are those metadata schemes that are developed and maintained by standard organisations (such as International Organisation for Standardization-ISO) or organisations that have taken on such responsibility (such as the Dublin Core Metadata Initiative). Specifically, they are sets of topic-specific norms and definitions to guide the collection and documentation of metadata so that the result is characterised by consistent collection criteria, nomenclature, and structure. This "formal metadata" enables interoperability among similarly formatted databases on local and global scales, greatly enhancing the reach of scientific research through data sharing.

The mEducator metadata reference model is presented in Chapter 3.

2.1.3 Medbiquitous standards and specification

Founded by Johns Hopkins Medicine and leading professional medical societies, MedBiquitous is a not-for-profit, international group of professional medical and healthcare associations, universities, commercial, and governmental organisations dedicated to advancing healthcare education through technology standards that promote professional competence, collaboration, and better patient care. MedBiquitous is accredited by the (ANSI, 2009) to develop information technology standards for healthcare education and competence assessment.

MedBiquitous members are creating a **technology blueprint for professional healthcare education**. Based on XML and Web services standards, this blueprint will weave together the many activities, organizations, and resources that support the ongoing education and performance of healthcare professionals. Ultimately, this blueprint will seamlessly support the learner in ways that will improve patient care and simplify the administrative work associated with education and competence assessment.

In accordance with ANSI (ANSI, 2009) requirements, MedBiquitous adheres to the principles of openness and due process for its standards development activities. Educators and industry alike collaborate to develop standards and exchange ideas about innovative uses of Web technologies for healthcare education and communities of practice.

Current MedBiquitous standards and development efforts include:

- Activity Reporting - provides a common format for reporting professional education and certification related accomplishments

- Competencies - provides a common format for representing a list of competencies relevant to a profession or specialty.
- Curriculum Inventory - provides a common format for curriculum data for benchmarking and educational research.
- Educational Achievement - provides a common format for documenting learner competency and entrustment across the continuum of health professions education.
- Educational Trajectory - supports the tracking, planning, and audit of learners' educational trajectory across medical schools and national organizations.
- Healthcare Learning Object Metadata - based on the IEEE standard, provides a standard way of describing healthcare educational resources and activities.
- Medical Education Metrics (MEMS) - provides a common format for gathering and communicating evaluation data on healthcare education activities, including REMS CE activities.
- Performance Framework - provides a common format for the expected levels of performance related to a competency framework
- Professional Profile - provides a common format for exchanging clinician contact, education, training, certification, and membership information.
- SCORM for Healthcare - a version of the Advanced Distributed Learning Initiative's SCORM model for online learning that implements Healthcare Learning Object Metadata.
- Virtual Patients - provides a common format for sharing interactive computer programs that simulate real life clinical scenarios for education and assessment purposes.

2.1.4 W3C Standards

The World Wide Web Consortium (W3C) is an international community that develops protocols and guidelines or open standards to ensure the long-term growth of the Web.

Most W3C work revolves around the standardization of Web technologies. To accomplish this work, W3C follows processes that promote the development of high-quality standards based on community consensus; W3C processes promote fairness, responsiveness, and progress: all facets of the W3C mission.

W3C's Web Accessibility Initiative (WAI)³ develops guidelines, often regarded as the international standard for Web accessibility. It also supports materials to help understand and implement Web accessibility and develops resources through international collaboration

WAI develops a series of accessibility standards and guidelines that are introduced in Essential Components of Web Accessibility and listed below:

- Web Content Accessibility Guidelines (WCAG) Overview, WCAG 2.0
- How to Meet WCAG 2.0 (Quick Reference)

Addresses the information in a Web site, including text, images, forms, sounds, and such.

- Authoring Tool Accessibility Guidelines (ATAG) Overview, ATAG 1.0
- Addresses software that creates Web sites.

- User Agent Accessibility Guidelines (UAAG) Overview, UAAG 1.0

³ <http://www.w3.org/WAI/>

Addresses Web browsers and media players, and relates to assistive technologies.

- Accessible Rich Internet Applications (WAI-ARIA) Suite Overview

Defines a way to make dynamic web content and web applications developed with Ajax, DHTML, and other Web technologies more accessible.

- Independent User Interface (Indie UI)

Defines a way for user actions to be communicated to web applications.

- Evaluation and Report Language (EARL) Overview

Defines a way to express Web site evaluation test results in a platform independent format.

- WAI Technical Papers

Links to technical papers, including the W3C Note on Inaccessible Captcha the letters 'captcha' difficult to read on complex background and proceedings from research and development symposia.

- Referencing and Linking to WAI Guidelines and Technical Documents

Provides guidance on references and links, along with WCAG links for policies, tools support, and others.

- How WAI Develops Accessibility Guidelines through the W3C Process: Milestones and Opportunities to Contribute

Introduces how WAI works through a process designed to ensure broad community input and encourage consensus development.

3 Healthcare standards in Millenium Hospital

The mEducator project has managed to achieve objectives that can be inherited to other endeavours associated with medical education such as the Millenium Hospital project, which is funded by the Lifelong Learning Programme as Transfer of Innovation from the mEducator and the Mirror projects.

3.1.1 The mEducator metadata scheme

One of the main achievements of the mEducator project is the creation of the mEducator metadata description scheme or else reference model. Initially the consortium proceeded by setting the ground of the conceptual model. This process included the analysis of Healthcare LOM, the evaluation of other specifications and standards, the elaboration on the repurposing notion along with the respective incorporation of extensions for repurposed content, the refinement of educational aspects and the inclusion of companionship of resources.

The conceptual model is presented below (see Fig.1):

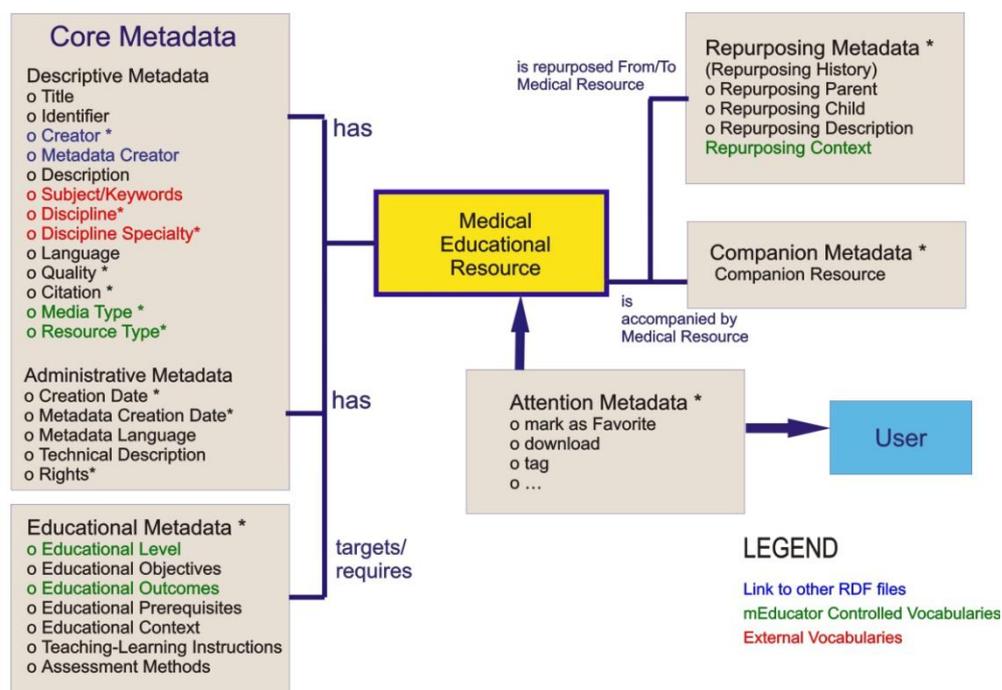


Figure 1: A graphical illustration of the mEducator conceptual framework

At a later stage, the mEducator considered the benefits of Linked Data and the Semantic Web which allow reusing and linking to existing knowledge making in this way resources interoperable with other data sets. In order to have a metadata scheme compliant with the principles of Linked Data, the Resource Description Framework (RDF) was identified as the most appropriate framework to be used for the treatment of the metadata model. The Conceptual Model was transformed into an RDF Model which in turn was serialized in XML, in order to be processed by machines. Attention metadata have also considerably taken into account and the AAIR mapping (Atom Activity Streams in RDF Vocabulary) has been extended for full tracking of the user activity. The outcome of this work is a metadata

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description that fits and addresses the requirements and needs for sharing mEducator educational resources which has been submitted and proposed as a Standard to the Medbiquitous Standardisation Body (www.medbiquitous.com).

3.1.2 Recommendations for educational content repurposing

One of the mEducator goals was to attempt to put different types of educational material under a common framework in terms of sharing and repurposing. Repurposing refers to the changing of a learning resource initially created for a specific educational context, to a new educational context (or contexts), and should be distinguished from reuse, which refers to the use of the same learning resources without any changes.

The mEducator consortium has researched into various possible types of content repurposing and has established a set of content repurposing contexts and their definitions.

- Repurposing to different languages
- Repurposing to different cultures
- Repurposing for different pedagogical approaches
- Repurposing for different educational levels
- Repurposing for different disciplines or professions
- Repurposing to different content types
- Repurposing for different technology
- Repurposing for people with different abilities
- Repurposing to Educational Content
- Changes in the content itself

The procedure for repurposing medical educational content in general can be complex and may vary greatly from one repurposing case to another. However, a list of major best practices for content repurposing, as elicited by the mEducator consortium, could be proved valuable.

3.1.3 Recommendations for intellectual property rights (IPRs) for medical educational material

A very important challenge addressed by mEducator was the issue of Intellectual Property Rights (IPR). The consortium has investigated, with consultation by experts highly involved and acknowledged in the IP sector, legal aspects of intellectual property and issues on Copyright legislation; as a result, the project has recommended the use of the Creative Commons licensing scheme.

The consortium has developed guidelines, designed in the form of workflows, in an interactive platform (Open Labyrinth) to assist partners and stakeholders researching on IPR issues related to the content they would provide. The workflows are publicly available at:

<http://labyrinth.sgul.ac.uk/openlabyrinth/mnode.asp?id=qwnw2gcgxlrdbu3lpfvu3lpfvqajxhq>
(for existing provided content)

<http://labyrinth.sgul.ac.uk/openlabyrinth/mnode.asp?id=qwnw2gcf4jesnqajxhqqajxhqqdknam> (for repurposed content)

The adoption of the Creative Commons licensing model in mEducator advocates an initiative aimed at deeper impact on learning. It builds on Open Educational Resources (OER), to create a global culture of learning, which is targeted at preparing people for thriving in a rapidly evolving, knowledge-based world.

Meanwhile, it is strongly suggested by the mEducator project to conform with recent proposals on consent commons in order to work alongside or with creative commons as a way of demonstrating due diligence in dealing with issues of consent and using patient data sensitively in learning and teaching with specific reference to being able to share (see for example www.jiscdigitalmedia.ac.uk/clinical-recordings). Consent Commons ameliorates uncertainty about the status of educational resources depicting people, and protects institutions from legal risk by developing robust and sophisticated policies and promoting best practice in managing information.

3.1.4 Quality of the content

To ensure the quality of the content several tools have been used in the mEducator project, which can be exploited by the Millenium Hospital project. Firstly, a field in the metadata for quality stamps (e.g. HON) is available in the metadata scheme.

HON stands for Health on the Net, a foundation promoting reliable health information on the net, and has published a Code of Conduct which includes the following issues:

1. Authoritative
2. Complementarity
3. Privacy
4. Attribution
5. Justifiability
6. Transparency
7. Financial disclosure
8. Advertising policy

The HON quality stamp is granted to institutional websites following a relevant procedure for certification.

In addition, there are several tools through which feedback on the content can be given. The content can, for instance, be commented, discussed or reported⁴ by other authenticated users of the platform. The users can also rate the LOs, by means of the typical 5-star input, in four different categories:



Stars used for content rating (Each user can rate other users content, by clicking the rating widget at the right top pane of each resource).

⁴ As broken links, inappropriate content, etc.

Categories:

1. Pedagogical value
2. Appropriateness of the proposed learning context
3. Appropriateness of the proposed target audience
4. Appropriateness of presentation and/or content type

The rating system, comments and reporting systems can be used as a web 2.0 quality benchmark⁵.

3.1.5 Quality process control for learning resources (Melina+)

The quality control module allows reviewers (a special group of system users) to review the uploaded metadata of each resource and make comments on the quality of the metadata. Each learning resource can belong to one of three status states:

1. Published, non reviewed
2. Reviewed
3. Accepted



Figure 2: Quality process control module

Each learning resource, immediately after publishing belongs to state 1 (Published, non reviewed). If a reviewer makes a review comment, then automatically goes to state 2 (reviewed). The system sends automatic messages (emails) to the resource creator(s), including the reviewer comments. This can be continued as long as the reviewer makes comments or corrections on the quality of the metadata. Finally, a reviewer can accept the learning resource's metadata, and move the resource from state 2 to state 3 (accepted), as illustrated in Figure 2.

⁵ The community reviews and maintains the content. This is a very common approach in nowadays web, please take as example Wikipedia (<http://www.wikipedia.org>)

3.1.6 Content Sharing Instantiation based on mEducator Solution 2 (Melina+)

The Millenium Hospital project can benefit from the use of a content sharing platform based on mEducator Solution 2, which will allow users to access, share and repurpose medical educational resources from distributed repositories of educational resources as well as resources available through semantic web services and the Linked Data Cloud.

The content sharing platform called Melina+ is based on Drupal⁶, which is a free and open source content management system (CMS) and content management framework (CMF) written in PHP and distributed under the GNU General Public License. It is used as a back-end system for at least 1.5% of all websites worldwide ranging from personal blogs to corporate, political, and government sites including whitehouse.gov and data.gov.uk. It is also used for knowledge management and business collaboration.

The Melina+ platform includes modules and content types created following the mEducator metadata schema. A user can create a metadata description for objects outside of the platform as well as for objects that exist within the platform. It also exposes all available metadata description through a SPARQL endpoint. The SPARQL endpoint address also contains a web interface for querying the metadata description database. More functionality is added using the RESTFULL web services API of Drupal.

Moreover, the platform provides advanced search functionality. Users can search the metadata descriptions using all possible combinations, through a detailed constructed form, accessible via a web interface. Users can search in the platform content (local), as well as, the Sesame stores content (distributed) and any other connected SPARQL endpoints. The connected SPARQL endpoints must expose their information according to the mEducator metadata schema. Currently, there exists also a basic search functionality among two of the other mEducator3.0 instances, namely, MOODLE and Open Labyrinth SPARQL endpoints.

Each user of the platform has his/her own FOAF profile, which can be extended as needed. A special feature is the “relationships” module to create relationship types (friend, co-worker, student, etc). Administrators can create their own content types. Each new content type can have a resource metadata description. Currently, in the Drupal mEducator 3.0 installation profile there is a basic content type called ‘Educational Object’.

Another function of the system is the DBpedia Spotlight enrichment. As already mentioned above, DBpedia Spotlight is a tool for annotating references of DBpedia resources in text, providing a solution for linking unstructured information sources to the Linked Open Data cloud through DBpedia. DBpedia Spotlight performs named entity extraction, including entity detection and Name Resolution (a.k.a. disambiguation). When viewing an educational object in Drupal, a block in the left sidebar informs the user about DBPEdia related articles and the similarity score for each one of them.

3.1.7 Educational Reform in Continuing Medical Education

The development of Continuing Education modules is a time consuming and complex task. Educational reform efforts are encouraging the utilisation of non-traditional material that use novel and innovative methods for teaching and assessment. Many institutions are also moving towards competency-based learning as the cornerstone of curriculum development efforts. In addition, health professions reform encourages the integration of new content or

⁶ <http://www.drupal.org>

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competencies, including cultural competencies, patient safety, team-based learning, systems-based practice, etc. One of the major challenges in the implementation of innovative learning modules in Continuing Medical Education is the adoption of Continuing Education accreditation framework in a national and European level by adopting the UEMS international criteria.

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4 Scheme and Criteria for the accreditation of “Millenium Hospital e-Learning”

4.1 MHeL double accreditation

MHeL users will get a double certification supplying both Italian and European recognized credits. In Italy, the accredited partner will be AOGOI, which has already been recognized by the Italian accreditation body (Commissione Nazionale per la Formazione Continua -CNFC) as National Provider ID 2223. The MHeL Project will be also presented as a single international CME activity to the European CME Authority according to the UEMS' International criteria for CME (UEMS 1999/08).

Once the development of MHeL is complete, its partners will be able to address the true intended users from any and all European countries. The pan-European nature of this CME program will facilitate health professionals' international mobility and improve their competitiveness and potential employability throughout the Union—all EU educational priorities. For MHeL to be truly attractive and useful to physicians from different countries, however, accreditation at the European level is fundamental. Because of the rigorous evaluation procedure, accreditation by EACCME will be considered as an additional sign of quality of MHeL.

Double accreditation of MHeL is advantageous to Italian participants in that they will automatically receive the full number of assigned credits without having to make a personal request to the CNFC. It should be noted, however, that the lack of Italian accreditation should guarantee them only the partial acquisition of the EU assigned credits. It should be noted also, that different policies are applied in other EU countries.

The following chapters of this deliverable explain how MHeL will be accredited both within Italy and at the European level and why a double-accreditation scheme is important. With the Italian accreditation, MHeL will be provided to a cohort of 2.000 physicians who belong to the three Italian Medical Associations involved in the project. This launch will testify to the success of the development of MHeL.

4.2 Italian accreditation procedure and criteria

In 1999, Italian lawmakers introduced a national CME program (law 229/1999) which became active in 2002. Further rules and regulations were established with the Accordo Stato-Regioni (1 August 2007) and its successive modifications (5 November 2009, 13 January 2010 with the approval of the “Regolamento applicativo dei criteri oggettivi per l'accREDITamento”, and 19 April 2012).

CME in Italy responds to a national training objective as defined by the Commissione Nazionale per la Formazione Continua (CNFC) and as indicated in the Accordo Stato-Regioni of 5 November 2009 and further modifications.

A key feature of the Italian CME system is that providers are accredited rather than individual events. An accredited CME provider has a scientific director (*responsabile scientifico*) who

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defines a didactic program and sets the scope of each CME event. The director also assigns a certain number of CME credits to each event according to its duration and its effective learning time. The CME activities also foresee that with the presence of a tutor who provides didactic support and feedback (within 48 hours)—as in the case of MHeL—the Provider assigns 1.5 credits per hour of study (as explained in “I criteri per l’assegnazione dei crediti alle attività ECM approvato dalla Commissione Nazionale per la Formazione Continua-CNFC” of 13 January 2010). The national accreditation system is valid in all Italian regions and autonomous provinces (cfr. “Regolamento applicativo dei criteri oggettivi dell’accreditamento” of 13 January 2010, page 7).

The partners in MHeL will adhere to Italian regulations for accreditation. In particular, we will communicate the CME event to the Italian Agency for Regional Healthcare Services (www.agenas.it) at least 30 days before its start. A detailed presentation of the event will be provided, including: course name; educational objectives; dates and duration; number of participants and target professional group; number of credits; identities of each tutor, their CVs and statements of conflicts of interest; costs and sponsors; and technical details about the platform itself and the software requirements for participants.

Immediately after the event, participants will be tested for their knowledge on a multiple choice exam (as described in “Criteri per l’assegnazione dei crediti alle attività ECM” of 13 January 2010, page 15, note 2, and “Regolamento applicativo dei criteri oggettivi di cui all’Accordo Stato-Regioni del 5 Novembre 2009 e per l’accreditamento approvato dalla Commissione Nazionale per la Formazione Continua” of 13 January 2010, page 25, note 7). All those who pass the examination with at least 75% correct responses will receive a certificate of attendance that indicates the number of credits acquired (as regulated by the Accordo Stato-Regioni of 19 April 2012 and its attachment 1 “Linee Guida per i manuali di accreditamento dei provider nazionali e regionali/province autonome”). If a course participant fails a test, he or she can retry another four times on similar tests in which the order of the questions and their possible answers have been varied.

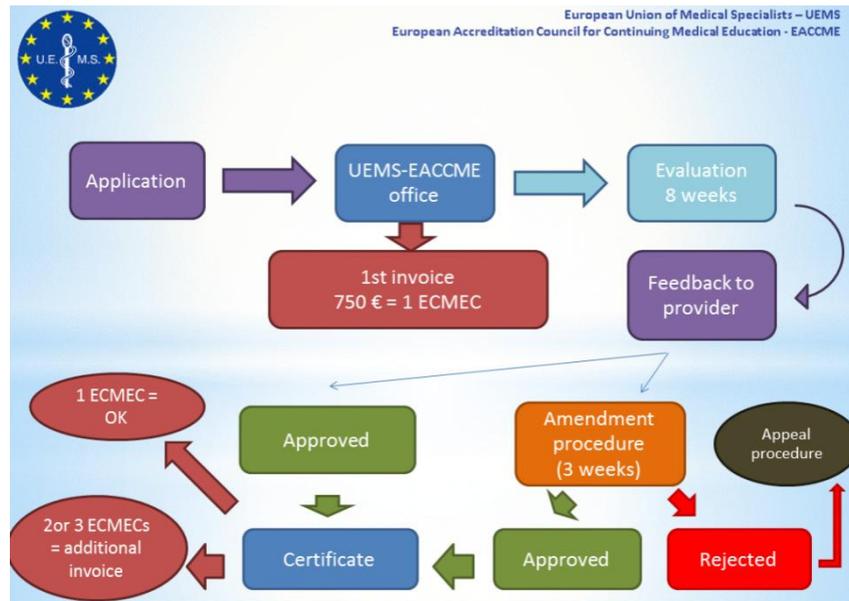
CME course participants will also be asked to evaluate the quality of each event (as indicated in “Regolamento applicativo dei criteri oggettivi di cui all’Accordo Stato-Regioni del 5 Novembre 2009 e per l’accreditamento” approved by the CNFC on 13 January 2010).

4.3 European accreditation procedure and criteria

Since 2000, EU-wide accreditation of CME activities has been possible through the European Accreditation Council for CME (EACCME), established by the Union Européenne des Médecins Spécialistes—European Union of Medical Specialists (UEMS). In 2001, guidance on creating CME activities was provided in the UEMS Policy on Continuing Professional Development, 2001 (“Basel declaration”). Single CME activities are assigned European CME credits (ECMECs), and course participants can request to have these credits recognized in their home country.

In 2009, EACCME began to certify e-learning activities (www.uems.eu/uems-activities/accreditation/eaccme). For the accreditation of MHeL, the partners will adhere to the application procedures and evaluation criteria set out in “The Accreditation of e-Learning Materials by the EACCME” (www.uems.eu/data/assets/pdf_file

/0019/1198/UEMS_2011_20.pdf) and in the accompanying checklist (http://www.ebap.org/images/files/UEMS_Quick_application_checklist.pdf). Briefly, the procedure foresees the payment of an application fee of € 750 per ECMEC requested. The evaluation committee may decide to immediately approve the accreditation of MHeL or it may request modifications. The revised application will be re-evaluated and either approved or rejected; an appeal is possible. For large CME events requesting more than 1 ECMEC (which is foreseen for an hour of study), an additional payment is requested before accreditation is finalized. The application process will begin at least 18 weeks before the intended data of launching MHeL, in accordance with EACCME guidelines.



(from www.uems.eu/uems-activities/accreditation/eaccme).

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