Integrated intelligent LEARNing environment for Reading and Writing

D1.1 – Quality Assurance Plan

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Abstract	This document outlines the activities and procedures to be carried out in the project to ensure the relevant quality standards. The risk management methodology is described as well as providing the initial risks identified for the project as a whole and for each work package.
Keywords	Quality assurance plan, metrics, project management organisation.

Document Status Sheet

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Project information

Project acronym:	**ILearnRW**
Project full title:	**Integrated Intelligent Learning Environment for Reading and Writing**
Proposal/Contract no.:	**318803**

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Table of Contents

1. Introduction

The objective of this task is to ensure the quality of the project results. This deliverable is divided in two main sections; the first one is a project handbook that defines the guidelines for the deliverables produced during the Project duration (templates, codes, formats, etc). It includes also common management procedures to follow, the specific activities and staff resources necessary to complete the work, plus the organisation and time-scales in which the activities are to be performed, as well as general information about the project objectives.

The first part of the document describes the general practises and management procedures that should be followed in the project to ensure that project objectives are met. These include such things as the management structure and control, decision making and communication procedures as well as providing useful project information. There is also a section on documentation where the templates for project deliverables are described.

The second part describes the Quality Assurance activities, including all the planned and systematic activities implemented within the quality system to provide confidence that the project will satisfy the relevant quality standards and will be performed throughout the project as a continuous process.

This deliverable includes a set of guidelines and metrics to monitor the evolution of the project and support the project manager and the consortium in the assessment of the quality of the project results. It also helps to identify risks and relevant issues during the project life.

The data will be collected every 6 months, and the results analysis will be submitted in the following project periodic report or management progress report.

The measurement of the project progress will be done internally with the following standards:

- Satisfaction of the users' expectations with the progress of the project.
- Reaction from industry and interest from other European organisations involved in Dyslexia issues on project results (after dissemination activities).
- Timely completion of the work packages and tasks.

A key issue is to measure the right things. We have to measure three main areas in the project:

1. Management: Performance against DoW requirements and Reviewers Satisfaction.
2. Performance of technical activities: System quality.
3. Performance of Dissemination & Exploitation activities: Awareness & Usefulness.

Based on this, each work-package leader has identified main elements to measure for the creation of effective metrics. We have avoided creating metrics which cannot be collected accurately, that create excessive overhead and red tape or metrics that are complex and difficult to explain to others. Each WP leader has defined a set of indicators which will be used to measure the "success" of the WP and therefore of the complete project. These indicators have been clearly defined, can be measured and have a minimum level that can be considered as acceptable. They are described in detail in the next sections.

These indicators may be technical in nature (for example some measure of throughput of the system) or not (for example based on questionnaires asking the opinion of users about some aspect of the application).

On the one hand, it will be the responsibility of the Project Manager to keep these measurements in mind during the full project and to take necessary actions in case of an unsuitable status, and on the

other, it will be the responsibility of the Work-package leader to provide the data following the templates provided.

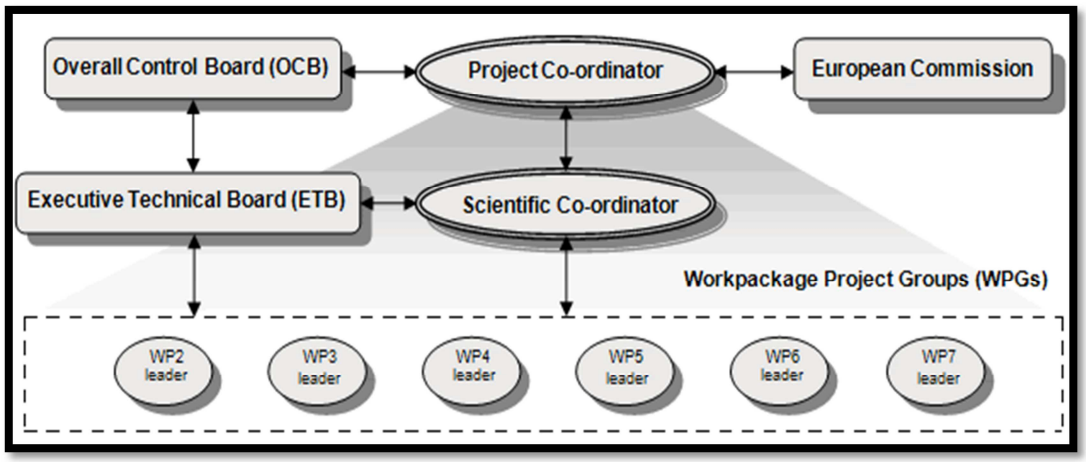
The indicators may be revised during the project duration, to adapt them to the reality of the developments, if it is deemed necessary.

2. Project management and Communication

This section describes the project management elements and procedures to ensure a successful completion of the project objectives, by establishing the project management structure. It also provides a set of guide lines to exchange information in a certain format or file codes. Partners' contact information is provided as well.

2.1. Organisations and responsibilities

The consortium activities will be organised according to the following structure:



Level 1:

- Overall Control Board (OCB)

  The OCB is the high level management body and its members are the Project Coordinator and representatives of all ILearnRW contractors.

  OCB is the main decision body of the Consortium, represented by the project coordinator, managing relations with the European Commission and undertakes all administrative arrangements.

  The OCB ensures that the objectives of the project are well specified and adhered to, and arbitrates in the case of conflicts that cannot be resolved by the Executive Technical Board. The decisions of the OCB are binding for the whole project. If changes are to be made to the contract, the description of work or the consortium agreement, it will be made with the agreement of the OCB and implemented by the Project Coordinator.

- Project Co-ordinator

  The Project Co-ordinator is responsible for the formal communication between the consortium and the EC, and represents the ILearnRW project towards the outside world. The coordinator is responsible for monitoring the overall performance of the project, administer project resources and promote project visibility. The coordinator also chairs the meetings of the Overall Control Board. Dolphin is the ILearnRW project co-ordinator.

Level 2:

- Executive Technical Board (ETB)

  The ETB is responsible for guiding the work of the project and evaluating the performance of the working groups. It is the body that makes technical decisions when a conflict arises. ETB is also the body that approves the project's deliverables. The ETB consists of the Scientific Co-ordinator and the WP Leaders

- Scientific Co-ordinator

  The mandate of the Scientific Coordinator (or Technical Manager) is to audit the R&D performance of the project and ensure accomplishment of the technical objectives. S/he is responsible for resolving work implementation problems & dead-ends. S/he is also the direct link between the Overall Control Board and the people performing the work. S/he chairs the meetings of the Executive Technical Board. As chair of the ETB, the Scientific Co-ordinator is responsible for coordinating the process of accepting the project's deliverables. NTUA is the ILearnRW Scientific co-ordinator.

Level 3:

- Workpackage Project Group (WPG)

  The WPG consists of the experts / executives by each contractor / subcontractor appointed to a specific work package. Each WPG is headed by the corresponding WP Leader as it is determined in Section 7. The workpackage leaders are responsible for the production of the specific deliverables of the work-package (whether "report" or "prototype").

Project Advisory Board

In addition to the above described management structure, a Project Advisory Board (PAB)will be also established. The role of the Advisory Board will be to provide feedback and advice to the consortium members on issues related to the ILearnRW project. The members of the PAB are ICT specialists in relevant to the project fields

The Project Advisory Board Members are:

- Prof. George Tsihrintzis, University of Piraeus, Greece.
- Dr. Julian Togelius, IT University of Copenhagen, Denmark.
- Mrs. Carol Allen, School Improvement Advisor, North Tyneside Council, U.K.

2.1.1. Description of the Scientific Coordinator

The mandate of the Scientific Coordinator (or Technical Manager) is to audit the R&D performance of the project and ensure accomplishment of the technical objectives. S/he is responsible for resolving work implementation problems & dead-ends. S/he is also the direct link between the Overall Control Board and the people performing the work. S/he chairs the meetings of the Executive Technical Board. As chair of the ETB, the Scientific Coordinator is responsible for coordinating the process of accepting the project's deliverables. NTUA is the Scientific Coordinator.

For the Specific WPs

WP2: The Scientific Coordinator ensures that the material (promotional, technical, scientific) used in Dissemination activities is technically sound and that it accurately describes/ presents the project's results.

WP3: The Scientific Coordinator ensures that the Technical System Specifications and the Test Bed Specifications are complete and appropriate for use in the design of the ILearnRW system architecture and the components developed in work packages WP4, WP-5 and WP-6.

WP4: The Scientific Coordinator (also WP leader) ensures that the components designed and/or implemented as part of WP-4 (knowledge infrastructure, content presentation/adaptation, content classification) conform with the specifications of the system architecture designed in parallel as part of WP-6.

WP5: The Scientific Coordinator ensures that the components designed and/or implemented as part of WP-5 (usage logging mechanism, developed serious games) are compatible with the knowledge infrastructure designed in T4.1 and with the system architecture designed in parallel as part of WP-6.

WP6: The Scientific Coordinator overlooks the integration of the ILearnRW system and clarifies any issues raised by the technology partners responsible for this major task (DOLPHIN, UoM and LBUS). The conformance with the system architecture is expected to minimize the potential problems.

WP7: The Scientific Coordinator (NTUA) ensures that the formation of the test bed environment is done in compliance with the "Test Bed Specification" developed as part of WP-3, and that the evaluation plan deals with all technical issues that might need to be addressed during the evaluation.

2.1.2. Contacts

This section includes contact useful for the project.

Key Consortium Staff Table

	Acronym	Full Name	From	Contact Person	E-Mail	Phone	Organization Web Site
1	Dolphin	Dolphin Computer Access LTD	UK	Noel Duffy	noel.duffy@dolphinuk.co.uk	+44-7880507857	www.yourdolphin.com
2	NTUA	National Technical University of Athens	GR	Stefanos Kollias Antonios Symvonis	stefanos@cs.ntua.gr symvonis@math.ntua.gr	+30- 2107722488 +30- 2107723199	www.ntua.gr
3	UoM	University of Malta	MT	Georgios Yannakakis	georgios.yannakakis@um.edu.mt	+45-7218 5078	www.um.edu.mt
4	UOB	University of Birmingham	UK	Asimina Vasalou	vasaloua@cs.bham.ac.uk	+44-1214148002	www.birmingham.ac.uk
5	DYSACT	Dyslexia Institute Limited	UK	John Rack	jrack@dyslexiaaction.org.uk	+44-7712874925	dyslexiaaction.org.uk
6	EPIRUS	Technological Educational Institute of Epirus	GR	Victoria Zakopoulou	vzakop@ioa.teiep.gr	+32-2651050755	www.teiep.gr
7	LBUS	Universitatea "Lucian Blaga" din Sibiu	RO	Ioan Mihu	ioan.p.mihu@ulbsibiu.ro	+40-269217928	www.ulbsibiu.ro

Key European Commission Contacts Table

European Commission	Email	Telephone
Krister Olson	krister.olson@ec.europa.eu	+35 2430 134 332

2.1.3. Management Control model

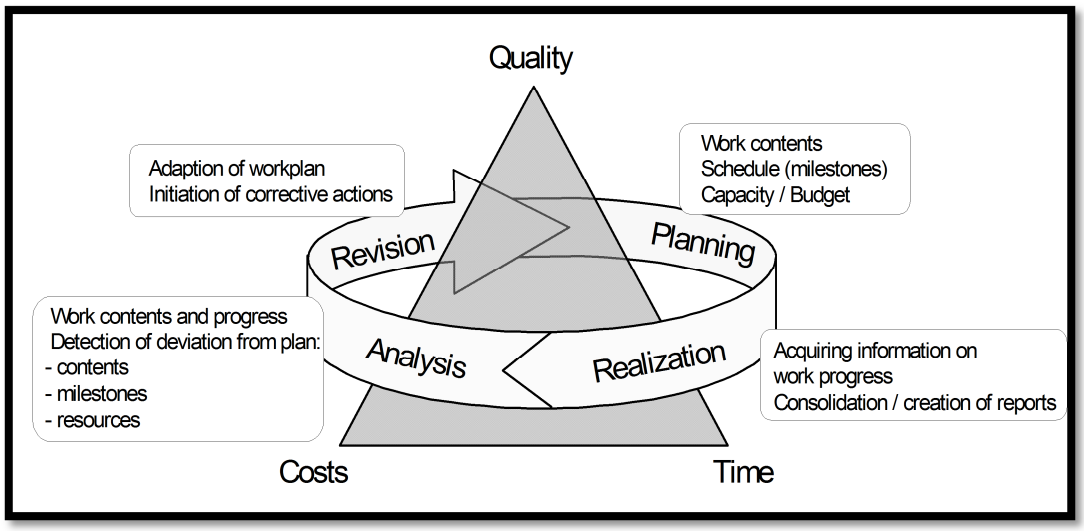


Figure 1: quality assurance process.

This process includes several activities for the implementation of the review, assessment and feedback mechanism:

- Definition of the quality standards, elements to measure, etc.
- Establishing the quality system.
- Supporting the project team to apply defined procedures by the implementation of project templates.

Monitoring of the application of Project Quality Assurance Plan (PQAP): verification of documents, reviews and audits.

2.1.4. Mechanism for Corrective Actions and Reporting Progress

The mechanism for corrective action is based on the reporting chain from the WPG via the ETB to the OCB. All corrective actions are arising from reports and reviews to any of these three management groups are completed by the group receiving the report/review or delegated down to an appropriate level for completion. Each corrective action is given a target date when completion will be confirmed to the quality responsible.

Routine day-to-day corrective action within work packages are the responsibility of the work package leader.

The day-to-day management, decision-making, and conflict resolution is the responsibility of the Scientific Coordinator. Technical conflicts are initially addressed to individual work package leaders. When conflicts cannot be satisfactorily solved at this level, they are reported to the Scientific

Coordinator who, based on the importance and its ability to give an immediate response, might bring it to the ETB or even to OCB levels.

At the milestones reviews that are performed by the ETB, the progress of the project is critically reviewed and compared to the planning and criteria described in this Annex of the contract. Depending on the progress and the results achieved, a change in the work plan may be proposed. For the Annual Assessment and Final Assessment, specific review meetings are organised with the OCB and representatives of the European Commission.

2.1.5. Mechanism for accepting Deliverables

The deliverables are officially approved by the ETB. For each of the project deliverables, the ETB designates one of its members to be responsible for the review of the deliverables (referred to as "deliverable reviewer"). The deliverable reviewer has to be a person different from the WP-leader responsible for producing the deliverable. For each deliverable the ETB also specifies the time framework for the review.

The peer reviewer forwards comments to the WP-leader responsible for the deliverable the deliverable is accordingly updated. In the event that the deliverable is updated to the peer reviewer's satisfaction, the peer reviewer recommends its acceptance. In the event that the peer reviewer is not satisfied, the issue is brought to the ETB which takes action the necessary actions to bring the deliverable to an acceptable form.

The Scientific Coordinator is responsible for coordinating the process of deliverable reviews, and is the responsible of the quality of the deliverable as well. S/he forwards the deliverable to the project coordinator who submits them to the Commission

A draft of the deliverables should be distributed to the relevant persons (Scientific Coordinator, WP leader, peer reviewers) at least 3 weeks before delivery deadline.

2.1.6. Meetings and decision making

The Contract describes the planned meetings, and the decision-making procedures, which will be applied during the ILearnRW Project.

Normal co-operation will be achieved using e-mail, teleconferencing (Skype) fax, and phone. The mails should have a week delay (maximum) between the sending and the implicit agreement. By implicit agreement we mean that for instance, if no one has sent any comments or reacted to the attached document within 7 days, we assume that all parties agree with it and we close the issue. Exception could be made in cases of holidays or summer vacations

When an agreement is met on the telephone/teleconferencing, it should be made official by sending an email to the other partners describing the agreement. This procedure ensures that on one side the agreement can be documented and, on the other side, the other partners are informed about the project evolution.

Additionally, general meetings are held to have discussions on important issues that require the participation and opinion of all partners. This is also an opportunity for partners to meet each other in

order to solve small questions, doubts and requests not concerning the whole project. Different kinds of meetings are foreseen in ILearnRW:

- **Regular Meetings**: Every 6 months Overall Control Board will meet. These meetings will be held during the same set of days, to minimise travel expenses, but in clearly separated sessions, to avoid that purely technical issues will be mixed up with managerial ones. The meeting locations will rotate through the Partners' sites.
- **Extraordinary Meetings**: Work packages projects groups meetings are organised when necessary or upon request of the involved parties and approval of the Executive Technical Board. Extraordinary meetings of overall control board will be held upon request of one Board member and approval of the majority of Board members or upon Project Manager request.
- **Reviews**: reviews will be held at EC request.
- **Kick-off meeting**: The Kick-off meeting was held in Athens, Greece at the beginning of the project activities (Oct 15, 2012).
- **Pre-review**: Immediately before each review, a General Meeting is held for preparation of topics to be presented in the review. At least one person from each partners should attend this meeting,

2.2. Documents

As already mentioned, all documents should be based on the template of the project. The template file is a Microsoft Word document.

The templates are designed for deliverables, however in order to maintain coherence between the documents exchange within the consortium all documents should utilize the same template.

2.2.1. Information flow

Exchange of information will mainly occur by e-mail and file transfer over Internet. Telephone and fax will be used for urgent needs only. Urgent correspondence over e-mail will be sent with a request for explicit acknowledgement. Ordinary mail will be used for strictly formal correspondence, i.e. when executive signatures are required.

The communication among the project members is facilitated with the use of ***Basecamp*** project management software. *Basecamp* is a web-based project management collaborative solution. This will be used to store project documents, WP documents, reports, forms, meeting notifications etc. It will also be used to foster collaboration and interpersonal productivity:

- Facilitate the work of groups
- Communicate
- Cooperate
- Coordinate, etc.

To foster the collaboration we can identify several areas, in different aspects:

	Synchronous "same time"	Asynchronous "different time"
Same Place	Face-to-face : meetings, presentations, …	Shared resources: files, corporate directory ….
Different Place	On- line conferencing, chat, whiteboards, desktop, app. sharing, info streaming, …	content, document, project, task, process, workflow management, Email, calendar, …

Project Portal

Figure 2: Collaboration Aspects

Multi-team projects require the collaboration of many companies/departments (located in different countries/places during a large period of time):

- Need of a common repository of documents,
- Need of a common calendar,
- Need to know each person involved,
- Need to explain new people the project,
- Need to publish information easily for everybody,
- Need to reduce management/communication effort (Ex: Financial management, Report Management,…)

The *Basecamp* System full fills these needs.

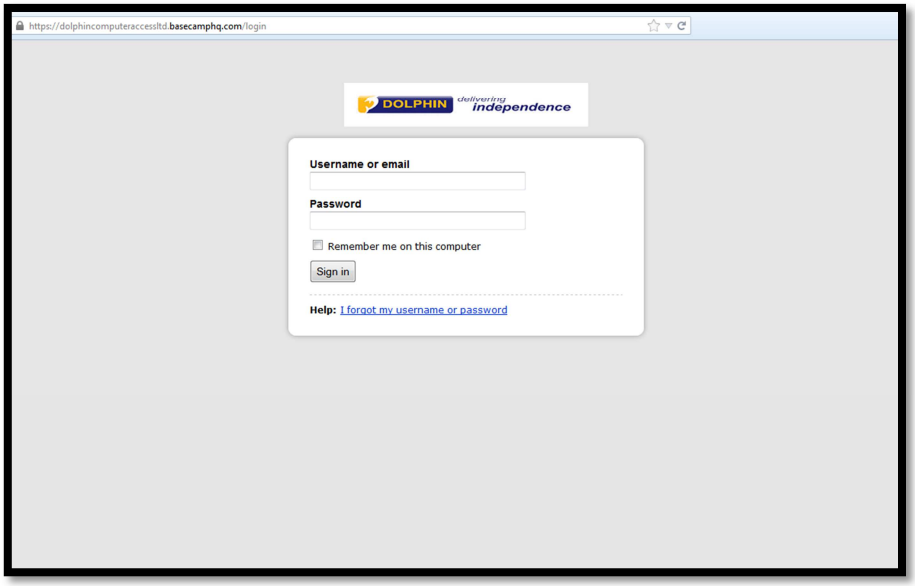


Figure 3: Basecamp access page

The users of ILearnRW in *Basecamp*, with respect to distribution of messages, are divided into 3 groups.

- ILearnRW Team Leaders: Messages that are relevant to the partner team leaders (e.g., concerning decision making, budget, etc) are forwarded only to this group.
- Dolphin Member: Messages relevant to members of the .project coordinator (e.g., budget, upload of deliverables, maintenance of *Basecamp* and portal, etc) are forwarded to the appropriate person(s) in this group.
- Other ILearnRW Member: Messages relevant to the remaining team members are forwarded to the appropriate person(s) in this group. .

Each user has a username and a password in order to be identified by the system. The Administrator organises the content structure and create new users and new working groups. The project members can share working documents allowing them to follow the workflow of the documents. It allows identifying the activity in the consortium during the last period. There is also a Common Repository for all project documents with an intuitive publishing tool.

Following are some screen shots of the application.

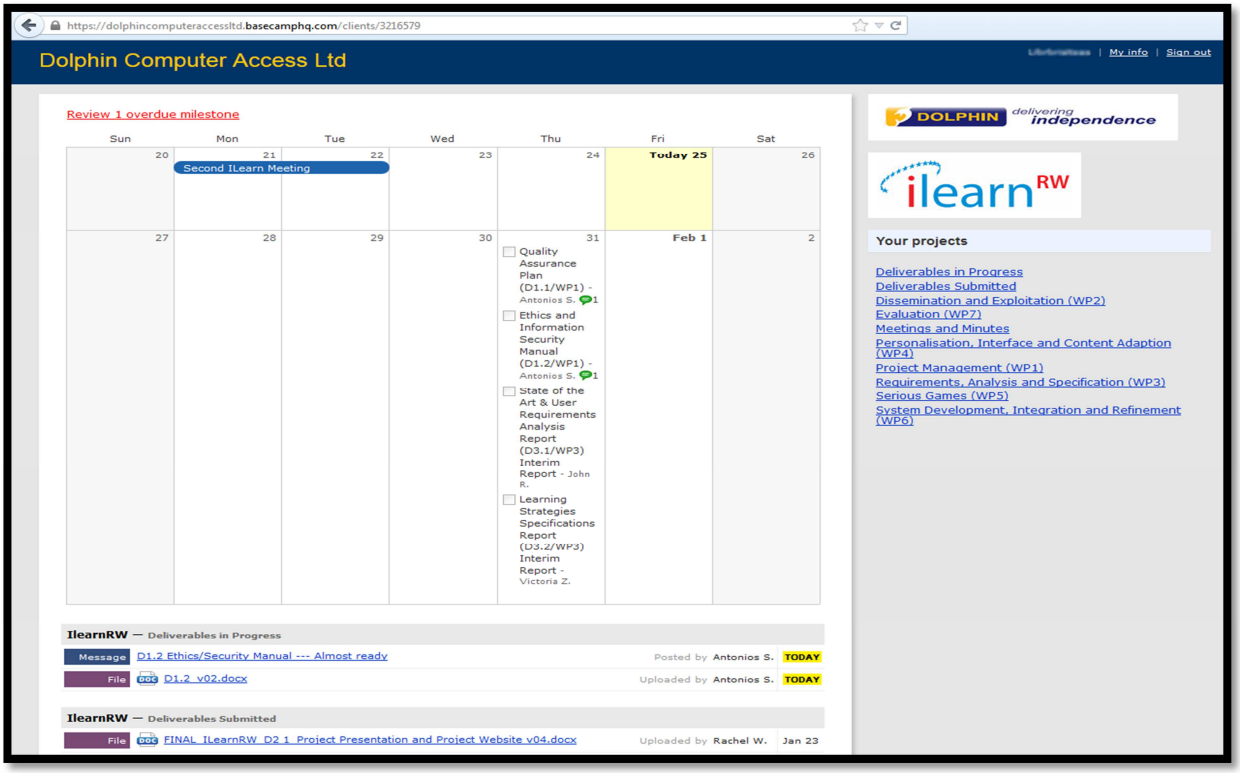


Figure 4 Basecamp Projects' Page

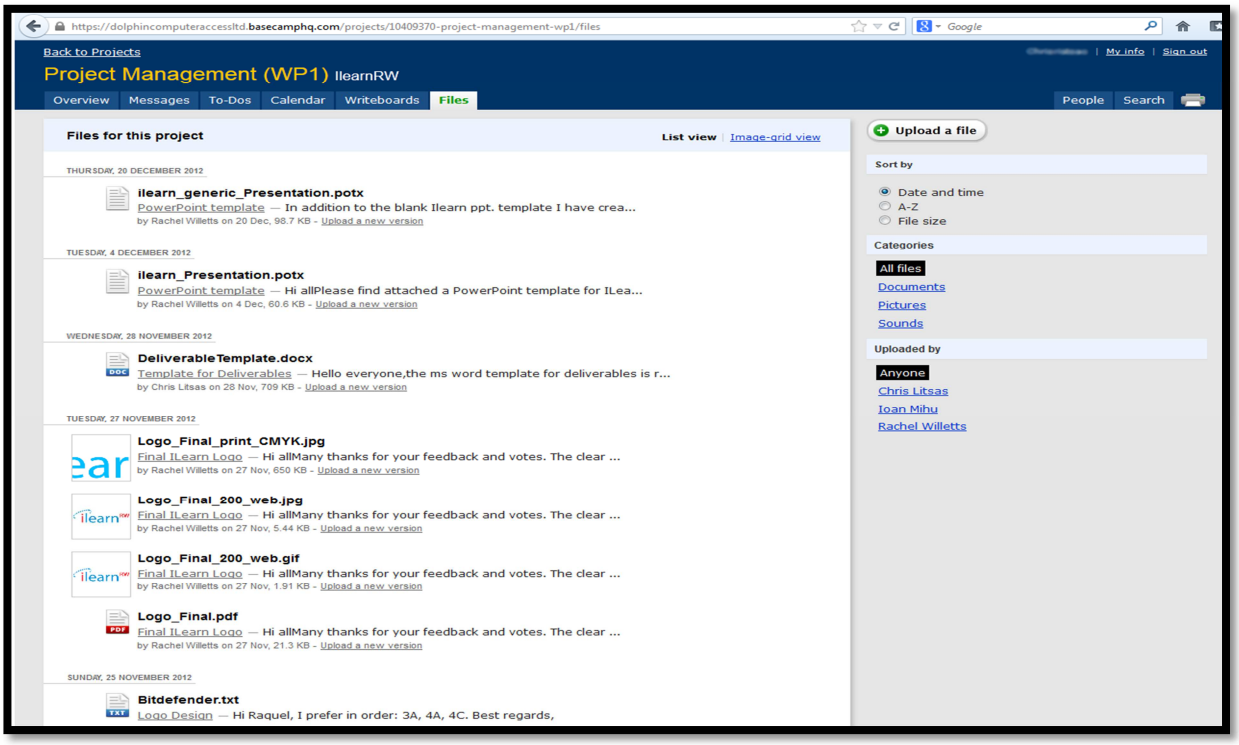


Figure 5 Basecamp WP's Page

Publicly available information about the project is provided by the ILearnRW portal (ilearnrw.eu). It was developed using *Drupal* 7.17 (with modules CK Editor V1.11, Backup and Migrate 2.4 The website is hosted and maintained by Dolphin. All information is password protected. The members of the ILearnRW project have a personal login and password. The private area is linked to the Public website and vice versa.

A screen shot of the portal's home page is shown below.

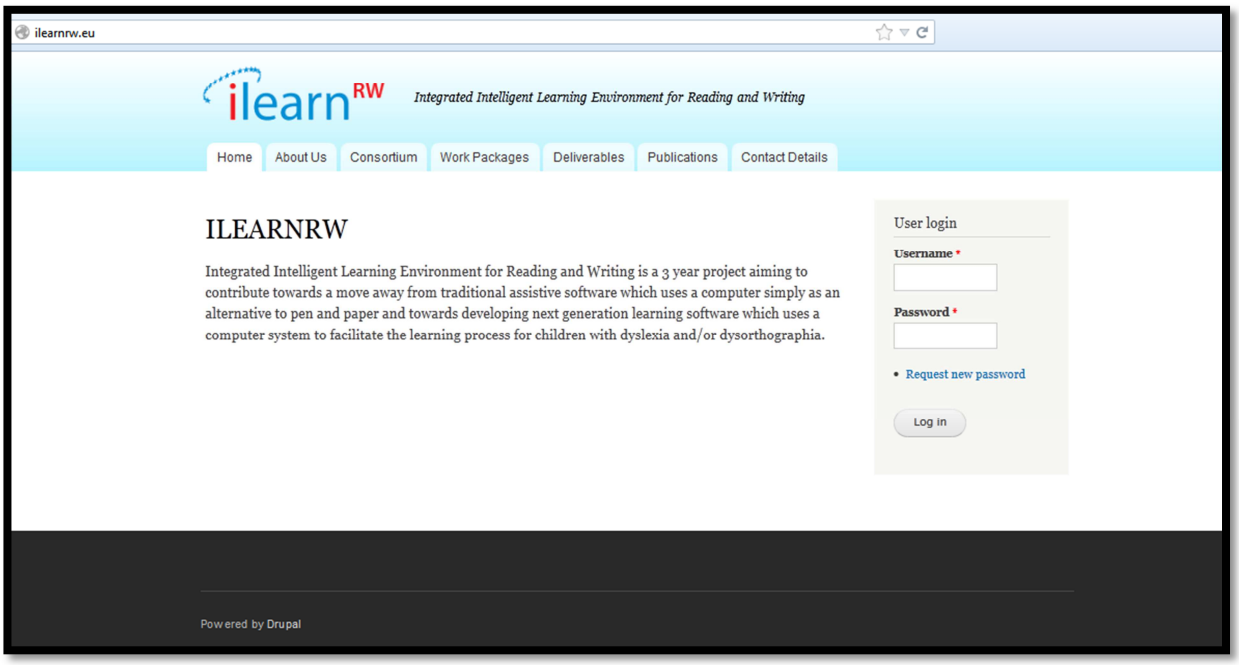


Figure 6 Project Portal

2.2.2. Exchangeable technical documentation

All technical documentation generated by the project should be exchangeable in electronic format. Each document will follow the deliverable template, and will include at the beginning of the document a "**Document Status Sheet"** in which to summarise the main changes and the configuration control. This sheet will include the date of the changes, main changes from the previous version and the nature of the changes (**major / minors**). It will also include the version of the document. The documents will follow the codification proposed in the next section.

The minors changes will be reported as follow: Name_vZZ**.X**_PT_ yyyymmdd, where X is a minor release of a document version (ZZ).

Controlling the changes of the items throughout the document lifecycle will support the consortium to record and report the status of documentation and to identify the changes requested.

The documents will be in a ".docx" Format with track changes to review and accept the changes. Technical document are manuals, use guide etc, that will follow the format decided for each element.

2.2.3. Documents File Codes

Code: Name_vZZ_PT_ yyyymmdd

Fields:	Name	Deliverable name/number in Annex I: "Description of Work" (DX.X) or (DX.X.X)

ZZ	Number of version
PT	Partner short name
yyyymmdd	Date of document

NOTE: All fields of the file name will be separated by a "_".

2.2.4. Structure of the deliverables

A deliverable will comprise these five parts:

Part I – Coversheets	Include the following: *Frontpage*, *Deliverable info*, *Document status*, and *Project information*. Projects are requested to fill in the coversheets ensuring that all the information is correctly provided, particularly those appearing in the contract.
Part II - Table of Contents	An index of the deliverable contents is provided
Part III - Content	Deliverable body or substance. Provided 20-100 pages, containing a description of the methodology used, the work done to achieve the relevant tasks and the detailed results. The rest of the documents will be annexed to the deliverable.
Part IV - Bibliography and References	The following is provided in this part: • List of documents and other key references relevant to the deliverable • Annexes, containing the documents that have been used or produced for the achievement of the tasks

2.2.5. File properties summary and page set-up

In Document Properties of the MSWord file, this information must be included:

Field	***Content***	***Example***
Title	Document name	Quality Assurance Plan
Subject	Project name / Deliverable Nº	ILearnRW / D 1.1
Author	Initials, Name of the person	Antonios Symvonis
Company	Company name	NTUA
Comments	Date / Version	2013_01_17 / v01

2.2.6. Storage and backup

Each Contractor is responsible for defining and following procedures for storage of system backup, and in particular for backup of word-processed documents.

As a minimum, electronic copies of controlled and partially controlled documents should be backed up monthly. Where there are paper only controlled and partially controlled documents, distribution off-site to other partners will be considered adequate backup. The Project Manager has the right to review these procedures, and request changes when deemed necessary to protect the Project against undue risk.

2.2.7. Archiving

Under the Contract, the European Commission has the right to audit Project records up to five years after. Appropriate records will therefore be retained for a minimum of five years after the Completion Date of the Project.

Within this requirement, archiving of Project material is the responsibility of each Contractor, who will define and follow appropriate procedures.

3. Quality assurance

3.1. General approach

An indicator or a metric is a standard measure to assess that the performance in each work-package and/or task. In ILearnRW there are seven work-packages, and all of them have special metrics to measure the quality.

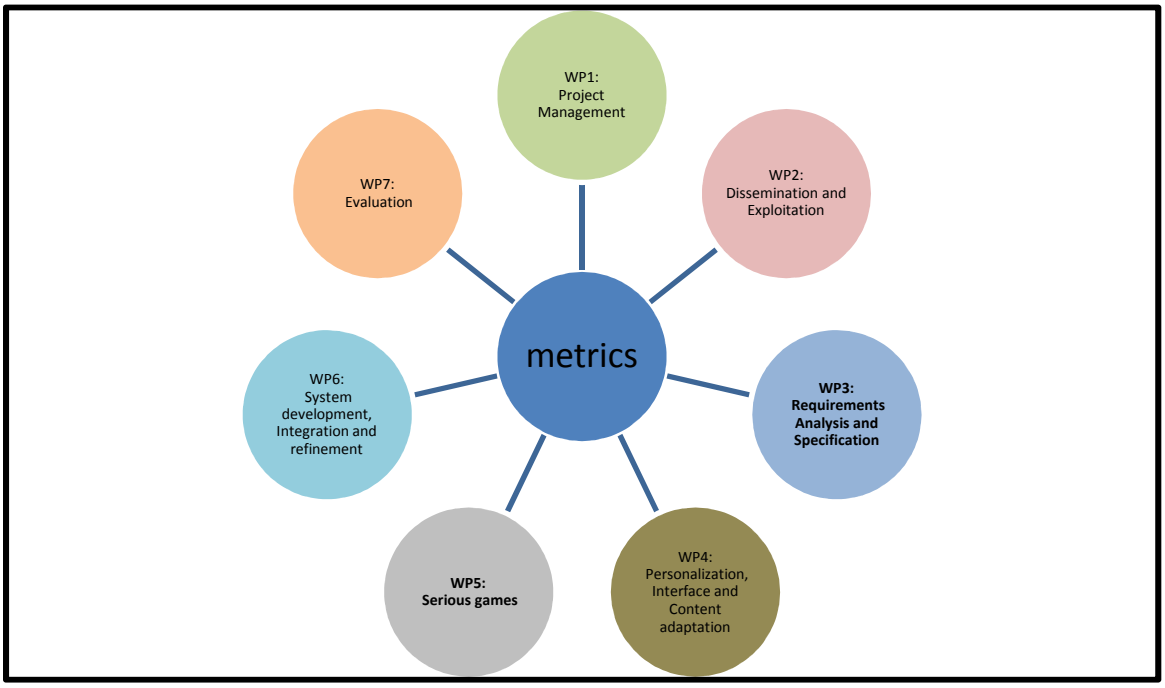


Figure 7 Metrics identification.

Each WP-task leader has defined a set of indicators which will be used to measure the "success" of the WP and therefore of the complete project. These indicators have been clearly defined, can be measured and have a minimum level that can be considered as acceptable.

Different measurement methodologies

In ILearnRW indicators cannot be only measured in quantitative terms. Where human and social factors are taken into consideration, qualitative measurements are even more important in order to give indications about the performance of the project. Therefore five types of measurements will be used to monitor the project and have been listed in the next table.

Code	***Typology***	***Description***	***Example***
Qt	**Quantitative**	This means clear quantitative indicators with a numerical target.	Number of hits or percentage
Ql	**Qualitative**	This refers to an external quality assessment.	The JRC, Journal Research Citations
R	**Report**	This typology of measurement indicates that the success indicators is for one part quantitative, but also qualitative; to have a better evaluation, a more detailed analysis is needed.	Capacity to influence policies.
I	**Interviews and user interaction analysis**	For all indicators including the user interaction and satisfaction it is impossible evaluate the success status without an analysis of real user behaviour in managing the system. For this reason this class of indicators will be used where the user's interaction is needed.	User interface satisfaction
D	**Documentation**	In this case the achievement of the indicator must be evaluated according to the documentation produced for the Project. *Please Note. The difference between documentation and Report is that in the first case the analysis will be based on documents produced for the project; instead Report means a document produced "ad hoc" for the indicator measurement.*	User manual and SW documentation

To simplify the methodology, even in the case of qualitative data, for example in the case users' questionnaires, they have been assigned to a quantitative data to evaluate the results: for example the value ≥75% of those asked "agree" or "strongly agree" that "the system's Graphical User Interface is satisfactory". Therefore all the metrics included in this document are quantitative.

3.2. Quality Indicators

As it has been mentioned before, several quality indicators have been defined per work-package, and/or per task. This section describes which ones, and assigns a value valid for each of them.

WP 1: Project Management

Indicator	Metric Name	Metric Definition	Minimum expected value
1.1	On time deliverables	Number of deliverables submitted on time	100%
1.2	Milestone reached	Number of milestone reached	100%
1.3	Accepted deliverables	Number of deliverables accepted by the Reviewers	100%

WP 2: Dissemination and Exploitation

Indicator	Metric Name	Metric Definition	Minimum expected value
2.1	Website - hits	Number of hit to the project web site. Web site impact (Numbers of access, feedbacks, downloads, etc.)	1000
2.2	References in press	Press echoes (articles, references, etc.)	10
2.3	Events attended	Number of events attended. Events include conferences, workshops, presentations to experts, and other promotional activities	1 per partner
2.4	Cooperation-contacts	Cooperation with other projects (European and world-wide)	1 per partner
2.5	Papers submitted for publication.	Numbers of International and National papers published in conferences, expositions and joint events.	1 per WP

WP 3 Requirements Analysis and Specification

Indicator	Metric Name	Metric Definition	Minimum expected value
3.1	Users in requirement elicitation	Number of users (children, teachers, tutors, parents, experts) participated in observations, focus groups and design workshops as part of user requirement activities	20
3.2	Users' requirements fulfilment	The user's needs are covered by the application	80 %

WP4 Personalization, Interface and Content adaptation

Indicator	Metric Name	Metric Definition	Minimum expected value
4.1	Degree of personalization as specified by the profile	A measure of adaptation quality as determined by the user profile. This indicator will capture whether our adaptation of learning activities is in line with what a special needs teacher/dyslexia expert would do. The special needs teacher/dyslexia expert will indicate if the set of activities chosen by our system for a child with dyslexia are appropriate. Quantification could be on five levels: very poor (1), poor (2), good (3), very good (4), excellent(5).	75%
4.2	Document reformatting.	Measures the success of the content presentation component in reformatting the loaded documents. It will be tested against simple documents that are appropriate for the group of children participating in the evaluation of the project.	75%
4.3	Content classification	Measures the success of the content classification component in classifying documents wrt their suitability for a particular child (based on its profile/model). It will be tested against simple documents that are appropriate for the group of children participating in the evaluation of the project.	75%

WP 5 Serious games

Indicator	Metric Name	Metric Definition	Minimum expected value
5.1	Serious games	Number of serious games scenarios developed	3
5.2.	Adaptation appropriateness	Measure of success of the automatic game adaptation mechanism with reference to experts' assessment and evaluation. The way to measure this metric is by interviewing teachers/experts regarding their qualified opinion. Quantification could be on five levels: very poor (1), poor (2), good (3), very good (4), excellent(5).	75%

WP 6 System development, Integration and refinement

Indicator	Metric Name	Metric Definition	Minimum expected value
6.1	Components developed	The components to be developed are developed without changing their functional specifications	80%
6.2	Components integration	The components to be integrated can be integrated without changing API's or interfaces of other components.	70%

WP 7 Evaluation

Indicator	Metric Name	Metric Definition	Minimum expected value
7.1	Users in evaluation	Number of users to participate in evaluation	60
7.2	Content	Classified content covering the range of user profiles. Measured in text files.	50
7.3	Degree of relevance of software	This degree of relevance of the software depends on the pedagogical approaches of the teachers. The way to measure this metric is by interviewing teachers/experts regarding their qualified opinion. Quantification could be on five levels: very poor (1),	75%

		poor (2), good (3), very good (4), excellent(5).	
7.4	Evaluation of prototype software	The software evaluation will be based on the teachers/experts' and the learners' evaluation. Quantification will be coded as: very poor (1), poor (2), good (3), very good (4), excellent (5)	75%

3.3. Methodology

The Quality Assurance Plan is an iterative process that supports the consortium during the project duration; therefore it has to be revised in order to determine the effectiveness of the measures, including both performance and diagnostic metrics.

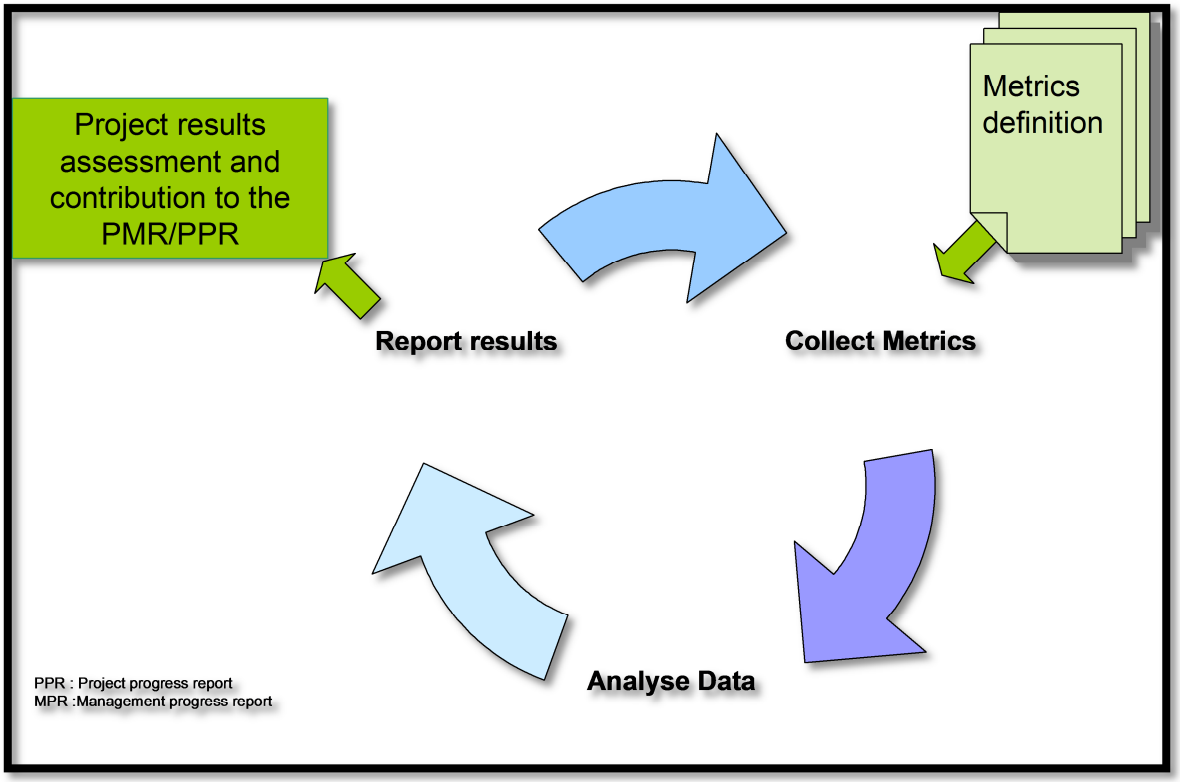


Figure 8: Methodology proposed.

Once the metrics have been defined (section 3), the data has to be collected. To facilitate the process several templates have been developed (Annex 1) in excel format. This process will be performed every 6 months and the results of the analysis will be included in a section of the next project periodic report and/or project progress reports.

The data collected for a period is called "Actual Value" (A). The Actual Value is compared with the "Minimum Valid Value" (M), with the next criteria:

Criteria	**Formula**	**Possible Deviation Results**	
Actual Value > Min Valid Value	M < A	Green	
Min Valid Value ≥ Actual Value ≤ 80% Min Valid Value	0.8 * M ≤ A ≤ M	Orange	
Actual Value < 80% Min Valid Value	A < 0.8 * M	Red	

When the activities of a WP last more than two reporting periods, **the evolution of the metrics** during the different reporting periods will be also analysed. This element is reported in the field called "Evolution". Its objective is to increase the quality of this indicator or at least to keep the some quality level.

For each metric a summary table with the colour indicators will be provided in the next project periodic report or project progress reports.

Indicator	**Name**	**Description**	**Minimum Value**	YEAR n		
				Period x:		
				Actual Value	**Deviation**	**Evolution**
4.1	Degree of personalization as specified by the profile	It is a global measure of the user profile quality. This indicator will give the answer to the question: is the user profile a true "mirror" for the child's dyslexia-status (as it is indicated by experts). The way to measure this metric is by interviewing teachers/experts regarding their qualified opinion. Quantification could be on five levels: very poor (1), poor (2), good (3), very good (4), excellent(5).	75%	77%		

4.2	Document reformatting	Measures the success of the content presentation component in reformatting the loaded documents. It will be tested against simple documents that are appropriate for the group of children participating in the evaluation of the project.	75%	55%		
4.3	Content classification	Measures the success of the content classification component in classifying documents wrt their suitability for a particular child (based on its profile/model). It will be tested against simple documents that are appropriate for the group of children participating in the evaluation of the project.	75%	70%		

Finally, these results are associated to some recommendations about the quality of the project results, following the next criteria:

Deviation result	**Description**	**Recommendation**
	The results are in line with the project objectives.	The project can continue with high standard of quality.
	The results follow the project indications but the quality standards are not reached.	The partners have to review the results and their quality in order to confirm its validity. The project can continue but it needs an analysis by the partners about the usefulness of the results. The project needs changes in its implementation in order to recover the orientation of the project and to ensure the usefulness of the results. Revision of the users' needs and the quality of the results matching is needed.
	Results clearly below Quality Standards	It is mandatory to develop a contingency plan to recover the quality. A detail analysis is needed for the activities ongoing. Detailed analyses of the quality of the results are needed. The above reports have to be analysed by the Steering board to ensure that the plan will follow the right direction.

A recommendations' summary table will be also included in the project periodic report and the project progress reports:

Indicator	WP	Metric name	Value	Reccommendation
1.1	1	On time deliverables	100%	The project can continue with high standards of quality
2.1	2	Website - hits	900	It is mandatory to develop a plan to improve the visibility of the project
7.1	7	Users in evaluation	40	The partners need to take immediate action in order to increase the number of participants in the evaluation. The evaluation plan need to be reconsidered and updated.

Annex 1: Templates for data collection

WP 1: Project Management			Minimum Value	YEAR 1						YEAR 2						YEAR 3					
				Period 1: OCT '12 - MAR '13			Period 2: APR '13 - SEP '13			Period 3: OCT '13 - MAR '14			Period 4: APR '14 - SEP '14			Period 5: OCT '14 - MAR '15			Period 6: APR '15 - SEP '15		
Indicator	Name	Description		Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution
1.1	On time deliverables	Number of deliverables submitted on time.	100%																		
1.2	Milestone reached	Number of milestone reached.	100%																		
1.3	Accepted deliverables	Number of deliverables accepted by the Reviewers.	100%																		

WP 2: Dissemination and Exploitation			Minimum Value	YEAR 1						YEAR 2						YEAR 3					
				Period 1: OCT '12 - MAR '13			Period 2: APR '13 - SEP '13			Period 3: OCT '13 - MAR '14			Period 4: APR '14 - SEP '14			Period 5: OCT '14 - MAR '15			Period 6: APR '15 - SEP '15		
Indicator	Name	Description		Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution
2.1	Website - hits	Number of hit to the project web site. Web site impact (Numbers of access, feedbacks, downloads, etc.).	1000																		
2.2	References in press	Press echoes (articles, references, etc.)	10																		
2.3	Events attended	Number of events attended. Events include conferences, workshops, presentations to experts, and other promotional activities.	1 per parnter																		
2.4	Cooperation-contacts	Cooperation with other projects (European and world-wide).	1 per partner																		
2.5	Papers submitted for publication	Numbers of International and National papers published in conferences, expositions and joint events.	1 per WP																		

WP 3: Requirements Analysis and Specification			Minimum Value	YEAR 1						YEAR 2						YEAR 3					
				Period 1: OCT '12 - MAR '13			Period 2: APR '13 - SEP '13			Period 3: OCT '13 - MAR '14			Period 4: APR '14 - SEP '14			Period 5: OCT '14 - MAR '15			Period 6: APR '15 - SEP '15		
Indicator	Name	Description		Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution
3.1	Users in requirement elicitation	Number of users (children, teachers, tutors, parents, experts) participated in observations, focus groups and design workshops as part of user requirement activities.	20																		
3.2	Users' requirements fulfilment	The user's needs are covered by the application.	80%																		

WP 4: Personalization, Interface and Content Adaptation			Minimum Value	YEAR 1						YEAR 2						YEAR 3					
				Period 1: OCT '12 - MAR '13			Period 2: APR '13 - SEP '13			Period 3: OCT '13 - MAR '14			Period 4: APR '14 - SEP '14			Period 5: OCT '14 - MAR '15			Period 6: APR '15 - SEP '15		
Indicator	Name	Description		Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution	Actual Value	Deviation	Evolution
4.1	Degree of personalization as specified by the profile	It is a global measure of the user profile quality. This indicator will give the answer to the question: is the user profile a true "mirror" for the child's dyslexia-status (as it is indicated by experts). The way to measure this metric is by interviewing teachers/experts regarding their qualified opinion. Quantification could be on five levels: very poor (1), poor (2), good (3), very good (4), excellent(5).	75%																		
4.2	Document reformatting	Measures the success of the content presentation component in reformatting the loaded documents. It will be tested against simple documents that are appropriate for the group of children participating in the evaluation of the project.	75%																		
4.3	Content classification	Measures the success of the content classification component in classifying documents wrt their suitability for a particular child (based on its profile/model). It will be tested against simple documents that are appropriate for the group of children participating in the evaluation of the project.	75%																		

WP 5: Serious Games			Minimum Value	YEAR 1						YEAR 2						YEAR 3					
				Period 1: OCT '12 - MAR '13			Period 2: APR '13 - SEP '13			Period 3: OCT '13 - MAR '14			Period 4: APR '14 - SEP '14			Period 5: OCT '14 - MAR '15			Period 6: APR '15 - SEP '15		
Indicator	Name	Description		Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation
5.1	Serious games	Number of serious games scenarios developed.	3																		
5.2	Adaptation appropriateness	Measure of success of the automatic game adaptation mechanism with reference to experts' assessment and evaluation. The way to measure this metric is by interviewing teachers/experts regarding their qualified opinion. Quantification could be on five levels: very poor (1), poor (2), good (3), very good (4), excellent(5).	75%																		

WP 6: System Development, Integration and Refinement			Minimum Value	YEAR 1						YEAR 2						YEAR 3					
				Period 1: OCT '12 - MAR '13			Period 2: APR '13 - SEP '13			Period 3: OCT '13 - MAR '14			Period 4: APR '14 - SEP '14			Period 5: OCT '14 - MAR '15			Period 6: APR '15 - SEP '15		
Indicator	Name	Description		Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation
6.1	Components developed	The components to be developed are developed without changing their functional specifications.	80%																		
6.2	Components integration	The components to be integrated can be integrated without changing API's or interfaces of other components.	70%																		

WP 7: Evalutaion			Minimum Value	YEAR 1						YEAR 2						YEAR 3					
				Period 1: OCT '12 - MAR '13			Period 2: APR '13 - SEP '13			Period 3: OCT '13 - MAR '14			Period 4: APR '14 - SEP '14			Period 5: OCT '14 - MAR '15			Period 6: APR '15 - SEP '15		
Indicator	Name	Description		Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation	Actual Value	Deviation	Evaluation
7.1	Users in evaluation	Number of users to participate in evaluation	60																		
7.2	Content	Classified content covering the range of user profiles. Measured in text files.	50																		
7.3	Degree of relevance of software	This degree of relevance of the software depends on the pedagogical approaches of the teachers. The way to measure this metric is by interviewing teachers/experts regarding their qualified opinion. Quantification could be on five levels: very poor (1),poor (2), good (3), very good (4), excellent(5).	75%																		
7.4	Evaluation of prototype software	The software evaluation will be based on the teachers/experts' and the learners' evaluation. Quantification will be coded as: very poor (1), poor (2), good (3), very good (4), excellent (5).	75%																		