QAMLM

QUALITY ASSURANCE OF MULTIMEDIA LEARNING MATERIALS

(QAMLM –Version 1.5)

Developed by
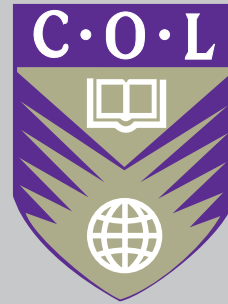**Commonwealth Educational Media**
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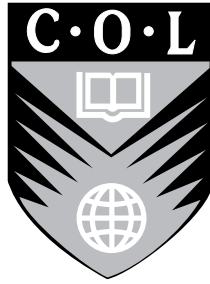
Quality Assurance of Multimedia Learning Materials

QAMLM Version 1.5

Developed by

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and

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Contents

1. Introduction

All education today is marked by a rapid increase in the use of technology across levels, settings and modes. Be it primary, tertiary or higher education; lifelong learning or skill development, in formal or non-formal contexts and indeed whether in a face-to-face setting or in an open and distance learning (ODL) mode, technology informs all aspects. Technology also underpins different aspects of education like content, delivery and management and what separates the best from the rest, undoubtedly is the quality of engagement. When it comes to a quality learning experience, a key contributor is good quality learning materials. Even though technology in terms of the software packages and hardware used to create and deliver learning materials has seen continuous improvements and innovations with corresponding standards of measurement, quality of the content remains an area of concern. There is very little by way of assurance or assessment standards available to teachers, developers or end users that guide or help them determine the quality of the learning materials that are developed and used, especially in terms of its pedagogic value. It is with a view to bridge this gap, that the Commonwealth Educational Media Centre for Asia (CEMCA) mooted the idea of developing a set of guidelines for Quality Assurance in Multimedia Learning Materials (QAMLM). With encouragement from the Ministry of Human Resource Development, Government of India and with the Ministry of Higher Education Malaysia as a key partner, in the year 2007, CEMCA set in motion a collaborative and eclectic process of developing QAMLM guidelines involving academia, practitioners, professionals, industry and institutions engaged in quality audits. Over two years, a series of discussions and national and international Round Tables were held (See Annexure) finally culminating in the release of QAMLM Version 1.0 in June 2009.

QAMLM Version 1.0 began to attract a good amount of interest and discussion from a range of users -from individual research scholars in Educational Technology to institutions both in private and public sector engaged in developing learning materials. Subsequently, in order to review and consolidate the feedback in February 2010, another International Round Table was held in partnership with Madurai Kamaraj University, where over thirty individuals and institutions from India, Malaysia and Sri Lanka (See Annexure) shared their views and experiences of using QAMLM which went into the revised version.

Two things emerged very strongly from the discussions. Firstly, without exceptions, users benefited from the guidelines. Developers were particularly appreciative of a set of measure against which they could map their processes and outcomes. However, those not very familiar with instructional design terminology, typically teachers and administrators who often procure ready-to-use or "developed" products expressed some difficulty in interpreting some of the parameters. As did another category of end-users, namely learners. And secondly, It was also felt that the guidelines needed to address some more issues arising in an online learning environment.

In the following year, CEMCA worked with a sub core group (see Annexure) that concentrated its efforts of getting more focused user feedback working with institutions who create learning materials for higher education (Consortium for Higher Education) and Schools (Central Institute of Educational Technology) and publishing a revised edition Quality Assurance in Multimedia Learning Materials Version 1.5. One of the aspects of feedback was that some user-developers faced a language challenge in using the guidelines and the partner institution CIET in association with its State counterparts has helped translate the guidelines into three Indian languages namely Gujarati, Telugu and Oriya. CEMCA looks upon QAMLM as an open educational resource (OER) and encourages adoption and adaptation of the guidelines to different contexts.

2. Scope of QAMLM 1.5

In this document, MLM refers to computer based learning material which is made available to an individual or a group either on-line or off-line and involves an integration of two or more digital media such as text, images, sound, video, animation, etc. so as to promote effective learning. MLM could be in the form of large centralized repositories/database or in the form of CD based individual lessons and may be used for learning with or without the intervention of a facilitator/ mentor/teacher.

In this revised version, based on extensive user feedback some indicators for e-content have been incorporated into the parameters defining quality , like reusability, information validity and updating, speed with which the MLM is accessed in an online environment etc. However, this document acknowledges that   an effective e-learning quality framework is much broader. As that would necessarily includes many other factors such as Learning Management Systems, network robustness and delivery, content/ course management systems, interactivity between the teacher and the learner as well as peer-to-peer (p2p) interactions and so on, making e-learning a far more complex paradigm which remains outside the purview of this document. Nevertheless, we do envisage that e-learning content developers can benefit greatly from this document

QAMLM Framework

User feedback also necessitated a revisiting of the Instructional Design based ADDIE (Analysis, Design, Development, Implementation and Evaluation) model used earlier, as in most user scenarios, the developers were not actively engaged in the last two stages namely implementation (putting the product into action) or extensive evaluation, thus making it difficult for them to rate some quality indicators dealing with these stages. In the revised version, these   two sections have been toned down and   this version focuses on key stages of MLM life cycle like Analysis, Design and Development and also addresses limited deployment or Delivery Considerations and Feedback. It captures the major inputs and processes within each of these stages, defines the outcomes for all the inputs and sub-processes listed and finally provides guidelines on the quality indicators (QI) necessary for each of the outcomes that are listed. This framework provides a sound base for all developers of multimedia content to define and enhance their product development cycles.

Organization of the Document

The main document comprises two sections. Section 1 provides an understanding of the QAMLM Conceptual Framework and descriptors of the key terms used in the QAMLM Framework. Section 2 is application oriented and   provides quality assurance rating tools, that are divided into three parts.

- Part A addresses the developers (designers, visual designers, technical specialists, script writers, subject matter experts) and provides a framework comprising guidelines, quality indicators and checklists for the development of good quality MLM.

- Part B provides a set of indicators for people who are required to judge the quality of a developed MLM like teachers, parents, administrators and librarians who typically are involved in a MLM procurement decision.

- Part C provides a quick and brief product evaluation tool for the end users (learners).

The main part is preceded by an introductory section and followed by a set of annexure that record the development of the document and the individuals and institutions who engaged with it.

How to use QAMLM 1.5 Guidelines

As described earlier, QAMLM1.5 caters to three broad categories of users. MLM developers, procurers and end users; these tools are presented in Sections A, B and C respectively.

Users, especially for Sections A and B are advised to go through the QAMLML1.5 Framework as well as the descriptors for the key terms used to ensure that the QIs and descriptors are interpreted correctly.

To use Section A, it would be necessary that the development teams understand the guidelines described in the document and are able to map these with the processes they propose to follow or have followed during the development of MLM. The QAMLM 1.5 Framework also maps the different activities, the input processes, the expected outcomes, quality indicators and check-points at each stage. These check-points are subsequently converted into measurable Quality Indicators. Once the development process is complete, developers may also cross check the quality using Part B. Actual assessment if done by an internal Quality Assurance team, when available, rather than a single individual or the developers themselves would bring greater objectivity to the assessment.

To make an assessment of the quality of MLM they are about to acquire, the assessor will be looking at finished products. Data on some of the parameters is often available on the cover of the MLM itself while some information is provided in the support documents enclosed with the MLM. For most QIs, however, the MLM or a sample thereof should be viewed to assess quality.

End users or learners who have gone through a MLM will find Part C useful to help determine the quality of the learning experience.

Limitations of the Guidelines

In developing this framework, a generic and broadly applicable set of guidelines that could be used at the development as well as at the finished MLM product have been used.

While the Quality Indicators (QI) are put on a five point scale, it is important for users of the guidelines to be mindful that QIs are not weighted and hence are not intended to provide a cumulative numeric score for the quality of the MLM.

Some indicators used are not scalable and can only be noted as present or absent in the MLM being tested. For instance whether a MLM is compliant with copyright issues or not; whether the hardware requirements for running the MLM are mentioned up front or not etc. Typically, these are answered with a "Yes" or "No" and are called binary or dummy variables. (Please read section on Quality Indicators and Measurement for details).

This scoring helps users of the guidelines to self-assess the extent to which particular quality is present or absent in a MLM. To aid the assessment process further, the guidelines also classify the QI as 'Critical' and 'Desirable'. It follows that quality cannot be assured unless all the Critical Indicators find an above average rating. Likewise, greater the rating for Desirable Indicators, higher the quality of the process or a product is likely to be.

Though the framework has been revised based on field testing with user groups like developers, decision makers and end users, Institutions may need to adopt/adapt the QI based on their needs, priorities, resources and on the specific character of the MLMs which may vary according to the target group, learning objectives etc.

SECTION 1

QAMLM 1.5 FRAMEWORK

Descriptors for the Key Terms used in the QAMLM 1.5 Framework

Alpha version: The first release of a multimedia learning material (MLM). This version is a complete version, however may have bugs and errors that upon internal and client testing would be rectified by the developer.

Beta version: The second release of the MLM. This version has all bugs and errors fixed. There may be minor mistakes which may not be rectified. However, these minor mistakes may not reflect on the overall quality of the MLM.

Content Outline: An outline which details the structure with respect to course, modules, topics, sub-topics. This also helps to define the scope of the MLM.

Content Accuracy: The correctness of the content covered in the MLM with due regard given to the latest developments in the field.

Content Structure: Logical presentation of content based on specific principles, processes etc as reflected in the MLM. (For example, the content may be presented from simple concepts to more difficult concepts or chronology of developments.

Context: The setting, circumstance or environment in which the MLM would be used.

Contextual variables: Refer to those considerations that make the content of a given MLM relevant to a specific learning environment (e.g. Individual/Group; Formal/Informal; Facilitated/Self-learning; the technical facilities available as well as socio-cultural aspects like gender, race, etc).

Design Strategy: To formulate or devise a plan for development of the MLM (See also Instructional Design Strategy).

Desired Learning Outcome (DLO): The learning expected to result from exposure to the MLM.

Evaluation Design Document: A document detailing the criteria outlined in the Evaluation Framework such as the approach and tools used, the procedures to be followed, evaluators to be involved and budget to be allocated for conducting the evaluation.

Evaluation Framework: A comprehensive approach that outlines the objectives and scope of evaluation, defines the tools and techniques to be used, includes objectively constructed valid and reliable tools of assessment and provides for obtaining feedback from the relevant sources so as to make modifications in the MLM.

Evaluation Tools: Quantitative and Qualitative Tools (such as questionnaires, rating scales, interview schedules, etc.) that are used as part of broader research methods such as Experimental method, Survey method, Case Study, Participatory methods: Focus Group Discussions (FGD) and Ethnographic methods for collecting data from primary sources.

Field Testing: Refers to testing of the MLM with the intended target audience and experts

Five Point Scale Framework: Scalable rating where one usually refers to poor and five indicates excellence

GUI: Graphical User Interface –refers to the interface which allows the user to interact with the MLM – and the computer screen. (.e. it comprises all the (graphical) navigational features that allow the user to interact with the MLM and browse through it).

Implementation strategy: A detailed roadmap for execution that specifies how the MLM should be made available to the user, the hardware/software requirements that should be in place, the training manuals that should be used for preparing the facilitators as well learners, etc.

Information Hierarchy: Categorization and positioning of content or information. The structure thus created gives inputs on the grouping of content and placement within an overall structure.

Instructional Design: Instructional Design refers to the whole process of analysis of learning needs and goals and the development of appropriate multimedia learning materials which meet these needs.

Instructional Design Strategy: A broad term that covers many aspects like structuring of content, selection of suitable media (audios, videos, graphics, text, etc.) in proper combinations, Learner evaluation strategies (tests, quizzes, games, puzzles, assignments, etc.)

Interactivity: An important feature of MLM which helps the learner to communicate and interact with the learning material as an active participant in the learning process.

Layout: Refers to the appearance or position or composition of various elements on the screen.

Learner Profile: Characteristics of individuals or groups for whom the MLM has been primarily developed. (See also Target Audience)

Learning Domain: Refers to the categories under which learning occurs. Learning could be referred to acquiring knowledge, change in attitudes or acquiring new skills. Benjamin Bloom (1956), identified three domains of educational activities: **Cognitive:** mental skills (*Knowledge*), **Affective:** growth in feelings or emotional areas (*Attitude*) and **Psychomotor:** manual or physical skills (*Skills*). Robert Gagne (1972) distinguished domains into five categories: (1) motor skills, (2) verbal information, (3) intellectual skills, (4) cognitive strategies, and (5) attitudes.

Learning Objective: Learning objectives are statements which tell what the target audience will know or be able to do after going through the multimedia learning material.

Learning Styles: Preferred methods of learning typically adopted by different learners, e.g., visual style (learning by seeing), auditory style (learning by hearing) and kinesthetic style (learning by doing).

Media Mix: Refers to the combination of different media used to create an engaging learning experience. Media mix is informed by the suitability of media to the content to be delivered, the way in which each media is used according to its affordance and the way in which different media are combined to deliver an enriching learning experience.

Multimedia Learning Materials: Computer based learning materials in on-line or off-line modes involving integration of two or more digital media such as text, images, sound, video, animation, etc. so as to promote effective learning. MLM could be in the form of large centralized repositories/database or in the form of CD-based individual lessons and may be used for self or facilitated learning.

Pre-requisite: Skills or knowledge the user needs to possess prior to using the MLM.

Performance Requirement: There are various requirements captured at the analysis stage based on which certain technical specifications are designed. At testing stage it is important to check whether these technical requirements are addressed. E.g. could be lower file sizes for easier downloading of data.

Programming: Refers to the science of coding instructions or the skill of writing codes for a computer program.

Primary Sources: The Primary sources of data collection provide first hand data and include teachers, learners, subject experts, community members and relevant industry personnel.

Product modification: The feedback received through evaluation is fed back into the system to revise and improvise the various elements of MLM.

Prototype: A representative sample of the MLM which gives a clear idea of what kind of strategies would be included and how the final product will look and be used. The prototype could have representative screens of all the features that would be provided as part of the MLM. In case the MLM is a series or a large bank of content certain representative topics created as MLM would serve as a prototype.

Prototype Testing: This refers to a thorough testing of the prototype of the MLM, with the help of the target audience and experts, to study its suitability and effectiveness, so as to provide inputs before completing the development of the MLM.

Quality Assessment: Quality Assessment guidelines for this activity refer to defining indicators that help judge the overall quality of a finished MLM product.

Quality Assurance: Quality Assurance guidelines for this activity refer to providing guidelines for planned and systematic production processes that provide confidence in a product's suitability for its intended purpose.

Quality Framework: A comprehensive document that incorporates detailed guidelines for developers as well as users of Multimedia Learning Material so as to make quality a built-in feature in the processes of development of MLM as well as in the final product.

Quality Indicators: Statements that can be used as checklists to ascertain the quality with respect to a specific aspect of the development process of the MLM or the MLM itself. The indicators are graded on a five point scale ranging from poor to excellent.

Raw content: Refers to the base and reference content which is put together to form the foundation or basis of the multimedia learning material.

Realistic: Objectives that the Learner can relate to and achieve.

Secondary Sources: Secondary sources of data collection include library resources such as books, journals, newspapers, reports, Government plans and data and the Internet

Simulated Environment: Refers to creating the same environment in which the MLM will be used for testing purposes. E.g. – creating a test lab with open source as an operating system, getting computers with the configurations available in the actual usage scenarios.

Stakeholders: Persons involved in the development of MLM – instructional designers, visual designers, technical specialists, script writers, subject matter experts, etc as well as all those who would be using it, such as – teachers, parents, learners, administrators, librarians, etc.

Storyboard: Refers to the document which has simple graphical representations or textual descriptions of the flow and sequence of the proposed MLM. The storyboard is a common reference point for designers and developers. The storyboard covers descriptions for all proposed multimedia elements like audio, video, graphics, text and interactivity.

Suitable Media: Every media has its own strengths and limitations. Due to this fact each media can be used to create a meaningful learning experience. For e.g.- a demonstration of a process could be best shown with a video than a static graphic or an animation.

Target Audience: Individuals or groups for whom the MLM has been primarily developed

Target audience Profile: Collecting Data with respect to target audience vis-à- vis their academic levels and attributes like skills, motivation, visual literacy, language competency, learning styles, special needs

Technical Design: This refers to matters like technical configuration, the Operating System, ease of handling

by the user (navigation aspects), compliance with the required technical standards.

Trained Evaluators: Researchers who have requisite exposure to various aspects of the evaluation process such as designing research strategy, collecting and analyzing data and so on. Ideally, evaluation should be undertaken in consultation with faculty/subject experts, graphic designers and producers.

Usage aspects of MLM: Refers to how the MLM is intended to be used – whether as a self-sufficient module or in accompaniment with other print and non-print modules, whether it is intended for independent use by the learner or with support from facilitators.

Visual Design: Design of the Graphical User Interface (GUI), Fonts, layouts and other elements that go towards making the visual aspect of the MLM appealing and engaging to the user.

Intuitive: Intuitive is familiar, something that the user is used to, like exiting a program from the right hand top corner by clicking on a X, use of Universal signs, and familiar ways of navigation. Intuitive also means that the user or learner would be able to navigate through the MLM without any training or help.

Wow Element: Refers to outstanding work – visuals, interface etc. This would bring out the difference between what is perceived as very good and excellent.

QAMLM 1.5 Framework

As noted elsewhere in the document, the revised QAMLM 1.5 focuses on key stages of MLM life cycle like Analysis, Design and Development and also addresses limited Deployment or Delivery Considerations and Feedback. For each stage it captures the major inputs and processes, defines the outcomes for all the inputs and sub-processes listed, and provides a set of quality indicators as well as check-points to help ensure that the requirement action has been taken.

While the entire conceptual framework is provided in a tabular format this section provides a brief description of framework and the measurement logic followed.

Analysis Phase – Captures requirements, Sets expectations

Prior to developing any multi-media materials several questions – relating to the target audience or learners, the nature of MLM, the learning styles, the conditions under which utilized, the purpose for the MLM and the nature of the content – need to be answered. Unless there is clarity on these and several related issues the compatibility between the MLM and the learner may not be achieved. Analysis hence should capture the requirements and set expectations of the MLM. A study of analysis may be carried under five heads: needs, context, learner, task and content. These analyses would provide important inputs into design, development, implementation and assessment considerations.

Design phase – Sets the blueprint, defines the framework

The Design phase considers three sub-processes Instructional Design Strategy, Visual Design and Technical Design. The quality indicators reflect key points for each sub-process. Though the focus of this document is Multimedia Learning Materials (MLMs), the Technical Design provides indicators with respect to compatibility for online delivery requirements and use of latest developments in technology. Considerations for online delivery requirements is an optional requirement, but is defined as a quality indicator to suggest scalability of a product. An important consideration for the various sub processes in the Design phase is that various strategies are contextually relevant, gender and racially sensitive. Prototype Testing is included in the Design Phase to enable make necessary changes before development.

Development phase – Creation, assembly and integration of media elements

One of the important considerations for the Development phase would be that the media elements are IPR-free or due credit is given in the MLMs. This would be a pre-requisite for any quality certification. The second point is that the development is based on Design decisions. Some of the quality indicators clearly state this requirement.

Deployment – Putting the product into action

Even though very often MLM developers may not be solution implementers, there are some aspects of deployment that will impact on the learning situation and need to be considered at the time developing a MLM. This part of the framework looks at some basic and preliminary considerations that can be taken into account to enhance the learning experience for the MLM user like a basic deployment strategy indicating how a product is to be used, its durability, re-usability etc.

Feedback to measure effectiveness, recommendations for product improvement

Any MLM that provides an opportunity for feedback to be collected outlining a strategy for it and providing

valid tools for collecting feedback, can make a significant contribution to both understanding how the MLM is used and how it can be further improved. A MLM that outlines these automatically moves up on the quality scale.

Quality Indicators, Measurements and Checklists

The process of arriving at Quality Indicators has been to identify the core components / key ideas that reflect Quality with respect to each activity and sub-activity in the MLM development process. The specific approach adopted for developing QIs has been as follows:

- To identify all the major issues that have a bearing on the perceived Quality of the MLM at each stage of its development.

- To prepare an elaborate, though not exhaustive, list of pointers of Quality, taking care to avoid redundancy as well as duplication.

- To state the Quality Indicators using simple, unambiguous language that captures the essence of what reflects quality.

- To develop a set of Indicators that not only help to identify whether Quality is present or absent, but also pave the way for assessing the extent or degree to which a certain Quality Indicator is present. (i.e. to facilitate an understanding not merely of whether something has been done but how well it has been done).

Scalable Indicators

Based on the Quality Indicators finalised after intensive deliberations and scrutiny as to whether each Indicator is a needed, relevant and critical component of Quality, the next step taken was to develop a scale of Assessment for each. While recognizing the fact that a good indicator of Quality need not always be quantitative, in order to provide a readily usable, uniform format that is consonant with the approach adopted by most Quality Assurance agencies and one that permits objective comparisons between different MLMs, a five-point scale has been developed for each Quality Indicator. The lowest end of this Scale (Level 1) corresponds with the Verbal descriptor, 'Poor', and the highest point (level 5) represents the 'Excellent' level. The five point scale used for each QI and the progression implied from one level to the next is as given:

1. Poor ------generally representing absence or non-existence or no consideration given to a certain QI.

2. Average ------- indicating few components, partial presence or marginal consideration given to a certain QI

3. Good ------ indicating presence of or consideration given to many components of the QI

4. Very Good-----suggesting presence of or consideration given to most (almost all) of the important components of the QI

5. Excellent ------ indicating presence of / consideration to all the components of the QI PLUS some value addition (e.g. facilitating / providing direction to the next steps in the development of MLM. A WOW! Element.

Binary Indicators

Some indicators are not saclable but can only be noted as present or absent in the MLM being tested. Also known as "Dummy "variables, binary indicators are used for instance in determining attributes like whether a MLM is compliant with copyright issues or not; whether the hardware requirements for running the MLM are mentioned up front or not etc. Typically, these are answered with a "Yes" or "No" and are called binary (or dummy) variables.

While in the present form, no weights have been assigned to the Quality Indicators,   those QI's, which are considered absolutely essential for any quality assessment or assurance, have been labeled as Critical (*).

In the user feedback discussions, it was noticed that despite this caveat typically users of QAMLM across categories tended to add up individual numeric scores and arrive at a cumulative score to make an aggregated assessment of the MLM. While the QAMLM 1.5 development team does not recommend this practice or vouch for the validity of such score obtained, it hazards two suggestions.

- If adding Binary Indicators to the overall score, ensure that they are scored Zero "0", when a quality is absent and five "5", when it is present.

Not Applicable Category

Users have also mentioned in the feedback that the QAMLM scale did not accommodate situations where a particular parameter was not applicable, for whatever reasons.   In the revised version, which also includes some indicators which apply exclusively in an on line learning environments, like speed of loading, reusability etc this might come up frequently when assessing offline or stand alone MLMs. For all QIs, whether binary or scalable, whenever indicators are marked as "not applicable", it is suggested that they be disregarded while arriving at a total. That is, if only fifteen, rather that twenty indicators have been scored , then the maximum score may be taken as 15 x 5 =75 in place of 20 x 5 =100. Users must also bear in mind that excluding indicators would tend to bias the total score, i.e. fewer the indicators scored, greater the bias is likely to be, giving a misleading or erroneous rating.

Section A: Quality Assurance Framework for MLM

ACTIVITY	INPUT AND/OR PROCESSES	OUTCOMES	QUALITY INDICATORS	CHECKPOINTS
I. ANALYSIS				
1.1 Need	Defining the learning needs Identifying the needs from the perspective of different stakeholders (learners, teachers, subject experts, industry / practitioners, policy makers)	Need assessment statement / document	1.1.1 Needs are clearly stated and comprehensive.	☑ Needs are defined from every stakeholder's point of view ☑ Inputs from studies (primary and secondary) are considered while defining the need ☑ Needs are clearly stated for the reference of the development team
	Incorporating inputs from studies (primary and secondary)		1.1.2. Needs are appropriately prioritized.	☑ Needs are prioritized based on certain defined parameters (e.g. – characteristics of target audience or usage scenario)
1.2 Context	**Collecting data on contextual variables** Learning Environment • Individual/Group • Formal / Informal • Facilitated / Self-learn • Individual/Group • Technical facilities • Access to internet • Software / Hardware specifications Socio-cultural aspects	Contextual profile	1.2.1 Context is clearly and fully mapped.	☑ Context is very clear, well mapped with respect to the learning environment, technical facilities and socio-cultural aspects. ☑ Context defined is clearly reflected and documented so as to guide the Design and Development stages.

ACTIVITY	INPUT AND/OR PROCESSES	OUTCOMES	QUALITY INDICATORS	CHECKPOINTS
1.3 Target Audience Profile	Collecting Data with respect to target audience vis-à- vis their academic levels and attributes like skills, motivation, visual literacy, language competency, learning styles, special needs	Target audience profile	1.3.1 Target audience profiles are adequately captured.	☑ Target audience profile is very well-captured i.e. their attributes, academic level any special needs are understood) ☑ Brief document available w.r.t Target audience profile for the design and development teams.
1.4 Task	**Stating purpose(s) of the MLM** • Education • Training • Enrichment • Awareness • Skill development • Any other **Identifying usage aspects of MLM such as** standalone/series, supplementary, integrated and/or any other	Task definition documents	1.4.1 Primary purpose of MLM is clearly stated.	☑ Purpose of MLM is clearly stated with task well defined and includes suggestions for treatment at Design and Devel-opment stage.
			1.4.2 Usage aspects of MLM are clearly specified.	☑ Usage aspects of MLM are clearly stated, include suggestions for treatment and reflect how they will impact the Design and Development stages.
Content	**Creating content-outline**	Content outline	1.5.1 Content outline is indicative of the scope of the MLM.	☑ Content outline is given and clearly indicates the scope of the MLM and incorporates suggestions that impact the Design and Development stages.
	Generating content for design (raw content Verifying that content is cognitively appropriate, factually accurate, complete, sensitive and inclusive (gender, class, caste, religion, ethnic groups, environmental factors, etc.)	Appropriately validated raw Content	1.5.2 Raw Content has been validated for appropriateness and accuracy.	☑ Raw content has been fully and thoroughly validated for appro-priateness and accuracy. (All features like content outline, logical sequencing, completeness, factual correctness, sensitivity and inclusiveness are considered and validated).
				☑ Check that all references are cited – the source of the content is clearly captured while collating raw content.
	Classifying content into facts, concepts, principles, processes, procedures, etc. **Identifying as** cognitive and/or affective and/or psychomotor	Identified Learn-ing domain Classified Content	1.5.3 Content is accurately classified for design treatment as per learning domain.	☑ Content is accurately classified, learning domain is appropriately identified and suggestions for Design and Development treat-ment are given.

ACTIVITY	INPUT AND/OR PROCESSES	OUTCOMES	QUALITY INDICATORS	CHECKPOINTS
II. DESIGN				
2.1 Instruc-tional Design Strategy	**Stating learning Objectives**	Defined objectives	2.1.1 Objectives are clearly defined, realistic, relevant and measurable.	☑ Objectives of learning must be defined in a way that the learner can relate to them and they should be achievable. ☑ Objectives are clearly defined, realistic and relevant.
	Structuring Content logically and ensuring that it is cognitively appropriate • Simple to complex • Known to unknown • Concrete to abstract • General to specific	Content map	2.1.2 Content is pedagogically structured, and consonant with learner profile.	☑ Content reflects very good pedagogical structure, and complete consonance with learner profile. ☑ Content map is created as a reference for production.
	Specifying Learning Strategies • Macro • Micro	Strategy State-ments	2.1.3 Learning Strategy is clearly stated, appropriate, and realistic.	☑ Learning Strategy is clearly stated, appropriate, realistic and innovative ☑ Learning strategies are in con-sonance with the learning ob-jectives ☑ Different Learning strategies required for development of MLM are elaborated ☑ Learning strategies focus on the content being "Interactive"
	Selecting of suitable media • Audios • Graphics • Animations • Videos	Media Mix	2.1.4 Media mix (is an effective combination of audio, video, animations, graphics etc) is appropriate and engaging.	☑ Choice of media is appropriate, engaging and is very well inte-grated in the product.
	Planning / Specifying Interactivity Designing interactive elements and strategies across the MLM to ensure that the learner engages and participates actively	Approach and Level of Interac-tivity defined in the Design docu-ment	2.1.5 Approach for interactivity is effective and engaging	☑ Approach to include interactive elements in the MLM is clearly stated. E.g. – checkpoints for understanding, interactivity to explain concepts, simulations etc ☑ The level of interactivity – simple to complex is defined and documented for development of MLM

ACTIVITY	INPUT AND/OR PROCESSES	OUTCOMES	QUALITY INDICATORS	CHECKPOINTS
	Specifying Learner Evaluation Strategies • Practice • Assessment – com-puter marked and tutor marked • Games & quizzes • Pre-test • Post-test • Remedial • Others	Evaluation Scheme	2.1.6 Learner Evaluation Scheme includes a variety of assessment techniques and is consonant with the learning objectives.	☑ Learner evaluation scheme in-cludes a large variety of in-novatively conceived as-sessment techniques and reflects consonance with all learning objectives. ☑ Learner evaluation scheme fo-cuses on higher order thinking skills.
2.2 Visual Design	**Designing Graphical User Interface (GUI)**	Prototype GUI	2.2.1 The GUI Design is visually appealing and intuitive.	☑ GUI Design is visually ap-pealing, intuitive and innova-tive ☑ Check that the GUI colour schemes and icon used are ap-pealing to the target audience, that the audience would be able to relate and navigate easily.
	Deciding on Fonts • Type • Size • Compatibility (language, special characters, symbols etc)	Prototype Screens	2.2.2 Fonts are legible and visually appealing.	☑ Choice of Font size and color communicate information hie-rarchy and are learner appro-priate. Fonts are creatively used as an element of multi-media
	Planning Layouts • Information hierarchy display • Placement of elements	Prototype Layouts	2.2.3 Layouts are clearly defined and reflect information hierarchy.	☑ Layouts are an element of the design process. ☑ Layouts are clearly defined, fully reflect information hierarchy and consider all elements appropriately.
		Prototype - Visu-als	2.2.4 Content, visuals, and learning strategy are contextually relevant, gender and racially sensitive.	☑ Ensure that the content refers to individuals as he/she or they and does not generalize a male individual. Similarly when using images or creating graphics en-sure that girls and boys or men and women are all represented. Ensure that no stereotype roles are depicted as the women al-ways cooking and the men working.

ACTIVITY	INPUT AND/OR PROCESSES	OUTCOMES	QUALITY INDICATORS	CHECKPOINTS
				☑ Content, visuals and learning strategy are contextually relevant, gender and racially sensitive and the visual style are innovative.
2.3 Technical Design	**Preparing a Technical Design** with due attention to: • Configuration • Usage Scenario • Navigation • OS considerations • File Size • Compliance to Standards	Prototype Techni-cal Design	2.3.1 The technical design is flexible and compatible across delivery requirements.	☑ The Technical Design is innovative, and compatible with pre-vailing standards ☑ Note that the quality of the technical design is also in terms of usage across platforms. Define and work with formats which are platform independent and can also be used on cross-platforms like web and mobile
2.4 Prototype Testing	**Field Testing of the prototype** with the target audience and experts	Test Report - Recommenda-tions for modifications (Measure of acceptability of prototype elements)	2.4.1 Prototype Testing confirms suitability of the Design Strategy.	☑ Prototype testing is systematic, rigorous and confirms the design strategy ☑ Ensure that prototype testing is done with the intended target audience
III DEVELOPMENT				
3.1 Story boards	**Storyboard Writing**	Storyboards of multimedia learn-ing material	3.1.1 Storyboard is structured, based on objectives and defined learning strategies.	☑ Storyboard follows defined Structure, Objectives and Learning Strategies. ☑ Storyboard provides unambiguous and detailed instructions to developers ☑ Detailed and clear instructions to developers will reduce production time and feedback cycles.

ACTIVITY	INPUT AND/OR PROCESSES	OUTCOMES	QUALITY INDICATORS	CHECKPOINTS
			3.1.2 MLM shows sensitivity to gender, cultural and socio-economic considerations.	☑ MLM is sensitive, supportive and advocates gender equality and socio-economic considerations ☑ Ensure that the MLM refers to individuals as he/she or they and does not generalize a male individual. Similarly when using images or creating graphics ensure that girls and boys or men and women are all represented. Ensure that no stereotype roles are depicted as the women always cooking and the men working.
3.2 Multimedia elements and Program-ming	**Production of media elements** – audio, video, text, graphics, animations as applicable	Media elements developed and ready for integra-tion	3.2.1 Media elements are developed as per requirements stated in the storyboard and based on guidelines specified in Design phase	☑ Media checklist to be made to ensure that all required parame-ters specified in the design phase are considered ☑ Validate against the storyboard to ensure development of all media elements is complete
	Programming and integration of all media elements into cohesive multimedia learning materials. • Alpha version • Beta version	Final Master with support docu-ments	3.2.2 MLM is validated by subject experts.	☑ Subject matter expertise is available during entire devel-opment cycle ☑ The entire MLM is finally vali-dated by experts and sign-offs are received from them.
3.3 Process Documenta-tion	Process Documentation	Process Docu-ments (like graphic and media checklists, email communi-cation specifying - folder struc-tures, process flow for the development team, strategy documents etc.)	3.3.1Process documents facilitate easy and quick development of MLM.	☑ Process Documents are available for the entire development process, are well-formatted, permit easy retrieval and access and facilitate quick development of MLM.

ACTIVITY	INPUT AND/OR PROCESSES	OUTCOMES	QUALITY INDICATORS	CHECKPOINTS
3.4 Testing	Product Testing	Test Reports	3.4.1 MLM testing in a real life or simulated environment satisfies overall performance requirements.	☑ Testing reports not only indicate that testing has been done in a real / simulated environment and satisfy overall performance requirements but also check on other indicators that may prove conducive to enhancing the learning experience. ☑ Ensure that along with technical testing a learning experience testing is also done with the target audience
3.5 Compliance	Product compliance with all available standards and requirements	Compliance report	3.5.1 MLM design and development processes, and/ or product features, comply with all stated standards.	☑ All applicable standards of compliance for this MLM are re-searched, and their conditions enumerated. ☑ The design and development processes, as well as the MLM product, are thoroughly assessed as per the compliance standards above, and the results are documented.
3.6 Certification	Product is certified by one or more authorized agencies	Certification Report	3.6.1 MLM design and development processes, and/ or pertinent product features, have been certified by authorized agencies.	☑ All applicable certifications for this MLM are researched, and their certification procedures enumerated. ☑ For each certification, either the MLM product is put through the process, or documentation exists on why it is not put through. ☑ Copies of available certifications are enclosed with the MLM product.

ACTIVITY	INPUT AND/OR PROCESSES	OUTCOMES	QUALITY INDICATORS	CHECKPOINTS
IV DELIVERY CONSIDERATIONS				
4.1 Strategy	Detailing a delivery strategy that specifies: Delivery mechanisms in terms of hardware and software requirements	A comprehensive delivery strategy document	4.1.1 Delivery strategy provides a clear roadmap for execution.	☑ Delivery Strategy provides a step-by-step roadmap for effective implementation that is complete in all respects. ☑ In certain cases the design and development team would not be a part of the delivery / im-plementation process. It is however necessary to state the overall delivery strategy ☑ Note the reports of the delivery / implementation for future product development
4.2 Durability	**The minimum life span of the MLM** is clearly indicated, along with methods adopted during design and development to ensure this minimum life span.	Durability Report	4.2.1 The MLM is designed and developed to remain valid for a specified minimum time.	☑ The MLM is created to be correct and relevant for a specified amount of time. ☑ Technical, content and business methods followed to ensure such durability are documented.
4.3 Reusability	**The allowable contexts for easy reuse or repurposing of MLM,** e.g., in terms of target segments and/or learning objectives, are comprehensively listed.	Reusability Report	4.3.1 The MLM is designed and developed to allow easy reuse and repurposing in specified contexts.	☑ The MLM is created to be reusa-ble in specific contexts, which are enumerated. ☑ Technical, content and business methods followed to ensure such reusability are also documented.
V. FEEDBACK (TESTING)				
5.1 Feedback and Testing Framework	**Developing an Evaluation framework** which • Outlines the Evaluation scope and objectives • Incorporates Evaluation tools • Follows standard procedures • Involves trained evaluators • Has scope for budgetary provisions	Feedback (Test-ing) process/ design document	5.1.1 Testing strategy is clearly outlined.	☑ Testing Strategy is clearly stated and comprehensively covers all key aspects of the Testing framework.

ACTIVITY	INPUT AND/OR PROCESSES	OUTCOMES	QUALITY INDICATORS	CHECKPOINTS
			5.1.2 Testing tools are objective, valid and reliable.	☑ Testing tools are systematically developed, tested out and con-tribute in generating objective, valid and reliable data.
5.2 Improve-ment Mechanism	**Utilizing feedback**	Recommenda-tions for product modifications	5.2.1 Provision for utilization of feedback and improvement is made.	☑ Informal provision is made for collecting feedback from some sources (e.g., from learners or users). ☑ Guidelines are available for uti-lization of feedback from a va-riety of sources ☑ Systematic mechanism for im-provement / modification based on feedback is outlined. ☑ Feedback is used for regular MLM upgrades

SECTION 2

QUALITY ASSURANCE RATING GUIDE

For Developers and MLM Content Creators

Please fill a score for each indicator, in the right-most column. Meanings of scores are in the Descriptors columns

1 – Poor, 2 – Average, 3 – Good, 4 – Very Good, 5 – Excellent .

DO NOT SCORE INDICATORS THAT ARE NOT APPLICABLE. Simply write N.A.

(*) indicates that the indicator is considered Critical i.e., an important contributor to the quality of MLM

No.	INDICATOR	DESCRIPTORS	SCORE
PART A: SCORING SHEET			
I. ANALYSIS			
1.1.1	Needs are clearly stated and comprehensive. (*)	1. Needs are not stated and stakeholders are not defined. 2. Needs are somewhat clearly stated, but stake-holders are not defined. 3. Needs are clearly stated and few stakeholders are defined. 4. Needs are clearly stated and most stakeholders are well defined. 5. Needs are clearly stated and all stakeholders are very well defined.	
1.1.2	Needs are appropriately priori-tized.	1. Needs are not prioritized / wrongly pri-oritized. 2. Needs are prioritized to some extent, but inputs used are not clear. 3. Needs are prioritized to a large extent and indicate usage of some inputs. 4. All needs are prioritized and indicate usage of most inputs 5. All needs are appropriately prioritized and indicate usage of all inputs (primary and sec-ondary).	
1.2.1	Context is clearly and fully mapped. (*)	1. Context is not mapped. 2. Context is somewhat clear, but only partially mapped. (E.g. learning environment mapped but socio-cultural aspects and /or technical facilities not considered). 3. Context is clear, though not fully mapped. (E.g. Learning environment mapped and technical facilities determined, but socio-cultural aspects not considered). 4. Context is very clear and well mapped. (E.g. Socio- cultural aspects well mapped along with the learning environment and technical aspects). 5. Context is very clear, well mapped with respect to learning environment, technical facilities and socio-cultural aspects.	

No.	INDICATOR	DESCRIPTORS	SCORE
PART A: SCORING SHEET
1.3.1	Target audience profiles are adequately captured. (*)	1. Target audience profile is not captured. 2. Target audience profile is partially captured. (E.g. Academic level of the target audience determined, but target audience attributes are not considered). 3. Target audience profile is captured to a large extent. (E.g. Academic level and attributes considered, but target audience with special needs not considered). 4. Target audience profile is well-captured and the need for inclusiveness is emphasized. (Target audience with special needs also considered). 5. Target audience profile is very well-captured i.e. target audience attributes, academic level, any special needs are understood	
1.4.1	Primary purpose of MLM is clearly stated. (*)	1. Purpose of MLM is not stated. 2. Purpose of MLM is stated, but not clear. 3. Purpose of MLM is clear, but task is not defined in detail. 4. Purpose of MLM is clear and task is defined in detail. 5. Purpose of MLM is clearly stated with task well defined and includes suggestions for treatment at Design and Development stage.	
1.4.2	Usage aspects of MLM are clearly specified. (e.g. standalone / series, supplementary, integrated and/or any other)	1. Usage aspects of MLM are not indicated. 2. Usage aspects of MLM are indicated, but not clear. 3. Usage aspect of MLM are clearly stated, but do not include additional suggestions/details 4. Usage aspects of MLM are clearly stated and include suggestions for treatment 5. Usage aspects of MLM are clearly stated, include suggestions for treatment and reflect how they will impact the Design and Development stages.	
1.5.1	Content outline is indicative of the scope of the MLM. (*)	1. Content outline is not given. 2. Content outline is given, but only partially indicates the scope of the MLM. (Few titles/sub-titles given). 3. Content outline is given and indicates the scope of the MLM to a large extent. (Most titles / sub-titles are given and clearly placed). 4. Content outline is well given and clearly indicates the scope of the MLM. (All titles / sub-titles are clearly given and placed in logical / natural sequence / hierarchy). 5. Content outline is given and clearly indicates the scope of the MLM and incorporates suggestions that impact the Design and Development stages.	

PART A: SCORING SHEET

No.	INDICATOR	DESCRIPTORS	SCORE
1.5.2	Raw Content has been validated for appropriateness and accuracy. (*)	1. Raw content has not been validated for appropriateness and accuracy. (E.g. features like logical sequencing, following content outline, factual correctness, inclusiveness, etc., not considered). 2. Raw content has been only partially validated for appropriateness and accuracy. (Only a few features considered and checked). 3. Raw content has been validated to a large extent for appropriateness and accuracy. (E.g. Content outline is well followed and checked for appropriateness and completeness). 4. Raw content has been almost fully validated for appropriateness and accuracy. (E.g. content outline, factual correctness and completeness are considered and checked). 5. Raw content has been fully and thoroughly validated for appropriateness and accuracy. (All features like content outline, logical sequencing, completeness, factual correctness, sensitivity and inclusiveness are considered and checked).	
1.5.3	Content is accurately classified for design treatment as per learning domain.	1. Content is not classified and learning domain is not identified. 2. Content is classified, but learning domain is not identified. 3. Content is classified and learning domain is identified, though not appropriately. 4. Content is classified accurately and learning domain identified appropriately. 5. Content is accurately classified, learning domain is appropriately identified and suggestions for Design and Development treatment are given.	
	II. DESIGN		
2.1.1	Objectives are clearly defined, realistic, relevant and measurable. (*)	1. Objectives of Learning (OL) are not defined at all. 2. OLs are stated, but are not properly defined. 3. OLs are clearly defined and realistic. 4. OLs are clearly defined, realistic and relevant. 5. OLs are clearly defined, realistic, relevant and measurable	

No.	INDICATOR	DESCRIPTORS	SCORE
	PART A: SCORING SHEET		
2.1.2	Content is pedagogically structured, and consonant with target audience/learner profile. (*)	1. Content does not reflect pedagogical structure or consonance with learner profile. 2. Content marginally reflects pedagogical structure, and consonance with learner profile. 3. Content reflects good pedagogical structure, though consonance with learner profile is only marginally reflected. 4. Content reflects very good pedagogical structure and considerable consonance with learner profile 5. Content reflects very good pedagogical structure, and complete consonance with learner profile.	
2.1.3	Learning Strategy is clearly stated, appropriate, and realistic.	1. Learning Strategy is not stated. 2. Learning Strategy is stated, but not clear. 3. Learning Strategy is clearly stated and is appropriate. 4. Learning Strategy is clearly stated, appropriate and realistic. 5. Learning Strategy is clearly stated, appropriate, realistic and Innovative	
2.1.4	Media mix (combination of audio, video, animations, graphics etc)) is appropriate and engaging. (*)	1. Choice of media is poor 2. Media mix is not appropriate 3. Media mix is appropriate, but not engaging enough 4. Media mix is appropriate and engaging 5. Choice of media is appropriate, engaging and is very well integrated in the product	
2.1.5	Approach for interactivity is effective and engaging	1. Approach to build interactivity in the MLM not defined 2. Approach considers interactivity, but poorly conceived 3. Approach considers interactivity which is acceptable 4. Approach considered for building interactivity is effective 5. Approach considered for building interactivity is effective, engaging and innovative	

		PART A: SCORING SHEET		
No.	**INDICATOR**	**DESCRIPTORS**	**SCORE**	
2.1.6	Learner Evaluation Scheme includes a variety of assessment techniques and is consonant with the objectives of learning.	1. Learner evaluation scheme is not outlined. 2. Learner evaluation scheme is outlined, but includes a limited variety of assessment techniques and does not reflect consonance with objectives of learning. 3. Learner evaluation scheme includes a fair variety of assessment techniques and reflects consonance with a few objectives of learning. 4. Learner evaluation scheme includes a large variety of assessment techniques and reflects consonance with most objectives of learning. 5. Learner evaluation scheme includes a large variety of innovatively conceived assessment techniques and reflects consonance with all objectives of learning.		
2.2.1	The GUI Design is visually appealing and intuitive. (*)	1. GUI is not part of design considerations 2. GUI Design is included, but is not appropriate 3. GUI Design is visually appealing 4. GUI Design is visually appealing and intuitive 5. GUI Design is visually appealing, intuitive and innovative		
2.2.2	Fonts are legible and visually appealing. (*)	1. Legibility of fonts (size, type) and visual appeal (color, style) are not given consideration. 2. Legibility of fonts is considered, but visual appeal is not given consideration. 3. Fonts are legible and colour and style are learner appropriate 4. Choice of font size and colour communicate information hierarchy and are learner appropriate 5. Choice of font size and colour communicate information hierarchy and are learner appropriate. Fonts are creatively used as an element of multimedia.		
2.2.3	Layouts are clearly defined and reflect information hierarchy.	1. No thought is given to layouts 2. Layouts are defined, but not clear and do not reflect information hierarchy and consideration of all elements. (E.g. video windows, pop-ups etc). 3. Layouts are clearly defined and reflect information hierarchy to some extent, but do not consider all elements. 4. Layouts are clearly defined, largely reflect information hierarchy, but do not consider all elements. 5. Layouts are clearly defined, fully reflect information hierarchy and consider all elements appropriately.		

PART A: SCORING SHEET

No.	INDICATOR	DESCRIPTORS	SCORE
2.2.4	Content, visuals, and learning strategy are contextually relevant, gender and racially sensitive. (*)	1. Content, visuals and learning strategy are not contextually relevant and sensitivity to gender and race is not observed. 2. Content, visuals and learning strategy are contextually relevant to some extent, but sensitivity to gender and race is not observed. 3. Content, visuals and learning strategy are contextually quite relevant and slight sensitivity to gender and race is observed. 4. Content, visuals and learning strategy are contextually relevant as well as gender and racially sensitive. 5. Content, visuals and learning strategy are contextually relevant, gender and racially sensitive and the visual style are innovative.	
2.3.1	The technical design is flexible and compatible across delivery requirements. (*)	1. Technical aspects are not considered while formulating the design strategy 2. Technical design exists but is of poor quality 3. Technical design provides for basic aspects like configuration and navigation 4. Technical design is flexible and compatible across delivery requirements 5. The technical design is innovative, and compatible with prevailing standards	
2.4.1	Prototype Testing confirms sui-tability of the Design Strategy. (*)	1. Prototype testing is not done 2. Prototype testing is not systematic 3. Prototype testing is systematic and provides inputs regarding suitability of some design aspects 4. Prototype testing is systematic, rigorous and provides inputs regarding suitability of most design aspects 5. Prototype testing is systematic, rigorous and confirms the design strategy	
	III. DEVELOPMENT		
3.1.1	Storyboard is structured, based on objectives and defined learning strategies. (*)	1. Storyboard does not follow defined structure, objectives and learning strategies. 2. Storyboard is based on objectives and defined learning strategies but is poorly structured 3. Storyboard is based on objectives and defined learning strategies and is structured 4. Storyboard is based on objectives and defined learning, is well structured and provides instructions to developers 5. Storyboard is exceptionally well structured providing unambiguous and detailed instructions to developers	

No.	INDICATOR	DESCRIPTORS	SCORE
		PART A: SCORING SHEET	
3.2.1	Media elements are developed as per requirements stated in the storyboard and based on guidelines specified in Design phase	1. Media elements not as per storyboard requirements 2. Media elements developed are based on the storyboard but have a lot of gaps in terms of requirements stated 3. Media elements developed are based on the storyboard but have a few gaps in terms of requirements stated 4. Media elements developed are based on the requirements stated in the storyboard but do not fully adhere to the Design guidelines 5. Media elements developed are based on requirements stated in the storyboard and adhere fully to Design guidelines.	
3.2.2	MLM is validated by subject ex-perts. (*)	1. MLM is not validated by experts. 2. A few sections of the MLM (up to 40%) are validated by experts 3. Many sections of the MLM (up to 60%) are validated by experts 4. Most sections of the MLM (up to 80%) are vali-dated by experts 5. The entire MLM is validated by experts and sign-offs are received from them.	
3.3.1	Process documents facilitate easy and quick development of MLM.	1. Process documents are not available. 2. Process documents are available, but not adequate 3. Process documents are available for the entire development process and they record procedures and details. 4. Process documents are available for the entire development process, record procedures and details and are used to facilitate the easy and quick development of MLM. 5. Process Documents are available for the entire development process, are well-formatted, permit easy retrieval and access and facilitate quick development of MLM.	
3.4.1	MLM testing in a real life or si-mulated environment satisfies overall performance require-ments.	1. MLM testing reports do not exist. 2. Testing reports exist, but are incomplete. 3. Testing reports indicate that testing has been done in a real/simulated environment. 4. Testing reports indicate that testing has been done in a real/simulated environment and sa-tisfy overall performance requirements. 5. Testing reports not only indicate that testing has been done in a real/simulated environment and satisfy overall performance requirements but also check on other indicators that may prove conducive to enhancing the learning experience.	

PART A: SCORING SHEET

No.	INDICATOR	DESCRIPTORS	SCORE
3.5.1	MLM design and development processes, and/or product features, comply with all stated standards.	1. No standards have been stated. 2. General standards have been stated, but compliance is not clear. 3. Compliance report clearly indicates that the MLM is compliant with general standards. 4. Compliance report clearly lists all applicable ompliance standards and indicates which standards this MLM satisfies and which it does not. 5. Compliance report clearly lists all applicable compliance standards and discusses how exactly the design and development processes and the MLM product features satisfy all these standards.	
3.6.1	MLM design and development processes, and/or pertinent product features, have been certified by authorized agencies.	1. No certification agencies are mentioned. 2. Some generic (non-standard) certification agencies are mentioned, but there are no clear certificates from them. 3. Certification report shows that the overall MLM has been assessed and certified by a generic (non-standard) agency. 4. Certification report shows that the overall MLM has been assessed and certified by standard certification agencies. 5. Certification report shows that the MLM design and development process and all pertinent product features have been individually assessed and certified by standard certification agencies.	
		IV. DELIVERY CONSIDERATIONS	
4.1.1	Delivery strategy provides a clear roadmap for execution. (*)	1. Delivery strategy is not specified. 2. Delivery strategy exists but covers only some aspects of delivery. (E.g. delivery mechanisms and hardware / software requirements). 3. Delivery strategy is clear and includes key aspects of delivery like hardware, software requirements, 4. Delivery strategy provides all the key elements, including suggested resource allocation and timelines, checklists and trouble-shooting tips. 5. Delivery strategy provides a step-by-step road map for effective implementation that is complete in all respects.	

No.	INDICATOR	DESCRIPTORS	SCORE
PART A: SCORING SHEET			
4.2.1	The MLM is designed and developed to remain valid for a specified minimum time.	1. No durability is mentioned. 2. Life time of MLM is mentioned but there is no justification or detail provided. 3. Life time of MLM is mentioned and justified through general statements. 4. A clear life time is mentioned for the MLM, and measures taken to ensure this validity period are explained, in the durability report. 5. The MLM is designed and developed for excel-lent durability, and the durability report dis-cusses at length what technical, content and business methods are followed to ensure this durability.	
4.3.1	The MLM is designed and developed to allow easy reuse and repurposing in specified contexts.	1. No reusability is mentioned. 2. Potential reusability of MLM is mentioned but there is no justification or detail provided. 3. Potential reusability of MLM is mentioned and some contexts of reuse are listed. 4. A clear list of contexts for reuse or repurposing this MLM is given. 5. The MLM is designed and developed for excel-lent reusability. The reusability report gives a clear and comprehensive list of contexts for reuse, and also discusses at length what technical, content and business methods are followed to ensure reusability.	
V. FEEDBACK (TESTING)			
5.1.1	Testing strategy is clearly outlined.	1. Testing strategy is not outlined. 2. Testing Strategy exists but covers only some aspects of the testing framework. 3. Testing Strategy is clearly stated and takes into account many key aspects of the testing framework 4. Testing Strategy is clearly stated and covers most key aspects of the testing framework 5. Testing Strategy is clearly stated and compre-hensively covers all key aspects of the testing framework.	

		PART A: SCORING SHEET	
No.	**INDICATOR**	**DESCRIPTORS**	**SCORE**
5.1.2	Testing tools are objective, valid and reliable. (*)	1. Testing tools do not indicate any consideration given to objectivity, validity and reliability. 2. Testing tools indicate slight consideration given to objectivity, validity and reliability. 3. Testing tools indicate considerable attention given to objectivity, validity and reliability, but a systematic and integrated approach is lacking. 4. Testing tools are systematically developed with adequate and appropriate attention to objectivity, validity and reliability. 5. Testing tools are systematically developed, tested out and contribute in generating ob-jective, valid and reliable data.	
5.2.1	Provision for utilization of feedback and improvement is made.	1. No consideration is given to utilization of feedback 2. Informal provision is made for collecting feedback from some sources.(e.g. provision for feedback from learners, but not from ex-perts) 3. Guidelines are available for utilization of feedback from a variety of sources 4. In addition to the above guidelines, a systematic mechanism for improvement /modification based on feedback is outlined. 5. Improvement mechanism is worked out such that it provides for feedback to flow into the system and for regular upgrades to be made	

Assessment Guide for Ready-to-use/Developed MLMs For People Making Procurement/Use Decisions

Please fill a score for each indicator, in the right-most column. Meanings of scores are in the Descriptors columns

1 – Poor, 2 – Average, 3 – Good, 4 – Very Good, 5 – Excellent .

DO NOT SCORE INDICATORS THAT ARE NOT APPLICABLE. Simply write N.A.

(*) indicates that the indicator is considered Critical i.e., an important contributor to the quality of MLM

No.	INDICATOR	DESCRIPTORS	SCORE
		PART B: SCORING SHEET	
		I. ANALYSIS	
B1	Objectives are clearly stated (*)	1. Primary objectives not stated 2. Primary objectives stated but not clear 3. Primary objectives are clearly stated, but sub/secondary objectives are not stated 4. Primary objectives and secondary objectives are stated 5. Primary objectives and secondary objectives are very clearly stated.	
B2	Language is appropriate to target audience (*)	1. Language is totally not appropriate. 2. Language is inappropriate, having high-level or complex constructs. 3. Language is appropriate having average level of difficulty and complexity. 4. Language is good – i.e., simple and clear. 5. Language is excellent – i.e., simple, very clear and engaging.	
B3	Content is accurate (*)	1. Content has lots of mistakes and inaccuracies 2. Content has some mistakes and inaccuracies 3. Content is accurate 4. Content is accurate and appropriate to the target audience 5. Content is accurate, appropriate and all sources and references are cited	
B4	Content meets objectives (*)	1. Content is unconnected to objectives. 2. Content is connected to objectives to some extent 3. Content mostly meets objectives 4. Content meets all objectives 5. Content meets all objectives and encourages learner towards higher levels of learning.	

No.	INDICATOR	DESCRIPTORS	SCORE
	PART B: SCORING SHEET		
B5	Content follows a meaningful sequence	1. Content is randomly sequenced. 2. Content has some sequence, but has inconsistencies. 3. Content is sequenced but does not aid learning 4. Content follows a meaningful sequence and aids learning 5. Content is creatively sequenced to promote higher levels of learning.	
B6	Scope / coverage of the content is sufficient (*)	1. Scope & coverage of the content are grossly insufficient 2. There are many insufficiencies in the scope / coverage of the content/ 3. Scope and coverage of the content meet minimum requirements 4. Scope and coverage of the content are sufficient 5. Scope and coverage of the content are more than sufficient and are supplemented with additional ac-tivities.	
B7	Clear instructions are available on how to use the content (*)	1. There are no instructions available. The content is very difficult to use. 2. There are some instructions available. 3. Most instructions to use the content are available 4. All necessary instructions to use the content are available 5. All necessary instructions to use the content are available, with additional help tools	
B8	Content is easy to understand (*)	1. Content is very difficult to understand 2. Some parts of the content are difficult to understand 3. Most parts of the content are easy to understand 4. Content is easy to understand 5. Content is easy to understand and innovative ap-proaches are used to explain hard concepts.	
B9	Pertinent examples are included in the MLM	1. No examples are included in the MLM 2. Examples included cover only part of the primary objectives 3. Examples included cover all primary objectives 4. Pertinent examples are included to cover all the primary and secondary objectives 5. Pertinent and innovative examples are provided throughout, clearly enriching the learning effectiveness of the MLM.	
B10	MLM is interactive (*)	1. No interactivity is provided in the MLM 2. Limited interactivity is provided in the MLM 3. Fair amount of interactivity is provided 4. Interactivity provided in MLM is adequate and engaging 5. Many interesting and innovative forms of interactivity are provided in the MLM	

	PART B: SCORING SHEET		
No.	**INDICATOR**	**DESCRIPTORS**	**SCORE**
B11	Quality of media elements used (i.e., images, audio, video, etc) is acceptable	1. Quality of media elements is totally unacceptable 2. Quality of media elements used is poor 3. Quality of some media elements used is poor 4. Quality of media elements used is acceptable 5. Quality of media elements used is excellent	
B12	Choice and combination of media elements is engaging	1. Media elements are poorly used. 2. Use of media elements is largely not engaging 3. Use of media elements is not engaging at places. 4. Choice and combination of media is engaging 5. Choice and combination of media is engaging and innovative	
B13	The MLM is easy to navigate through.	1. User requires extensive training to navigate through the MLM 2. User requires some training to navigate through the MLM 3. Minimal training is required to navigate through the MLM 4. The MLM is easy to navigate through 5. Navigation in the MLM is intuitive & innovative.	
B14	Use of fonts and text colour are appropriate.	1. Text is not readable. 2. Text is readable but fonts & colour are not appropriate 3. Text is readable and fonts & colour are appropriate for the target learner 4. Text is readable and font & colour reflect information hierarchy 5. Text is readable; font & colour reflect information hierarchy and are creatively used.	
B15	Learner Assessment is included in the MLM	1. Assessment is not included 2. Assessment covers only some of the objectives 3. Assessment covers all objectives 4. Assessment covers all objectives with feedback 5. Innovative techniques of assessment are used covering all objectives with remedial feedback.	
B16	Learner support is available	1. No support is available for learners 2. Limited online and/or off-line learning support is available 3. Learner support is available 4. Learner support is available with good response time through various modes during working hours. 5. 24 × 7 prompt learning support is available through various modes.	

No.	INDICATOR	DESCRIPTORS	SCORE
PART B: SCORING SHEET			
B17-20 ARE BINARY VARIABLES. Please Score Zero '0' if attribute is absent and 5 if attribute is present. Do not score if Not Applicable			
B17	There are no mistakes in the language used	• There are mistakes. (score =0) • There are no mistakes. (score=5)	
B18	Loading speed is acceptable.	• Loading speed is not acceptable. (score =0) • Loading speed is acceptable. (score =5)	
B19	The MLM is sensitive to gender and socio-cultural factors (*)	• MLM is not sensitive to gender and socio-cultural factors. (score =0) • MLM is sensitive to gender and socio-cultural fac-tors. (score =5)	
B20	Content is accessible to learners with disabilities	• Content is not accessible. (score =0) • Content is accessible. (score =5)	

Do you have any other comments about the MLM? Please note them down in this space:

_____

_____

_____

_____

_____

_____

The above space is provided to allow for open-ended comments of the reviewer

PART C : SCORING SHEET FOR LEARNERS

• On each parameter listed below, please rate your multimedia material between 1 and 5.

    1:   Very Poor

    2:   Poor

    3:   Average

    4:   Good

    5:   Excellent

    X: Don't know / parameter not relevant for this material

• This form is ONLY to assess the material, NOT to judge you. Please respond freely.

• To add extra comments, you can utilize the space at the bottom of this sheet.

S. NO	STATEMENT	1	2	3	4	5	X
1	Explanation of why I should be learning this material						
2	Instructions on how the material should be used						
3	Additional support to learn (e.g., phone, web, manual)						
4	Organization of material into topics, sub-topics						
5	Material coverage in individual topics						
6	Ability to find & directly go to individual topics						
7	Correctness of material (i.e., no mistakes or inaccuracies)						
8	Quality of explanation & examples						
9	Focus on making me think, discuss, explore further						
10	Look & feel and intuitiveness of buttons & controls						
11	Simplicity of language						
12	Readability of fonts						
13	Pleasantness & appeal of color use						
14	Quality of audio						
15	Balanced use of pictures, video, audio and text						
16	Effectiveness in making me actively interact with material						
17	Quality of review questions						
18	Speed of loading						
19	Learning support for persons with disabilities						
20	Sensitivity to gender, race, and other social factors						

Please use this space for extra comments, if any.

Annexures

QAMLM VERSION 1.5 REVISION TEAMS

QAMLM VERSION 1.0 CORE GROUPS

EVOLUTION OF QAMLM

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LIST OF PARTICIPANTS AND CONTRIBUTORS TO QAMLM

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Evolution of QAMLM Process

CEMCA initiated this activity in the form of a consultation with a small group of experts. The first Round Table of experts held at Bengaluru on August 7, 2007 endorsed the need to take up this activity and provided the following guidelines:

It should be an inclusive process involving different stakeholders such as practitioners, and professionals from industry and academia, Open and Distance Learning (ODL) institutions and quality control agencies

- It should engage stakeholders from different countries in the region.

- It should provide a framework for defining quality assessment and assurance.

- To begin with, it would provide guidelines for self assessment by developers and users of MLM. Certification and standards may follow later.

- While a Core group may be identified to develop the guidelines, the process of development should be guided by periodic interactions and consultations of a wider nature.

This was followed by a discussion with a large group on October 11, 2007 at New Delhi where professionals from Malaysia and Sri Lanka were invited to participate. The group agreed that Quality Assessment, Standards, and Certification would be too wide a scope, and that as a first step the project should only develop a framework comprising guidelines for Quality Assurance and Assessment of Multimedia Learning Materials. Quality Assurance guidelines for this activity refer to providing guidelines for planned and systematic production processes that provide confidence in a product's suitability for its intended purpose. The guidelines should describe a set of activities intended to ensure that the product satisfies the learner/user requirements in a systematic and reliable fashion. While the guidelines cannot absolutely guarantee production of quality products, they will nonetheless, make it more likely.

Two core groups – one in India and the other in Malaysia were constituted to undertake the development of a framework for 'Quality Assurance in Multimedia Learning Materials' (QAMLM). It was agreed that the Indian group will focus on the holistic process of quality assurance, intended for developers of MLM while the Malaysian Group will focus on assessment parameters of MLM. Needless to say, both are interconnected, but each could also serve as standalone guidelines for two different user groups identified as 'Developers' and users.

Over a period of eighteen months, the core groups worked in tandem and in close collaboration, interacting both face-to-face as well as online. As initially planned, wider consultations were held in both countries:

Roundtable I : August 7, 2007, Bengaluru

Roundtable II : October 11, 2007, New Delhi

Roundtable III : June 9, 2008, New Delhi

Roundtable IV : November 1, 2008, Kuala Lumpur

Roundtable V : April 2 &3, 2009, New Delhi

The draft version of the guidelines was released at the CEMCA Advisory Council meeting held on December 2, 2008 at Delhi. These guidelines were later widely circulated amongst diverse stakeholders and also hosted on the CEMCA website. Further, these were uploaded on the wiki educator (http://wikieducator.orgQuality Assurance-in_Multimedia_Learning_Materials) to obtain feedback from wider audiences. A total of six groups in India - three from the industry (IL&FS, NIIT and Azim Premji Foundation) and three academic institutions (YCMOU, SIET-Kerala and SNDT, Mumbai) tested the guidelines. Likewise, the Malaysian team also tested the guidelines over a wider audience. The reports of the various studies were presented and discussed at the Fifth Roundtable held on April 2 &3, 2009 at New Delhi. The core groups subsequently reconvened and in light of field testing reports refined the guidelines as reflected in this document: QAMLM – Version 1.0.

After the release of the guidelines CEMCA shifted its focus to getting a wide cross section of users-individuals and institutions working in different learning environments and levels of learners to field test the document thoroughly and share their experiences . An international base camp was organized by CEMCA in association with Madurai Kamaraj University in February, 2010. Over 25 representatives from industry, academia and NGOs engaged in creating MLM for varied levels of learners from children in resource poor settings to skill

development and life long learning for adults, formal and non-formal learning participated in the discussions, making detailed presentations of

Two things emerged very strongly from the discussions. Without exceptions, users benefited from the guidelines. Developers were particularly appreciative of a set of measure against which they could map their processes and outcomes. However, those not very familiar with instructional design terminology, typically teachers and administrators who often procure ready-to-use or "developed" products expressed some difficulty in interpreting some of the parameters. At would only enable them to record their opinions of going through End users or learners without getting into any of the product development issues. It was also felt that the guidelines needed to address some more issues arising in an online learning environment.

Once again a sub group of three persons one from CEMCA and two Instructional design experts, who had been carrying out continuous testing of the guidelines was constituted to revisit the guidelines. Simultaneously two institutional partners namely create learning materials for higher education (Consortium for Higher Education) and Schools (Central Institute of Educational Technology) were brought in to not only test the guidelines but also undertake MLM productions using the guidelines, through the development stages. Core teams were identified at each institution who provided feedback at specially organized workshops at Pune in October 2010 with EMMRC Pune and SIET Pune providing the hosting arrangements.

The sub group reviewed all the feedback thoroughly and in consultation with the institutional core groups revised the current version of the guidelines QAMLML Version 1.5.

See Annexure for all participants and contributors to the Round Tables.

List of Institutions

AeU - Asia e University

AIOU - Allama Iqbal Open University

ANDC - Acharya Narendra Dev College

CAP Foundation, Hyederabad

CEC - Consortium for Educational Communication

CEMCA - Commonwealth Educational Media Centre for Asia

CIET - Central Institute for Educational Technology

Core Projects and Technologies Limited

E I Design, Bengaluru

EMMRC-Educational Multimedia Research Centre

IGNOU - Indira Gandhi National Open University

ILFSETS - IL&FS - Education and Technology Services

MKU- Madurai Kamaraj University

MOHE - Ministry of Higher Education

MMU - Multimedia University

NASSCOM - National Association of Software and Services Companies

NCERT - National Council for Education, Research and Training

NIIT - National Institute of Information and Technology

NIOS - National Institute of Open Schooling

OUM - Open University Malaysia

OUSL - Open University of Sri Lanka

SIET - State Institute of Educational Technology

SNDT - Shreemati Nathibai Damodar Thackersay Women's University

TEQNIUM

UiTM - Universiti Teknologi Mara

YCMOU - Yashwantrao Chavan Maharashtra Open University

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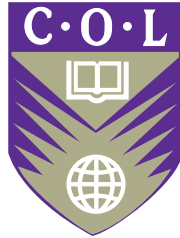
COMMONWEALTH OF LEARNING

Learning for Development

The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning/distance education knowledge, resources and technologies. COL is helping developing nations improve access to quality education and training. COL is located at Vancouver, Canada. http://www.col.org'

Commonwealth Educational Media Centre for Asia

Operating as the regional media service of COL, in consonance with the mission of Commonwealth of Learning, Commonwealth Educational Media Centre for Asia promotes the meaningful, relevant, and appropriate use of information and communication technologies to serve the educational and training needs of the Eight Commonwealth member states in Asia: Bangladesh, Brunei, India, Malaysia, Maldives, Pakistan, Singapore, Sri Lanka.

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