Deliverable D7.1

Training Concept

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History

Version	Date	Reason of change
1	2011-04-21/30	Create first version of the conception for the co-operation partners to share ideas and get further ideas
2	2011-05-05	Presentation of the first conception draft (Plenary Meeting)
3	2011-05-16	Updated version of the conception
4	2011-05-17	Updated version, literature review completed, additional structure added
5	2011-05-19	document created (e.g. structure proposed, initial input requested, lead authors identified)
6	2011-05-24	Updated version, including logo and initial contribution
7	2011-05-25	Updated version, initial contributions from partners entered
8	2011-06-08	Version for internal review (14 days before submission date)
9	2011-06-15	Final version after internal review
10	2011-06-20	Final version (submitted)

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1 Executive Summary

Deliverable 7.1 covers three parts: (1) the training concept, (2) perspectives for the following years and (3) an overview of generic NEXT-TELL tools.

This deliverable outlines the first training phase. It explains the immediate steps to be taken in order to create project awareness among NEXT TELL stakeholders, course participants and their contribution. It provides a guideline covering a timescale of 12 months (project year 1) followed by a brief explanation of steps to be taken during the implementation phase (project year 2).

In the first year (year 1), MTO will be trained by the developers (NEXT-TELL IT-partners, s. Glossary) in all methods and software solutions (modules and tools) used within the NEXT-TELL framework. MTO will then train all NEXT-TELL partners in participating countries who will, in turn, provide trainings outside Germany. All required training materials will be produced by MTO and explained in Deliverable 7.2 by October 2011.

As the knowledge base and technological level varies among the participating countries, the entire training concept is country specific. It is tailor-made to make sure trainings can easily be modified and adjusted according to individual demands. Participating schools from within Germany will be trained by MTO.

Teachers in participating schools have a crucial role. As they will act as agents between content, pupils and technology, their training is paramount to the process. At the beginning of their training, which is always adjusted to audience needs and requirements, there will be individual mentoring and an extended conceptual phase.

Other key stakeholders during the entire process are the participating schools' principals. These will be trained in the adoption and use of the SPICE software solution. SPICE will enable them to align their strategic planning with planning for ICT deployment and ICT capacity development in their school's teaching staff using a balanced scorecard method. In the principals' training they are first introduced to strategic planning methods deriving from the use of a balanced scorecard, followed by the implementation of SPICE as a set of methods and tools. They will also be afforded additional assistance throughout the school year.

When these initial phases are completed, NEXT-TELL partners and MTO arrange for unobtrusive installation and consulting in the participating schools. As the clients and their specific needs are already known, this single source counselling will most likely speed up the implementation process for NEXT-TELL tools and methods.

At the end of this deliverable, an overview of specific NEXT-TELL tools is given. These are designed to be trained for, adjusted and maintained according to the individual demands of participating schools.

2   Introduction

2.1   Purpose of this Document

The purpose of this document is to describe the general approach to teacher and principal training in NEXT-TELL, and to provide an overview of what training will consist of for the first school trials. Developing capacity in teachers and principals to competently deploy the methods and tools included in NEXT-TELL is an important aspect of the overall project as numerous studies have shown the pivotal role of teachers and schools leaders as mediators and gatekeepers of educational technologies.

2.2   Scope of this Document

This document comprises of a description of the immediate next steps of the NEXT-TELL project. It explains the conceptual framework for NEXT-TELL trainings in schools, their aims, general content, mode and timescale. It does not however, seek to explain the trainings in detail, as the full shape and nature of these will emerge in and through the ongoing interactions of schools and NEXT-TELL partners.

2.3   Status of this Document

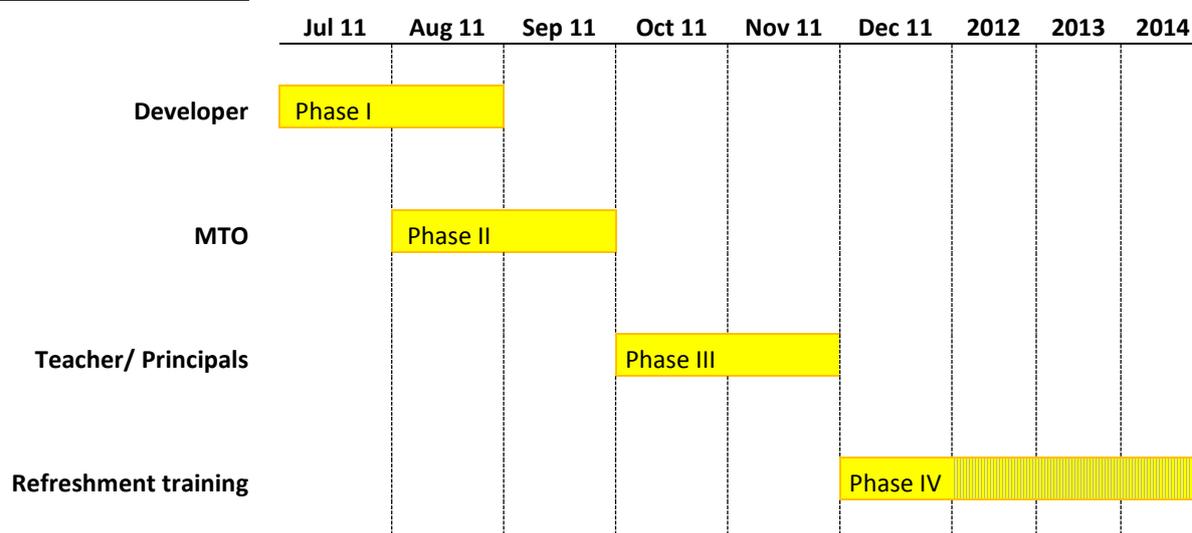This is the final version of D7.1.

2.4   Related Documents

Before, or in conjunction with, reading this document it is recommended to be familiar with the following documents:

- D2.1 – Specification of ECAAD Methodology V1
- D4.1 – Methods and Specifications for Student Model V1
- D5.1 – Methods and Specifications for TISL Components V1

3 Training Concept

Training Concept Year 1

	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	2012	2013	2014
Developer	Phase I								
MTO		Phase II							
Teacher/ Principals				Phase III					
Refreshment training						Phase IV			

Chapter three describes the steps to be taken in **NEXT-TELL project training year 1 (2011/12)**. It explains the knowledge transfer between the developers of NEXT-TELL tools and NEXT-TELL partners in order to enable them to train the clients. It further explains the distribution of tasks and responsibilities of the actors involved during the in-depth trainings for teachers and principals. The necessity of refreshment-training and provision for inclusion of newly joining schools is also taken into consideration.

Generally speaking, all the suggested trainings are tailor-made according to the specific demands and requirements of the participating schools. As this customization is crucial for the project's overall progress, the core training content will not be overly comprehensive. The focus is clearly on meeting the school's individual requirements. In order to capture schools' interests and to motivate them to implement and apply NEXT-TELL tools and methods in their daily routine, assessment of their training needs has to be as precise as possible.

The training materials which will be produced by October 2011 (Deliverable 7.2) will be derived from the requirement analysis phase of the project and aim to meet the participating schools' individual requirements. This implies of course, that these will be constantly adjusted.

In each of the following phases, developers and MTO will be available to respond to the participating schools and NEXT-TELL partners' questions and remarks. This will normally be effected via Skype, and mediated by the NEXT-TELL partner. Alternatively, and if required, this can be conducted on site.

3.1 Phase I

MTO and NEXT-TELL partners will be trained by the developers on the various tools and methods to be applied throughout the following phases.

Aims

Developers impart knowledge about the NEXT-TELL tools and methods to be used within the participating schools in the next year (year 1). MTO and NEXT-TELL partners become acquainted with presentation and other material, which can be used for training in schools. This material will be provided by the developers.

Content

Introduction to all tools, instruments, methods and scenarios which will be conveyed in following trainings. On the basis of examples and exercises, these are tested in practical phases under observation of the developers.

Mode

At this stage and for this target group (MTO and NEXT-TELL partners), face to face contact is not required. Therefore Skype conferences and screen sharing programs are being used here.

The developers provide material to MTO and other NEXT-TELL partners. They provide exercises for individually studying the material. In practical phases developers will be available for questions and problem solving. This process is repeated as long as required. In the end both MTO and each NEXT-TELL partner should be on the same level of knowledge and should be able to implement NEXT-TELL tools and methods within his/her area of responsibility.

Timescale

Middle of August - middle of September 2011
We estimate 1 day of training per tool, instrument and method should be sufficient. Of course this will be adjusted according to individual demands and knowledge gaps.

3.2 Phase II

MTO will create and provide training materials which will enable NEXT-TELL partners outside of Germany to run training in their country-specific schools.

Aims

NEXT-TELL partners are enabled to run trainings in their countries which are adjusted to the knowledge base and level of technology within the countries.

Content

The training material provided by the developers in Phase I will be bundled and adjusted by MTO. MTO will then release the learning materials for the follow up trainings. These will take the form of, for example, detailed schedules, PowerPoint presentations, handouts and an overview of suggested methods. This material will be provided in English and German.

Mode

MTO will create and provide training materials and be available for questions. The training material is accessible for trainers via BSCW. Whenever occurring, uncertainties are dispelled via Skype conferences.

Timescale

Middle of September - middle of October 2011

3.3   Phase III

Phase III is the start of in-depth training for teachers and principals. They are enabled to deploy the NEXT-TELL tools

Aims

Enable teachers to make use of the specific NEXT-TELL tools, instruments and methods in their lessons. Assess with principals, how they can implement SPICE (ADOscore) for strategic planning in their schools

Content

Two different training plans are provided. One, for teachers, concerns the NEXT-TELL tools (ECAAD and TISL) and the other, for principals, to familiarise them with SPICE and the Balanced Scorecard approach. Specific requirements of SPICE for principals' strategic planning are defined.

Mode

In this phase, intensive face-to-face training is most suitable. During these trainings, there will be an alternation of input, practical phases and knowledge transfer. The developers will be available via Skype.

An exemplified training day might be structured as followed:
- welcome reception
- overview on the project status and schedule for the day
- aims and content of the training
- country/audience specific module (according to demand)
- Q&A
- Farewell to the participants

Timescale

October - November 2011

We estimate two days for teachers per school and one day for principals. Alternative scheduling that reflects the specific needs/opportunities in other partner countries can be adapted to this baseline, e.g. (a nominal 14 hours, split as required for teachers and/or 7 hours for principals). The training for principals are held jointly for all participating schools. This sets the stage for principals to connect with each other and to exchange their experiences with regard to the implementation of SPICE in their schools.

3.4   Phase IV

During Phase IV, refreshment-trainings are held and newly joining schools are introduced. Teachers are further assisted in the knowledge transfer process.

Aims:

This phase has three goals. First: to include new schools. Second: to answer start-up questions of those schools already working with NEXT-TELL tools. Third: to support teachers in transferring what they have learning during the training process into classroom practices.

As these future requirements cannot be defined yet, they will be adjusted according to demand.

Content:

As in phase III, two different trainings are provided for new schools. One, for teachers, on NEXT-TELL tools and methods, and one for principals to familiarise them with SPICE and the Balanced Scorecard approach. Specific requirements of SPICE for their strategic planning are defined.

For those schools already participating in NEXT-TELL, phase IV provides a platform for them to raise concrete questions about the training content and its application in the classroom and/or lessons.

Mode

In this phase, for new schools intensive face-to-face training is most suitable. For already participating schools, assistance via Skype or on demand face-to-face support is offered.
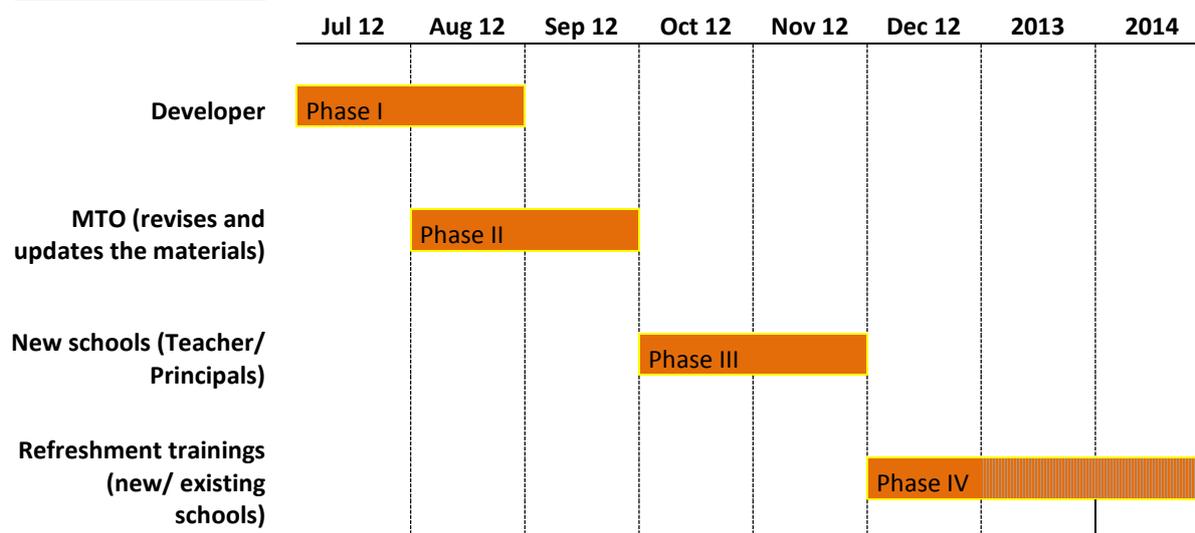
The training days for new schools are structured as described in phase III.

Timescale

November 2011 - July 2012

4 Perspectives

Follow-up trainings in subsequent project years 2&3 (2012-2014)
Jul 12
Aug 12
Sep 12
Oct 12
Nov 12
Dec 12
2013
2014
Developer
Phase I
MTO (revises and updates the materials)
Phase II
New schools (Teacher/ Principals)
Phase III
Refreshment trainings (new/ existing schools)
Phase IV

Follow-up trainings in subsequent project years (years 2/3; 2012-2014)

This chapter describes the perspectives for the following project years. Assuming further developments of NEXT-TELL tools and methods, MTO and NEXT-TELL partners will need to be trained on new tools, features and updates. MTO will accordingly adjust the training material.

This project phase marks the beginning of specific, module-related training for teachers specialising in different areas. This means that separate training will be held for STEM, TESL and TISL teachers, as well as for principals. MTO will need to revise and update the core training materials and provide these according to the needs of different training plans. As the extent and intensity of training is individualized for the clients, the preparation and execution of the training seminars will take longer, but as a result, more adjusted training can be offered.

Teachers are further assisted in the transfer process. It is also acknowledged, that in project year 2, the necessity of refreshment-training and the need to include new schools can be expected.

In each of the following phases, developers and MTO will be available for the participating schools and NEXT-TELL partner´s questions and remarks. Usually via Skype or, if required, on site.

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4.1   Phase I

MTO and cooperation partners are trained on new tools, features and updates. MTO will accordingly adjust the core training materials.

Aims

Developers impart knowledge about newly developed tools, instruments and methods within NEXT-TELL, as well as new features and updates for already existing ones which will be used within the participating schools in the following project years. MTO and NEXT-TELL partners become acquainted with presentation- and other material, which will be used for training in schools. This material will also be provided by the developers.

Content

Introduction to all tools, instruments, methods and examples which will be conveyed in the follow up training. On the basis of examples and exercises, these are tested in practical phases under the guidance/observation of the developers.

Mode

Skype conferences and screen sharing programs are being used here. The developers provide material to MTO and NEXT-TELL partners. They provide exercises for individually studying the material. In practical phases they are available for questions and problem solving. This process is repeated as long as required. In the end both, MTO and every NEXT-TELL partner is on the same level of knowledge and enabled to implement the NEXT-TELL within his/her area of responsibility.

Time Scale

Middle of August - middle of September 2012

4.2   Phase II

MTO revises and updates the training materials and provides them to NEXT-TELL partners. Training-periods with specific module-related training for STEM/TESL/TISL teachers and school boards members are generated.

Aims

NEXT-TELL partners are enabled to run training in their countries applying the newly introduced NEXT-TELL modules and updates.

Content

The training material provided by the developers in the previous phase. MTO releases the learning materials for the follow up trainings. E.g. detailed schedules, PowerPoint presentations, handouts and suggested methods. This material will be provided in English and German.

Mode

MTO will create and provide training materials and be available for questions. The training material is accessible for the trainers via BSCW. Whenever occurring, uncertainties are dispelled via Skype conferences.

Timescale

Middle of September - middle of October 2012

4.3   Phase III

Phase III is the start of extended and intensified training for teachers and principals. They are enabled to deploy the NEXT-TELL tools and methods in this phase.

Aims

Enable teachers to make use of the specific NEXT-TELL tools, instruments and methods in their lessons. The training will be focused on STEM, TESL and TISL-teachers requirements as well as for principals.

Content

Four different training plans are provided. Three for teachers (STEM/TESL/TISL) about the NEXT-TELL tools and methods and one for principals about the further developed and adjusted SPICE (ADOscore).

Mode

In this phase, intensive face-to-face training is most suitable. During these trainings, there will be an alternation of input, practical and transfer phases. The developers are available via Skype.

Time Scale

October - November 2012

4.4   Phase IV

During Phase IV, refreshment-trainings are held and newly joining schools are introduced. Teachers are further assisted in the transfer process.

Aims:

This phase has three goals. First: to include new schools. Second: to answer start-up questions of those schools already working with NEXT-TELL tools. Third: to support teachers in the process of transferring what has been learned through training content to their classrooms.

As these future requirements cannot be defined yet, they will be adjusted according to demand.

Content:

As in phase III, different training plans are provided for new schools. Three for teachers (STEM/TESL/TISL) about the NEXT-TELL tools and methods and one for principals to make them familiar with SPICE and the Balanced Scorecard approach.

For already participating schools, phase IV provides a platform for concrete questions about the training content and its application in the classroom and/or lessons.

Mode

In this phase, for new schools, intensive face-to-face training is most suitable. For already participating schools, assistance via Skype or on demand face-to-face is offered.

Time Scale

November 2012 - July 2013

5 NEXT-TELL Tool Description (Year 1)

This chapter describes the main methods and tools used within the NEXT-TELL framework, with a focus on training aspects. To provide an orientation, the NEXT-TELL layer model (Figure 1) might help:

For an overview of the tools teachers (and in some cases students) need be trained on, a layered view of NEXT-TELL (Figure 1) provides a first orientation:

Figure 1: The NEXT-TELL layers

Starting from the **ECAAD** layer, assessments are developed and integrated into learning activity sequences. In the learning environment, these activities are enacted by students and information relevant for formative assessment (as defined in the ECAAD planning phase) is recorded by **tracking** tools. Students' learning products are saved in a learner **E-portfolio**. A part of the information tracked is further interpreted in terms of students' knowledge, skills and abilities, and is displayed in the **Open Learner Model**. Information in the OLM, along with other available and relevant student data and learning data accessible to teachers is able to be analysed in-depth via the **TISL** process, which in turn is guided to some extent by the school's information needs as resulting from a strategic view of ICT innovation. This is formulated in the **strategic layer** with the SPICE tool.

For each of these layers, one or more tools and related methods will be provided to support users in their tasks:

	Method	Tools
ECAAD	Evidence-centered activity and assessment design	Assessment Designer; Learning Activity Planner
Learning Environment	Teacher decides on pedagogy.	Moodle; Google Docs & Spreadsheet; OpenSim; Rep5; EVA.
E-portfolio	Portfolio pedagogy	Mahara (integrated with Moodle)
Open Learner Model	Various assessment and visualization methods	Support for navigating, searching, commenting, negotiating information in the OLM

	Method	Tools
TISL	Teacher-led inquiry into students' learning	TISL inquiry process planner
SPICE	Variant of Balanced Score Card	Needs identification tool; Customized version of ADOScore

Table 1: Tools by layers

Users will not use all of the tools described in Table 1. In particular, students will make mainly use of a subset of the Learning Environment components, and of the learner e-portfolio, the OLM, and to some extent perhaps of the ECAAD tools. They will not, however, make use of the TISL and SPICE layer tools. Teachers will make use of the ECAAD tools, and a subset of the Learning Environment tools, as well as the OLM, but not all of them may choose to work with the TISL method and tool. Similarly, some teachers may elect to use the TISL method and tool, whilst choosing not to use ECAAD. It will be mainly school leaders who will work on the strategy layer with the SPICE methods and tools, but school leaders will typically not use ECAAD level tools, and may make limited use of the OLM and TISL. Parents will mainly access the OLM, but will not work on any of the other layers. Hence, the training concept will need to be very flexible, and allow for a largely demand-driven delivery.

The TISL layer training is not mentioned in this report as teachers will be provided with access to this tool in the course of Year 1. The same holds for the ECAAD tools, which are ready in revision 1 only at the end of Year 1.

Tool	ECAAD Activity Planner (as part of NEXT-TELL ECAAD Toolset)
Rationale	NEXT-TELL Design Environment/Performance Support Tool
NEXT-TELL WP/Task	WP2
Description	**Scope:** The ECAAD Activity Planner, as part of the NEXT-TELL ECAAD Toolset is a performance support tool that allows the graphical definition and description of learning activity sequences. The Activity Planner covers the learning activity planning part of the ECAAD methodology as described in D2.1 and targets the definition of: • High level identification of learning activity patterns • Learning Sequences as tasks following a specific control structure • Learning artifacts (learning service) orchestration **Stakeholder/User:** The Activity Planner is used by the teacher to define for individual students, student groups/classes the ideal learning path to reach certain learning objectives identified in the methodology as learning goals and Knowledge – Skill – Ability (KSA) maps. Negotiation of learning paths with students is provided through the collaborative architecture of the tool.
Tool Dependencies and Interfaces	The Activity Planner provides an interface for the teacher for modeling learning sequences on a high abstraction level (patterns view) and on detail control flow level. It interfaces and provides input to the activity stepper as the execution environment for learning sequences. From a methodological point of view integration with assessment design is targeted to cross-link assessment and activities.
Training Perspective	From a training perspective, the following building blocks are regarded as essential: • Tool training: as an online tutorial on how to handle the modeling editor, use the mechanisms and functions and interact with the toolset • Method training: as a training course to explain the method and its building

	blocks (procedure, language, algorithms) and show the dependencies to the execution environment.

Tool	ECAAD Assessment Designer (as part of NEXT-TELL ECAAD Toolset)
Rationale	NEXT-TELL Design Environment/Performance Support Tool
NEXT-TELL WP/Task	WP2
Description	**Scope:** The ECAAD Assessment Designer, as part of the NEXT-TELL ECAAD Toolset is a performance support tool that allows the graphical definition and description of assessment methods. The Assessment Designer covers the design of assessment methods as part of the ECAAD methodology as described in D2.1 and targets the definition of: • Assessment methods on a high abstraction level as assessment patterns, building up an assessment method catalogue. • Assessment method design on a detailed level, identifying the detailed steps to perform an assessment (execution can be human or machine interpretation) • Interfacing with an assessment calculation engine to "calculate" the concrete values when applying the assessment method on a dataset. **Stakeholder/User:** The Assessment Designer is used by the teacher to define assessment methods for specific scenarios and use cases. As a layered approach (described in D2.1) different levels of definition are targeted (from data collection to visualization).
Tool Dependencies and Interfaces	The Assessment Designer provides an interface to the teacher to query the assessment catalogue, modify, add assessments and detail them for specific scenarios. The integration with the calculation engine allows an automatic execution if necessary.
Training Perspective	From a training perspective, the following building blocks are regarded as essential: • Tool training: as an online tutorial on how to handle the modeling editor, use the mechanisms and functions and interact with the toolset • Method training: as a training course to explain the method and its building blocks (procedure, language, algorithms) and show the dependencies to the execution environment.

5.1   Learning Environment Layer

The general idea is that teachers should be able to use a variety of tools within the NEXT-TELL framework, to the extent that they fit into the tracking framework (see Deliverable 3.1). However, in order to get started on development work, and to provide examples of representative learning environment components, the project will provide a set of "seed" tools, as listed in Table 1. These tools are described in this section.

5.1.1   Moodle

Tool	Moodle
Rationale	Moodle will be part of the learning environment offer because of its wide use in K-12. For instance, in Austria all schools are encouraged to use Moodle if they want to employ a LMS.

Description	Moodle is the most widely used Learning Management System world-wide. It has a very strong standing in K-12. It is available freely as open-source software and can be used in many types of environments such as in education, training and development, and business settings. Learning materials can be provided through Moodle and collaboration between students and features such as grading and quizzes are provided.. Moodle has several features considered typical of an e-learning platform, plus some original innovations.
	Moodle consists of different tools, such as: assignment, chat, choice, database, forum, glossary and quiz.
	The **Assignment tool** is designed for teachers to assess knowledge or skills the students gained. The assignments can be made available at any time with a start and close date.
	A **chat space** can be made available at all times for the entire class to make comments or ask each other questions, or it can be more specific to a group of students or an assignment. Any way the chat tool is used, helpful in gathering and giving information especially in distance learning courses where face to face meeting is impossible.
	The **Choice tool** can be used to determine the preference of students in reading a certain book or choosing topics for a project. It is an easy and convenient way for teachers to poll student opinions. This can aid the teacher in creating student centered lessons.
	The **Database tool** simplifies the storage of large amounts of information.
	The **Forum tool** is used to share ideas between all members of a course.
	The **Glossary tool** is used to help students gain a working knowledge of important vocabulary in the course. This can be created and maintained by the teacher as a reference point for students, or it can be used as an assignment or collaborative effort for the students. Either way the information becomes available and ready for viewing by all students at any point they need it.
	The **Quiz tool** can be used to assess student knowledge before, during and after a unit of study. The quiz feature is great to use before introducing a topic to gauge student's knowledge of the content ahead of time, as it is helpful for a teacher to adjust their teaching after viewing the results of the quiz. It can be used during a unit to determine if students understand the content, and of course as an assessment of what they learned at the end.
Training Perspective	Since Moodle is used so widely, and in many languages, there are plenty of training materials available. High quality materials will be selected, integrated, and made available in the necessary languages.

5.1.2 Google Office Applications

Tool	Google Docs and Google Spreadsheet
Rationale	The Google office application is arguably currently the best-of-breed in "cloud" applications, combining elements of productivity tools with Web 2.0 elements, in particular integrated synchronous and asynchronous collaboration. Cloud computing is predicted (e.g. the recent Horizon Report K-12, 2011) to make major inroads into schools over the coming months. Using the Google API, these applications can be integrated into educational workflows, as well as being automatically tracked. They fit hence very well into the NEXT-TELL view of educational software as a service.

Description	Google Apps comprise three productivity tools:
	• Google Docs
	• Google Spreadsheet
	• Google Presentations
	Users have access to these applications for free, through a web-browser.
	They all share a number of features which are relevant for use in schools, such as:
	Google Apps lets students move beyond paper drafts, one-by-one peer reviews, and waiting for teachers to complete physical edits. Online comments and real-time editing let students see comments as they come in, acting on them and streamlining the input process. As document collaborators, teachers can provide feedback whenever it's important in the revision cycle – not just at designated due dates. Better input and ongoing feedback on changes empowers students to continue developing their work without waiting for paper-based reviews. Comprehensive revision history helps students and teachers understand how documents evolve from draft to polished papers – and to see how peer reviews and comments influenced the final product.
Training Perspective	From the student perspective, these cloud applications require little training, as they provided the familiar WYSIWYG editing interface. Teachers will need training not so much in the use of the productivity functions per se, as in the functionality provided for collaboration. Books and online resources (e.g., http://www.google.com/a/help/intl/en/edu/resource_center.html) are available and will be scrutinized for high-quality content in the languages needed.

5.1.3 OpenSim

Tool	OpenSim
Rationale	Have a 3D virtual space for inter-student-collaboration.
NEXT-TELL WP/ Task	2
Description	*OpenSimulator is* a multiuser online-environment that allows our students to meet and collaborate with each other and other facilitators. We use it in the TESL conversation-scenario to provide an immersive environment where students need to use their language skills in order to solve assignments that are given to their team. We will enforce the creation of international project teams (of different mother tongues!) to trigger the veritable need for using English as a working language and giving the students the possibility to experience themselves as part of a truly international collaboration process – of course in English, what else?
	OpenSimulator is a closed environment, hosted for a restricted user-group (e.g. our NEXT-TELL students).
Training Perspective	As the usage of virtual worlds is a quite new paradigm in teaching, it is not enough to be able to handle the environment, but there's the need to learn about the specific possibilities and affordances of virtual worlds. This is best done by personal participation in learning events. Therefore we suggest the following training strategy:
	1. **Installation**: Installing the OpenSimulator-client on the local machine normally does not cause problems, however some issues around firewalls might need consideration. We will setup a Skype-hotline with certain hours of service to

2. **First steps in world**: Next, the teachers need to learn how to handle the environment – at least the basic skills that are needed in order to participate in any learning event: talk, chat, walk, sit. Training will be delivered in a regular in-world training session.

3. **Learning what's possible**: There is no substitute for real hands-on experience. Therefore we suggest regular training sessions that present a variety of activities: Games, field-trips, excursions, etc. Note: Some of these might be delivered in SecondLife.

4. **Developing learning scenarios**: The next step will be cooperative design and development of learning scenarios within the NEXT-TELL teacher community. talkademy will contribute its experience in order to ensure that they will work well.

Steps 1, 2 and 3 will be offered on a regular basis ,

Step 4 needs coordination within the NEXT-TELL teacher community, thus will start as soon as a group of at least 3 teachers (preferably those whose students will cooperate as well) has been established.

5.1.4 Rep5 Repertory Grid Software

Tool	Rep5 (http://repgrid.com/)
Rationale	Repertory grids can be used not only for research and assessment purposes, but also as pedagogical tools. As such, they are similar to methods such as concept mapping and sorting tasks, requiring students to explicate the way they think about a domain of knowledge. Comparisons with peers' grids and/or with experts' grids are also possible. NEXT-TELL provides Rep5, a web-based repertory grid tool, both for purposes of formative assessment in the hand of teachers, as well as a way to engage students in thinking about declarative bodies of knowledge.
Description	Rep 5 is a suite of conceptual representation tools, accessible through a web browser, founded in George Kelly's Personal Construct Psychology (PCP). Rep 5 supports research into, and applications of, a wide range of conversational constructivist methodologies. Its various tools and methods provide personal, professional and research support for modelling and understanding individual and communal psychological and social processes.
	Rep 5 provides conversational tools for constructing and analyzing conceptual grids (RepGrid), and construct nets (RepNet). Grids are a generalization of what Kelly terms "conceptual" or "repertory" grids for eliciting construct networks through examples of their application, and nets are a generalization of visual syntactic structures used for representing construct networks directly in visual languages. Rep 5 supports the use of grid and net tools separately and in combination, including integration between those tools and other applications such as word processors and outliners.
	Results of repertory grid elicitations take largely a graphical format (like cluster analysis, and multi-dimensional scaling), but also yield numeric results. The latter are usually less relevant for providing information for other than research purposes.
Training Perspective	While the literature on the repertory grid method is extensive, there are only few uses reported of this method in the hands of teachers, and students. For students, it will be necessary to describe the web-based elicitation interface. For teachers, in addition, it will be necessary to train them in setting up a grid exercise (or

	assessment), and to interpret the outcomes of grid elicitation. Although graphical formats dominate, one needs knowledge in order to be able to interpret these displays correctly.

5.1.5 EVE Video Annotation Tool

Tool	EVE (Educational Video Environment)
Rationale	Video is an important resource for education, but of limited value when either playing from a file, or streaming from the Internet. To make video educationally useful, students must be able to use it actively: to browse, select, annotate, discuss specific aspects of what is shown in a video. This pertains both to cases were the video is about "a phenomenon" (a volcano eruption, say), as well as for the case where the video is about the student herself (as part of her e-portfolio, for instance). In the first case, we expect students to engage in explanation and inquiry, in the second in reflection. NEXT-TELL will put the EVE tool in the hand of teachers and student to accomplish this.
Description	EVE is a web-based, streaming video annotation and discussion tool. Users can bookmark a series of time-points (cue-points) or time-segments (cue-segments) of a video to stimulate and share discussions via real-time collaborative temporal annotations using a web HTML editor. Learners can search information from the content of cue-points and annotations against the time-point. EVE is unique in that that it not only allows learners to view online video material as many times as, and wherever they wish, but also to collaborate, comment and discuss each segment of the video, with annotations and comments that are context-sensitive and context-rich, providing opportunities for collaborative peer- supported learning and collaborative problem solving. The aim is to foster social commitments among learners, enabling them to engage in peer learning and to gain new knowledge and understanding via interactions and negotiations. In its most recent version, EVE includes an editor for assessment criteria, or rubrics, that can be authored by the end user (e.g., teacher), and be seamlessly made available for video analysis/annotation.
Training Perspective	EVE is fairly straightforward to use and requires only minimal training (in the range of about 15 minutes). For teachers, what is more important than the interface use is to learn about pedagogical opportunities, in the context of learning from video, and in the context of e-portfolio pedagogy. Respective training materials will need to be developed by the NEXT-TELL project.

5.2 ePortfolio

Tool	Mahara ePortfolio
Rationale	Supports learner assessment with data regarding produced artefacts and learning activity logs
Description	An electronic portfolio or ePortfolio is a generic term encompassing as wide a range of types and products as there are reasons for using them. The simplest starting point is to consider an ePortfolio as an extension of the paper based-portfolio, bringing with it the obvious benefit of making a portfolio of evidence portable and shareable anywhere that you have Internet access.

In fact, an ePortfolio has a much broader scope as an online collection of reflections and digital **resources** (such as documents, images, blogs, resumes, multimedia, hyperlinks and contact information). Learners and staff can use an ePortfolio to demonstrate their learning, skills and development and record their achievements over time to a selected audience. It can be used to create collections of digital resources to share with fellow students, peers, family and friends, to present to potential employers and to complement applications for research funding. In short, it is an online space from which to manage your life, learning and goals.

In NEXT-TELL, we have chosen Mahara as the ePortfolio tool.

Mahara is an open source ePortfolio and social networking web application created by the government of New Zealand. It provides users with tools to create and maintain a digital portfolio of their learning, and social networking features to allow users to interact with each other.

Mahara provides users with blogs, a resume builder, a file manager and a view creator - a tool to help users create arrangements of their content in a particular way for others to see.

Mahara is a system in which students can record "evidences of lifelong learning" - such as essays, artwork or other such things they produce that can be stored digitally. Such things are known as *artefacts* in Mahara.

But Mahara is much more than just a place to store files. Mahara also includes blogging, a resume builder, Moodle integration and the standout views framework.

With Mahara, the user controls which items and what information (i.e. artefacts) within her/his portfolio other users see. To facilitate this access control, all artefacts the user wishes to show to other users need to be arranged into one area. In Mahara this compilation of selected artefacts is called a *View*. Users can have as many Views as they like, each with a different collection of artefacts, and intended purpose and audience. The audience, or the people the user wishes to give access to her/his View, can be added as individuals or as a member of a Group. It can even be made publicly available.

For example it is possible to create a View for friends and family that includes holiday photos and a personal Blog. Or it could be created another View for the tutor, which includes assessments and reflective learning journal. A third View can be used to showcase the best pieces of work and the resume for potential employers. In fact the user can create as many Views as her/his wishes for work, study and leisure purposes.

If we think of LMSes such as Moodle as the formal, structured side of e-learning, then Mahara is the social, reflective side. An LMS and an e-portfolio complement one another in an online learning environment. In particular, while Mahara's APIs are open to all, Mahara can integrate with Moodle to provide a streamlined user experience. The NEXT-TELL Mahara is already integrated with Moodle via single sign-on.

Since Mahara has been designed from the ground up to be an open, pluggable system, NEXT-TELL Mahara will be integrated with other systems which will be used to provide evidence of and track learning activities of the user. In particular, the integration with Moodle will be extended to allow the user to record in a log file her/his activities within Moodle such followed courses, time spent on a course, how many times a course has been opened etc.

Similarly, the NEXT-TELL Mahara will be extended to be integrated with other tools which are meant to track the learning activities and progresses of the learner. This is the case of the integration with Web-tracking tools (like Eyebrowse) which record the web activities (visited web sites, time spent on a page etc.) in a log file inside the

	ePortfolio. The learner will have the full control on these tools and decide if, what and when record the web activities.
	Since the ePortfolio is a central archive for any material that can be used for the appraisal, NEXT-TELL Mahara will be also integrated with Google Docs, EVA video annotation tool and OpenSim to store and share evidences regarding progresses in written and spoken second language.
Training Perspective	Mahara is not that extensively documented currently, hence interface/use oriented materials will need to be developed. A further area of, in particular, teacher education is e-portfolio pedagogy, for which good books and on-line resources exist (for instance: http://sites.google.com/site/officialwebsiteteachers/eportfolio-pedagogy).

5.3   Open learner model (OLM)

Tool	Open learner model (OLM)
Rationale	The OLM is a central component in NEXT-TELL that allows users of the technology (students, teachers, parents, peers, school administrators, policy makers and researchers) to inspect inferences about students and their learning in a meaningful way. The OLM may be considered a collaborative information resource that contains inferences about a student and their learning. OLM information is adapted to represent the current learning state and learning needs of student(s). Furthermore OLM information supports ECAAD and TISL tools, in addition to being a learning resource in its own right.
Description	The NEXT-TELL OLM is intended to support students, teachers, parents, peers, school administrators, policy makers and researchers. OLMs may: accommodate the user's right to view electronic data about themselves; permit the improvement of the learner model accuracy; facilitate navigation of the system/navigational materials etc.; increase learner trust in the system; promote learner reflection; facilitate (self-) monitoring; support planning; encourage learner control and responsibility in learning; facilitate formative assessment; provide a source of information for summative assessment; and may promote collaborative or competitive interaction.
	The OLM is a representation of the underlying learner model. In NEXT-TELL this may contain inferences generated from: e-portfolio information (video, pictures, documents, weblogs etc.); learning artefacts (e.g. Google Documents); (self-) assessment and appraisal information; tertiary software (OpenSim, quiz engines etc.); and any additional evidence tendered to the NEXT-TELL system (marked work, external assessment etc.)
	Initial versions of the NEXT-TELL OLM will focus on information facets related to knowledge, skills and abilities (beliefs, difficulties, misconceptions, knowledge level etc.) Later releases will include information about epistemological beliefs (justification of knowledge etc.) and 21st Century skills (collaboration, teamwork, critical thinking etc.)
	Different users will require different information from the OLM and will require the information to be presented in a variety of ways, depending upon their reasons for viewing. For this reason the OLM interface will be customizable and different sets of tools will be available to each user type. Tools are currently still in the design stage and will be influenced by the needs of the end users. Subsequent releases will improve the tool sets.

	The following are example use cases for the NEXT-TELL OLM currently under development:
	Student: Using an adaptive learning environment as part of a classroom activity; planning future learning.
	Parent: Providing support to the student; monitoring student progress; providing information to the system.
	Peer: A student helps another student who is struggling; students collaborate to comprehend a problem.
	Teacher: Just-in-time feedback on a classroom activity; planning future learning activities.
	School Admin: Monitoring a school's educational targets; identification of extra support that is required.
	Policy Maker: Budget setting; making a decision as to whether a current strategy is working.
	Researcher: Evaluation of pedagogical strategies; evaluation of the use of software tools.
Training Perspective	As the tool is not yet developed, no training resources exist. Once prototype tools are released these may be used for training purposes (Sept '11 onwards), although subsequent releases may include significant revisions to both the interface and functionality. At the point of prototype release, accompanying documentation/ PowerPoint presentations may be produced by WP4. These will be tailored to end users' informational needs.

5.4   Strategic Planning with ICTs in Education (SPICE)

The SPICE component will work with school leaders to identify and define relevant KPIs and appropriate methods for adapting the BSC/Baldrige approaches to performance and change management, and the cultivation of innovative practices. A key component in achieving this goal is the co-development with school leaders of a strategic planning tool (Strategy Planner).

5.4.1   Strategic Planning using a BSC approach

The Balanced Scorecard (BSC) is a management approach, derived from vision and strategy implementation. It was originally designed to help companies to communicate planning strategies to all involved stakeholders, and to clearly indicate each individual's responsibilities and accountability (Kaplan and Norton, 1992). The BSC approach compels organisations to undertake rigorous and continuous strategic planning based on performance data. It promotes the "active formulation" of strategic plans, and its aim is to involve all members of the organisation in the development of the plan.

The BSC approach begins with the definition of the organisation's vision, enabling it to derive its strategic goals and to translate them in the form of clearly measurable Key Performance Indicators (KPIs). Typical, major projects steps when implementing BSC are illustrated below (Figure 2):

Figure 2: Implementing the BSC approach

School leaders can benefit from the use of the BSC approach as it provides them with a guided, systematic process for planning school vision which focuses, simultaneously, on both the organisation and the needs of other stakeholders (customers) such as students, parents and educational policy-makers. For example:

- the *customer perspective* in the school setting might involve how, when, why, what type and for what purpose communications are effected with parents;
- the *internal process perspective* might focus on effective use of available resources with a particular focus on 'value' and 'strengths';
- the *innovation and learning perspective* might focus on how a school and its teachers and learners adapt to continuous processes of change in education and society (e.g. in integrating ICTs as a support for teaching, learning and assessment); finally
- the *financial perspective* might focus on ways of optimising the financial resources of an institution by looking at ways of integrating existing and available resources (in and out of school), e.g. in developing innovation networks or partnerships with interested organisations.

The BSC approach suggests these four dimensions, nevertheless additional dimensions or a renaming of dimension is feasible and possible. As a possible input, concepts as developed in the MATURE project for maturing scorecards[12] are regarded as a starting point for the adaptation.

5.4.2   NEXT-TELL Strategic Planning Tool (SPICE)

An IT-based solution can support a reduction in the complexity of the cause-and-effect relationships discussed above. For NEXT-TELL a strategy and performance management toolkit based upon BOC's ADOscore implementation, will be provided.

The NEXT-TELL Strategic Planning Tool consists of 2 main building blocks:

- **Strategic Planning and Design:** through graphical models, the strategy is depicted and developed ranging from high level strategy identification to concrete indicator and measurement definition.
- **Controlling and Performance Dashboard:** as a monitoring component, the design is set operational and provides controlling and monitoring information in the form if a dashboard.

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[1] MATURE deliverable 5.4 "Infrastructure and Deployed Second Prototype at Application Partners" www,mnature-ip.eu

[2] MATURE deliverable 9.2 "Business Model for Application Service Providers" www,mnature-ip.eu

The added value of NEXT-TELL's Strategic Planning Tool (Figure 3) in lies in its provision of:

- An intuitive graphical editor for planning and defining BSC indicators
- Opportunities for linking KPIs to existing operational data
- Graphical reporting and the use of Dashboards for presenting information in an executive summary format
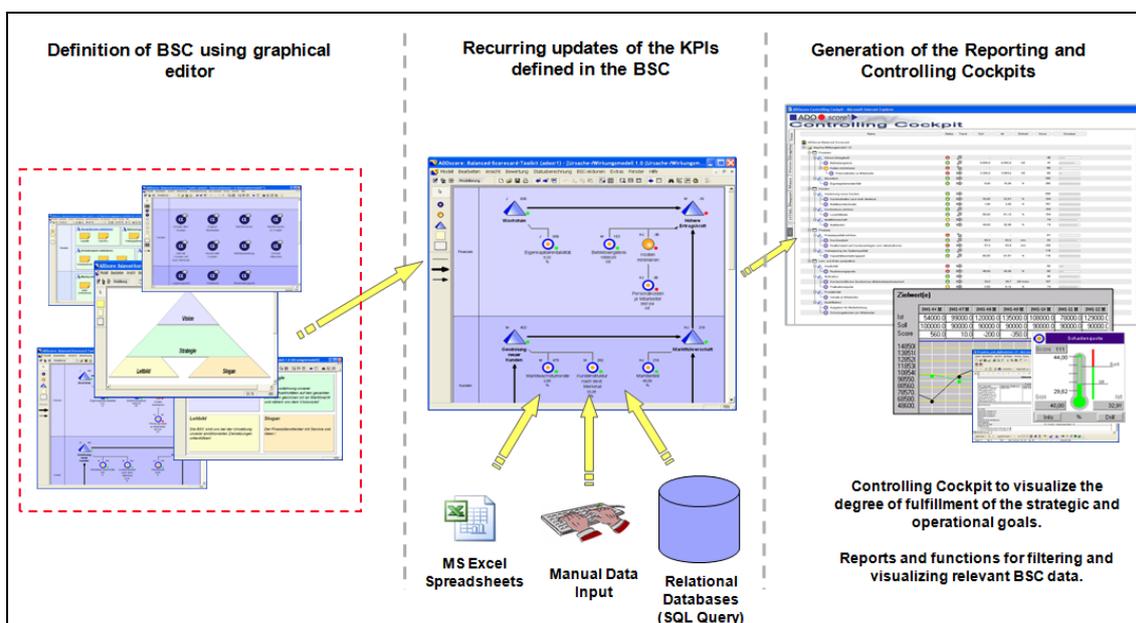

Figure 3: Strategic Planning Toolkit based on ADOscore®

With its modelling technique, the SPICE planning tool facilitates the implementation of the BSC approach by enabling all relevant information for strategic performance management to be represented. As a basis the steps identified by Kaplan/Norton in introducing a Balanced Scorecard[3] to enable change management in the school setting are supported. It offers opportunities for documenting strategic variables, goals and performance indicators, via the definition of target levels and thresholds, to analyzing and controlling the achievement level of strategic and operational goals.

5.4.3 Training concept

Trainings should be distinguished between:

- BSC method trainings for school leaders: In these trainings BSC vocabulary and implementation steps are explained. Also, existing strategy documents of the school should be analysed and an initial scorecard should be modelled. As a result, such training often changes into a 1-2 days strategy workshop. After the workshop, it should be possible by school leaders to continue with BSC implementation on their own but with strong support from the coach (e.g. with regular direct contacts or web/teleconferences).
- BSC tool trainings: School leaders do not need to know the BSC tool – they only need to learn how to read results/documentation generated by the tool. Therefore BSC tool trainings can be organized for only a small part of a school leaders' group or even for people who are not part of school management (preferably with some IT know-how). Such training can be face-to-face training (preferred) or web-

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[3] http://en.wikipedia.org/wiki/Balanced_scorecard

training, e.g. a good solution is to organise a 1 day training with direct contact and then, as the project moves on, to offer additional web-training and coaching.

For both types of trainings mentioned above, additional training materials in the form of presentations and screen casts (for tool handling) are advisable.

6 Conclusions

The training in NEXT-TELL aims at enabling teachers to work with the advanced learning technologies and applications that support appraisal and decision making (thus improving their assessment literacy) that will be developed and provided within the framework of the NEXT-TELL project. Training programs for participating teachers in English and German need to be designed, all required materials (e.g. schedule, presentation slides, and handouts) need to be provided, and the training needs to be conducted in participating schools. Given the need in the project to cater to many teachers spread over a number of countries (and languages), and given that teachers will work with different combinations of learning applications and NEXT-TELL tools, the training will need to be centrally coordinated, but delivered in a distributed, demand-based manner.

The model that seems appropriate is a hub-spoke one: Partner MTO will develop these elements centrally, and provide support for the participating schools and teachers in Germany, if problems or questions regarding the applications occur during the whole duration of the project. NEXT-TELL partners who are going to conduct training in other countries will need to be qualified by MTO. They will also need to provide support for the participating schools in their countries as well.

In close cooperation with NEXT-TELL partners who are developing methods and tools, in this work package three versions will be developed over the project duration, synchronized with the major releases. Trainings will be conducted in a combination of face-to-face workshops and on-line activities for each of the major releases before they are subjected to trials in pilot studies. Refreshment trainings and introductions for newcomers will be conducted on-line on a continuous basis. The on-line materials will also be made available for pre-service teacher education. For instance, lecturers in an Education Faculty in a course on educational assessment can make use of these materials to include in their teaching. Languages supported will be English and German.

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8 Glossary

Terms used within the NEXT-TELL project, sorted alphabetically.

Partner Acronyms

JRS	JOANNEUM RESEARCH Forschungsgesellschaft mbH, AT
Uni Research	UNI RESEARCH AS, NO
KMRC	Medien in der Bildung Stiftung, DE
TUG	Technische Universität Graz, AT
CBS	Cobenhagen Business School, DK
BHAM	The University of Birmingham, UK
IOE	Institute of Education, University of London, UK
EXACT	eXact Learning Solutions SPA, IT
TALK	Verein offenes Lernen, AT
BOC-AT	BOC Asset Management GmbH, AT
BOC-PL	BOC Information Technologies Consulting SP.Z.O.O., PL
MTO	MTO Psychologische Forschung und Beratung GmbH, DE

Abbreviations

BS	Baseline Study
CbKST	Competence-based Knowledge Space Theory Training Course
CBT	Computer Based Training
DBR	Design-Based Research
ECAAD	Evidence Centered Activity and Appraisal Design (builds on the ECD)
ECD	Evidence Centered assessment Design (PADI project eg)
EFL	'English as a Foreign Language'; EFL refers to learning English in a non-English-speaking region, such as studying English in an Asian or Latin American nation. Typically, EFL is learned as part of a student's school curriculum or for career purposes if working for an international corporation.
ENA	E-Network Assessment
ESL	English as a Second Language
HCI	Human Computer Interaction
ICT	Information and Communication Technology
IT	Information Technology
LEPP	Longitudinal Evaluation of Performance in Psychology (2nd generation e-portfolio)
NEXT-TELL	Next Generation Teaching, Education and Learning for Life
OLM	Open Learner Model
PADI	The PADI project aims to provide a practical, theory-based approach to developing quality assessments of science inquiry by combining developments in cognitive psychology and research on science inquiry with advances in measurement theory and technology.
RA	Requirement Analysis
RDS	Researcher-led Design Study

SRI	Stanford Research Institute
STEM	The Science, Technology, Engineering, and Mathematics (STEM) fields are collectively considered core technological underpinnings of an advanced society, according to both the National Research Council and the National Science Foundation
TDS	Teacher-led Design Study
TEL	Technology Enhanced Learning
TESL	Teaching English as Second Language
TISL	Teachers Inquiry into Students Learning

NEXT-TELL partners responsible for generating tools and methods

BOC-AT	ECAAD
BOC-PL	SPICE
EXACT	Moodle
JRS/ EXACT	Google Docs and Google Spreadsheet
TALK	OpenSim
CBS	Rep5
JRS	EVE
EXACT	Mahara ePortfolio
BHAM	OLM