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Dissemination, Standardisation and Exploitation Activities
Report and Plan 3

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Dissemination, Standardisation and Exploitation Activities Report and Plan 3

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Grant Agreement No: 285114
Workpackage Leader: Harald Mayer, JRS
Project Co-ordinator: Harald Mayer, JRS
Scientific Project Leader: Peter Reimann, MTO

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1 Executive Summary

This document gives an overview of the activities the NEXT-TELL project consortium has undertaken in the third project year (September 2012 – August 2013) in the areas of dissemination and standardisation, including also the activities within the previous years. It also summarises the exploitation strategy of the consortium and the individual exploitation plans of the consortium members.

The purpose of the dissemination activities is to create awareness about project results in all important target groups and constituencies. Main efforts have been within the scientific community and with schools (teachers and school leaders) to create awareness about the NEXT-TELL project and to disseminate the scientific results. In year three the partners reported 24 scientific publications (in addition 6 papers have been already submitted for publication in year 4) and 48 other dissemination activities.

A further objective of WP 8 is to promote the adoption of standards and the awareness of standardisation activities in all the technological aspects relevant to NEXT-TELL, and to encourage the engagement with standardisation efforts, by contributing to on-going standardisation forums, and disseminating specifications. There is continuous contact with relevant standardisation bodies, but up to now the project has not make extensions to existing standards.

A dissemination and exploitation strategy has been developed and agreed by the consortium, focusing on the three strands (i) academic exploitation, (ii) commercial exploitation and (iii) long-term perspective for creating and sustaining NEXT-TELL impact in form of an open innovation platform.
2 Introduction

2.1 Purpose of this Document

The purpose of the document is to give an overview of the activities the NEXT-TELL project consortium has undertaken in the third project year (September 2012 – August 2013) in the areas of dissemination, standardisation and exploitation. Moreover, we sketch how these activities will continue in the remainder of the project.

2.2 Scope of this Document

The document covers all activities that have been reported by the partners and describes planned activities and initiatives. The report and plan will be updated annually in order to track the progress in the activities, to provide updates of the plan and to give more detailed plans for the final years of the project.

2.3 Status of this Document

This is the final version of D8.4.

2.4 Related Documents

This deliverable is an update of D8.3, which reported on the dissemination, standardisation and exploitation activities in year 2. The project consortium is keeping a record of all project publications reported in section 3.6 on a shared spreadsheet, which is available on the internal document store as well.
3 Dissemination

This section gives an overview of the project’s dissemination activities of the third project year, i.e. from September 2012 to August 2013.

3.1 Overview

The main focus of the dissemination activities in the third year has been again in the school domain, where school leaders and teachers have been informed on the project objectives and their potential contributions in the pilot studies. In addition the scientific community has been addressed to inform on the on-going research activities.

The following sections provide an overview of these dissemination activities.

3.2 Logo and other Design Elements

The project logo and related design elements remained unchanged.

A very early activity in the project was to create a NEXT-TELL logo and several other elements for creating a “project identity”. Figure 1 shows the NEXT-TELL logo, which was selected by the consortium from a set of proposals from a professional designer.

![Figure 1: The NEXT-TELL Logo](image)

On the basis of the logo and the colour scheme used, several templates (such as a deliverable template and a presentation slide template) were created, which are used by all project partners.

3.3 Project Website

The NEXT-TELL project website was launched in December 2010 at [www.next-tell.eu](http://www.next-tell.eu). It provides information about the NEXT-TELL project and the central objectives of the project and serves as the primary source of information for the public.
During the third project year the website was continuously updated and all public deliverables are directly accessible from there. It serves as the primary source of information for the public.

The website is implemented as a “blog publishing” site based on WordPress, where all partners can easily contribute and ensure that the Website contains up-to-date information. Project management maintains the publication area, where all public deliverables are available for download by the public (see Figure 2).

![Figure 2: Publishing Deliverables at the Website](image)

### 3.3.1 Website Analytics

We have integrated Google Analytics into the NEXT-TELL Website, allowing us to monitor the access statistics. Figure 3 provide a summary of these statics, in this case the observation from September 1, 2012 to August 31, 2013 compared with the previous year.

With 5,132 visits (3,314 unique visitors) the website attracted approx. 20% more visitors than in the previous year. However, the number of page views per visitor and the average duration per visit has dropped. In general these figures are judged as acceptable values for an RTD project, however the goal is to attract more visitors in the coming years, which will be facilitated by a major revision of the website and the availability of ready-to-use tools.
3.3.2 Major revision for Year 4

With the extended availability of tools, it became also clear that the Website needs a significant update, both in look and feel and in terms of provided information and access to results.

As a result we are following an approach to provide a central entry-point to tools and services developed in the so-called app-store (see section 3.3.3 below for more details) and having a major revision of the website in terms of structure and provided information. The focus is more on targeted information for our stakeholders and at the same time makes details about the project less prominent. All public results will be described and made accessible via this website, for tools by directly linking to the download area of the App-store. A draft screenshot of the revised website is shown in Figure 4, the launch of this site is expected with end of October/begin of November 2013.
3.3.3 NEXT-TELL Application Store

The NEXT-TELL Application Store represents the central entry-point to tools and services developed in the context of the project. The application store builds conceptually on available application stores for mobile phones and desktop PCs (see Google PlayStore, Apple’s AppStore for iPhone/iPod/iPad and Apple’s MacStore for desktop applications for examples) and established on a descriptive level the access infrastructure. The access infrastructure allows to either access the tools/services directly using the CAS for authentication or download and installation in local environments.

The NEXT-TELL Application Store collects and categorizes the applications according to the working levels in NEXT-TELL and therefore also acts as a dissemination source for tools and technologies developed and/or applied.

Further details on the implementation results are documented in the respective WPs deliverable 3.6.
As the application store is built generically, there is the option to include third party developments and results from other projects relevant to NEXT-TELL partners.

In a next iteration it is foreseen to enable personalization of the app store for users logged in and group/structure a personalized learning environment in a distributed/heterogeneous, service-oriented manner.

### 3.3.4 German Website

To provide focused information for German schools and organisations, a separate website in German language has been established by KMRC. This Website can be accessed at [http://www.next-tell.de](http://www.next-tell.de).
3.4 Events and Workshops

3.4.1 TaPTA Workshop at EC-TEL 2012

The TaPTA workshop – Towards Theory and Practice of Teaching Analytics – has been organised by NEXT-TELL and took place as part of EC-TEL 2012 at 18 September 2012 in Saarbrücken, Germany

Organizing Committee

- Ravi Vatrapu, Copenhagen Business School, Denmark
- Wolfgang Halb, JOANNEUM RESEARCH, Austria
- Susan Bull, University of Birmingham, UK

Proceedings

The proceedings are published online as volume 894 of the CEUR series of workshop proceedings (http://ceur-ws.org/Vol-894/, ISSN 1613-0073)

More information on the workshop can be found at http://www.next-tell.eu/tapta

3.4.2 ONLINE EDUCA 2012

The ONLINE EDUCA is one of the largest conferences and exhibitions in the Technology-enhanced learning domain. In 2011 there have been 2154 participants from 96 countries. All relevant sector of the learning
domain are represented, i.e. academic (43%), corporate (21%), governmental (34%), and associations/NGOs (2%).

ONLINE EDUCA 2012 took place from **November 28th-30th, 2012**, in Berlin, Germany.

NEXT-TELL had a small stand (6 sqm) where all information on NEXT-TELL and its results have been presented and discussed with visitors. Moreover, a presentation of the NEXT-TELL idea and results was held by KMRC (Gabriele Cierniak) at the conference part of the ONLINE EDUCA.

The stand was organised by JRS as WP leader, and staffed by MTO (Peter Reimann), BOC-AT (Wilfrid Utz), KMRC (Gabriele Cierniak) and JRS (Harald Mayer).

![NEXT-TELL stand at ONLINE EDUCA 2012](image)

**Figure 7: NEXT-TELL stand at ONLINE EDUCA 2012**

### 3.4.3 Teacher-led Inquiry and Learning Design workshop

The “Teacher-led Inquiry and Learning Design: The Virtuous Circle” has been organised by NEXT-TELL and took place as part of 2013 Alpine Rendez-Vous at 28-30 January 2013 in Villard-de-Lans, Vercors, French Alps.

The workshop was organised initiated by Yishay Mor (Open University) and Brock Craft (IOE). After Brock Craft left IOE, Barbara Wasson (UniRes) took over and organised the workshop with Yishay Mor and Rebecca Ferguson (IOE). Cecilie Hansen (UniRes) was also heavily involved.

A result of the workshop is a special issue in BJET on TISL, LD and LA, to be edited by Yishay Mor (Open University), Barbara Wasson (UniRes), and Rebecca Ferguson (IOE).

In addition, the workshop has resulted in two papers led by NEXT-TELL participants. A Grand Challenge book chapter by Wasson, Hansen & Mor (forthcoming) and a submission to the special issue of BJET by Hansen & Wasson.

More information on the workshop can be found at [http://www.ld-grid.org/workshops/design-inquiry2013](http://www.ld-grid.org/workshops/design-inquiry2013).
3.4.4 Virtual Worlds in the Classroom

A workshop entitled “Virtual Worlds in the Classroom” [Virtuelle Welten im Unterricht] has been carried out with two groups of interested teachers one from January 25 to 26, 2013 in Bad Waltersdorf, the other from May 28 to 29, 2013 in Gabelhofen.

![Figure 8: Participants of the 2 workshops](image)

The objective of this teacher workshop was twofold: (i) The primary aim of the workshop was on the one hand to highlight the potential of virtual worlds and environments and their application in the international school context by presenting potential application scenarios and on the other, as a consequence, to initiate an intensive discussion about their implementation and usage in Austrian classrooms. Thus, besides disseminating NEXT-TELL and its fundamental ideas on a general level, there was a strong focus on spreading NEXT-TELL’s methods, concepts and tools that were developed for especially supporting teaching and learning in virtual worlds and environments. (ii) The workshop also served the collection of teachers’ experiences on both the methodological and technological approach and the practical application in the context of ProNIFA.

The workshop was organised and run by TU Graz (Eva Hillemann, Michael Kickmaier-Rust) and talkademy (Klaus Hammermüller, Gerhilde Meissl-Egghart).

An in-depth description of the workshop and its results can be found in Deliverable 6.5.

3.4.5 UK event: What the Research Says-e-Assessment: Which Way Now?

In May 2013, the IOE NEXT-TELL team participated in an event held by the London Knowledge Lab in collaboration with the University of Nottingham and the Open University, entitled ‘What the Research Says-e-Assessment: Which Way Now?’ It was aimed at an audience of around 70 people involved in the design, construction and implementation of learning technology. Relevant TISL studies were presented at the event to discuss methods which support teachers to use technology for the purposes of formative assessment, and to disseminate key research messages.

Research findings have been presented to, and discussed with the trainee teachers on the post-compulsory PGCE at the IOE. Graduates of the MTeach programme at the IOE have also received project information, with an interest expressed by some graduates in participating in future school studies. It is anticipated that incorporation of relevant NEXT-TELL resources will be offered to MTeach programme.

3.4.6 UK workshops with teachers and schools

School studies have included two studies with Thomas Deacon Academy (TDA), focusing on STEM projects in 2012 and 2013. The study in 2012 focused on the inquiry of one lead teacher, with research affecting 49 teachers and their classes. In addition to supporting the research of the lead teacher, this study also included a group assessment sessions, where teachers involved in the project collaboratively assessed student work using Soundcloud. During 2012, a study with ACS Cobham saw the involvement of one teacher and one class in a TISL inquiry on Java Programming.
The study with TDA in 2013 also focused on their Futures STEM project and involved 67 staff and their classes, with a total of 364 students. Though this did not implement workshops for teachers, it included research support for the lead teacher.

3.4.7 Round Table at JURE 2013

The JURE conference is a meeting point for junior researchers within the European Association for Research in Learning and Instruction (EARLI). The Association’s main Journal is Learning and Instruction. In 2013, the JURE took place in Munich from 26th to 27th August.

The round table „Enhancing teachers’ assessment for learning practices through implicit and explicit job aids (former submission title: Self-determined learning in the 21st century classroom) won the „Best Round Table Award“ approved by the current EARLI President Jos Beishuizen.

The conference contribution was done by KMRC (Carmen Biel as presenting junior researcher, Gabriele Cierniak, Friedrich Hesse and Josef Schrader).

3.5 Other Dissemination Materials

Next to the NEXT-TELL Website, which serves as the main dissemination channel, several other supporting materials have been produced. They are described in the following sections.

3.5.1 YouTube Channel

NEXT-TELL has established its own channel on YouTube to collect and make accessible all video based material generated in NEXT-TELL. The channel can be reached at: http://www.youtube.com/user/NEXTTELLproject/

Promotional Video

To disseminate the results of NEXT-TELL an animated video has been produced. This video focuses on the set of tools developed in NEXT-TELL. The video has a runtime of 3:23 min and has been produced in Full HD resolution.

This video has been used as the main eye-catcher at the ONLINE EDUCA 2012 in Berlin and is accessible via the NEXT-TELL YouTube channel.

Figure 9: Screenshot from the NEXT-TELL video
Training videos

As part of the training materials created for NEXT-TELL, a process of creating training videos for each of the tools has been started. The videos are made available on YouTube, as a separate playlist on the NEXT-TELL channel, in addition to the Moodle courses created for each tool. Several videos for each tool are planned / have been made. For each tool there is a short introduction video for explaining the basic concept and idea of the tool, for overview, and several more detailed videos on how to complete various tasks with the tool. Here, one aspect of the tool is focused on in each video. The videos are specifically directed at teachers, and are subtitled both in English and German.

![Figure 10: Screenshot from the NEXT-TELL channel on YouTube](image)

3.5.2 Tel 2020 e-book


The book quickly reached a number of 1.000 downloads and was listed in the top 10 bestseller charts of iTunes UK.
3.5.3 Project Flyer

The NEXT-TELL flyer was created as a complementary instrument for creating public awareness for the project. It was developed as an “eye catcher” which is distributed mainly at meetings and conferences, or given away to school leaders and teachers to generate interest.

The preliminary version was already presented in the previous report, on the following pages the final version, released in October 2011, can be seen.

The flyer presents the main ideas of the project in an accessible and easy-to-read form. The design is based on the general design as used on documents and the Website (see Figure 11).
3.5.4 Poster

Based on the project Flyer a poster has been developed which can be used as basis for adaptation to an actual dissemination event (see Figure 12 below).
Our vision of the 21st Century classroom is that of a technology- and data-rich environment where teachers are supported in continuously and collaboratively innovating the use of ICT for formative classroom assessment, while students engage in a wide scope of relevant learning activities and assessments, in and beyond the classroom walls.

**VISION AND GOALS**

- Articulate a conceptual framework for designing and implementing methods that can be used to formatively assess ICT in the classroom and to implement the assessment process among learners.
- Provide resources and ICT support for teachers and students to develop learning activities and perform assessment appropriate for the 21st Century learning based on the conceptual framework.
- Provide IT support so that teachers and students have available resources and information in a format that is supportive of decision making, thus optimizing levels of stimulation, challenge, and feedback.
- Increase a school’s capacity for data-driven decision making by means of leadership development, including ICT support for the systematic planning of teachers’ professional development.
- Foster in-service teachers’ professional development by providing new methods and tools for learning from student learning and for learning from parent learning.

**METHODS AND TOOLS**

NEXT-TELL realizes a holistic approach to school ICT innovation, providing method and tool support on three levels:

### Pedagogical interactions
- Formative assessment design with tool support
- Learning activity sequence design with tool support
- Integration into class- and learning management systems (e.g., Moodle, Blackboard systems) or Mahara, cloud applications (e.g., Google Docs), immersive environments (e.g., OpenSimulator)
- Provision of advanced formative assessment methods (e.g., clicktest, PPT, etc.) including assessment of video materials
- Learning activity synthesis, and knowledge level tracking using an Open Learner Model approach
- Support for teachers, student, and teachers’ parent communication

### Teachers’ research on students’ learning and on pedagogical innovations
- Mixed-methods inquiry methodology
- Research work tools planning tool
- Continuous analytics on learning activities and Open Learner Models

### School leadership
- Balanced Scorecard methodology for ICT alignment
- Strategic planning support tool
- Teaching staff certification methodology and tool support

Figure 12: Poster for dissemination events
3.6 Journal and Conference Publications

Journal and conference publications mainly target the scientific community, with focus on teacher and pre-service teacher related events. In this section we describe the publication policy set forth in the project, as well as report on all activities in the first 36 months of the project.

One of the review recommendations of the last year was to publish articles of high quality in journals. In this context we want to emphasize the publication


3.6.1 Publication Policy

The NEXT-TELL consortium has decided on a publication policy that respects the intellectual property rights of all consortium members. All partners are informed on project related publications well in advance of submission by sending an email to the general project mailing list and by putting the submitted publication onto the internal document store.

After publication of the contribution, an email is sent to the project coordinators office containing a PDF version of the paper (and/or abstract) and the exact bibliographic reference is stored in a shared spread sheet.

All project partners are committed to publishing joint publications, whenever possible, to document the collaborative effort and the integrated character of the project.

3.6.2 Relevant Conferences

The following conferences have been identified as relevant dissemination channels for NEXT-TELL related research activities. The scientific project coordinator keeps track of these conferences and related submission deadlines. This forms the basis for the planning activities of new publications.

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<th>main target audience</th>
<th>Frequency</th>
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<td>Future of education</td>
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<td>academics, policy makers</td>
<td></td>
</tr>
<tr>
<td>International Conference on Computer-Supported Collaborative Learning</td>
<td></td>
<td>academics; learning scientists</td>
<td>bi-annually</td>
</tr>
<tr>
<td>International Conference of the Learning Sciences</td>
<td></td>
<td>academics; learning scientists</td>
<td>bi-annually</td>
</tr>
<tr>
<td>Online Educa Berlin, School Forum</td>
<td>IT in education; School Forum</td>
<td>academics; learning scientists; teachers; business people</td>
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<td>Tagung der Arbeitsgruppe für Empirische Pädagogische Forschung der DGfE</td>
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<td>academics; learning scientists; teachers</td>
<td>twice a year</td>
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<td>academics; learning scientists</td>
<td>bi-annually</td>
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<td>European Association for Learning and Instruction</td>
<td></td>
<td>academics; learning scientists</td>
<td>bi-annually</td>
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<td>Society for Information Technology and Teacher Education</td>
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<td>annually</td>
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<td>e-learning</td>
<td>academics and industry</td>
<td>annually</td>
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<td>International Conference on Computers and Education</td>
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<td>Asia focus</td>
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<td>Language teachers and second language researchers</td>
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<td>Educational games</td>
<td>academics and industry</td>
<td>annually</td>
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<td>Technology-enhanced learning in education</td>
<td>academics, teachers, schools and other educational institutions (FE, HE) industry</td>
<td>bi-annually</td>
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<td>academics</td>
<td>bi-annually?</td>
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<td>Learning technologies</td>
<td>academics, teachers, designers, educational institutions</td>
<td>annually</td>
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<td>academics, designers</td>
<td>bi-annually</td>
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<td>annually</td>
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<tr>
<td>didacta (trade fair)</td>
<td>education in kindergarten, schools, colleges; further training, consulting service</td>
<td>kindergarten, schools, colleges, other educational institutions, trainers...</td>
<td>annually</td>
</tr>
<tr>
<td>Edulearn</td>
<td>education in general</td>
<td>academics, educators</td>
<td>Annually</td>
</tr>
<tr>
<td>Learning Analytics and Knowledge (LAK)</td>
<td>Learning Analytics, Teaching Analytics</td>
<td>Academics, educators, and administrators</td>
<td>Annually</td>
</tr>
</tbody>
</table>
3.6.3 Relevant Journals

Similar to above, also relevant journals have been identified for planning of new publications.

<table>
<thead>
<tr>
<th>Name</th>
<th>main topics</th>
<th>main target audience</th>
<th>Ranking/Impact information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal of the Learning Sciences</td>
<td>learning, interaction, communication</td>
<td>academics</td>
<td>place 1-5 worldwide</td>
</tr>
<tr>
<td>Learning and Instruction</td>
<td>learning, development, instruction, and teaching</td>
<td>academics</td>
<td>2,372; 4th in Education</td>
</tr>
<tr>
<td>Journal of Technology and Teacher Education (JTATE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language Assessment Quarterly</td>
<td>language assessment, language learning, language testing</td>
<td>academics</td>
<td>Worldwide</td>
</tr>
<tr>
<td>Language Testing</td>
<td>language testing</td>
<td>academics</td>
<td>Worldwide</td>
</tr>
<tr>
<td>Language Teaching</td>
<td>language teaching and assessment</td>
<td>academics</td>
<td>Worldwide</td>
</tr>
<tr>
<td>Nordic Journal of Digital Literacy</td>
<td>pedagogical innovation in the use of IT, digital competence</td>
<td>academics, school authorities and school leaders</td>
<td>Scandinavia and beyond</td>
</tr>
<tr>
<td>Norsk pedagogisk tidsskrift</td>
<td>Educational topics</td>
<td>academics</td>
<td>Scandinavia</td>
</tr>
<tr>
<td>Scandinavian journal of educational research</td>
<td>Educational topics</td>
<td>academics</td>
<td>Scandinavia and beyond</td>
</tr>
<tr>
<td>Computers and Education</td>
<td>Educational technology</td>
<td>academics</td>
<td>Worldwide (IF: 2,461)</td>
</tr>
<tr>
<td>International Journal of Game-based Learning</td>
<td>Immersive educational environments</td>
<td>academics</td>
<td>Worldwide</td>
</tr>
<tr>
<td>Journal of Computer Assisted Learning</td>
<td>technology in education</td>
<td>academics, teachers, educators</td>
<td>Worldwide, top 30 journals in the ISI Education list. It is now 27th in a list of 139 Education journals</td>
</tr>
<tr>
<td>Qwerty</td>
<td>technology and culture</td>
<td>academics, educators</td>
<td>Italy, Europe</td>
</tr>
</tbody>
</table>
### Name of Publications

The three years of the project have already seen a number of publications. The main thrust of these publication activities was to put the project and its intended goals and purpose on the map of several important research communities.

#### Year 1

- W. Clark, R. Luckin, C. Jewitt, “Facilitating Teachers’ Inquiry into Students’ Learning (TISL) through Evidence-Centred Activity and Assessment Design (ECAAD)”, Alpine-Rendezvous 2011 (Stellar Network), March 2011
- S. Bull, R. Vatrapu, “Supporting Collaborative Interaction with Open Learner Models: Existing Approaches and Open Questions”, Computer Supported Collaborative Learning, July 2011

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<table>
<thead>
<tr>
<th>Name</th>
<th>main topics</th>
<th>main target audience</th>
<th>Ranking/Impact information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning, Media, Technology</td>
<td>technology in education</td>
<td>academics</td>
<td>UK, International</td>
</tr>
<tr>
<td>Teachers and Teacher Education</td>
<td>teachers, education, generally</td>
<td>academics, teachers, school leaders</td>
<td>Worldwide, UK</td>
</tr>
<tr>
<td>Assessment in Education</td>
<td>teaching, assessment, education</td>
<td>academics</td>
<td>Worldwide, UK</td>
</tr>
<tr>
<td>Journal of Artificial Intelligence in Education</td>
<td>technology design, AI and TEL</td>
<td>academics, designers, educators</td>
<td>Worldwide</td>
</tr>
<tr>
<td>Technology, Pedagogy and Education</td>
<td>technology, pedagogy in education</td>
<td>initial teacher education, teachers, academics, industry</td>
<td>UK</td>
</tr>
<tr>
<td>British Journal of Educational Technology (BJET)</td>
<td>education, training and information technology</td>
<td>academics</td>
<td>UK, International</td>
</tr>
<tr>
<td>Nordic Studies in Education</td>
<td>pedagogical approaches in the use of IT, digital competence</td>
<td>academics, school authorities and school leaders</td>
<td>Scandinavia, International</td>
</tr>
</tbody>
</table>
• M. Johnson, P. Reimann, S. Bull, N. Fujita, “Epistemic Beliefs and Open Learner Models”, Personalisation Approaches in Learning Environments (workshop at UMAP11), July 2011


Year 2


• B. Imhof, G. Cierniak, E. Moe, F. Hesse, B. Wasson, P. Reimann, „Technology-supported appraisal at the school of tomorrow (Technologiegestützte Beurteilungsmethoden in der Schule von Morgen)“, AEPF 2011, September 2011


• Z. Misiak, “Next generation of education - how to achieve it (Polish title "Edukacja w nowej generacji - jak to osiągnąć?)”, Business Informatics for the future (Polish title "Informatyka Q przyszłości"), October 2011, Warsaw, Poland


• M. D. Kickmeier-Rust, D. Albert, “MATE: Next generation intelligent tutoring entities for virtual environments” 2012 International Conference on Artificial Intelligence, July 2012, Las Vegas, NV, USA


Year 3

- R. Vatrapu, “Towards a Semiology of Teaching Analytics” TaPTA Workshop at EC-TEL 2012, September 2012, Saarbrücken, Germany
- B. Wasson, B. Brock, Y Mor, “Teacher-led Inquiry and Learning Design: The Virtuous Circle” ARV Alpine-Rendezvous 2013, 28 Jan 2013
- M. D. Kickmeier-Rust, D. Albert, “Using Hasse Diagrams for Competence-Oriented Learning Analytics” SouthChi 2013, Workshop on Smart Learning Environments, 1 July 2013, Maribor
- M. D. Kickmeier-Rust, D. Albert, “Learning Analytics to Support the Use of Virtual Worlds in the Classroom”, SouthChi 2013, Workshop on Data Mining and Data Visualization, 1 July 2013, Maribor
- P. Reimann, H. Mayer, "From data to knowledge: Computer-enhanced learning diagnostics for the technology-rich classroom", EdMedia 2013, 27 June 2013, Victoria, BC, Canada
- Z. Misiak, M. Kossowski, W. Utz, ECAAD Modelling Tool based on ADOxx, Proceedings of ICIM 2013 conference

To be published
- Cecilie Hansen, Valerie Emin, Barbara Wasson, Yishay Mor, Marva Jesús Rodríguez-Triana, Mihai Dascalu, Rebecca Ferguson and Jean-Philippe Pernin “Towards An Integrated Model of Teacher Inquiry into Student Learning, Learning Design, and Learning Analytics” (EC-TEL 2013, Paphos, Cyprus)
- C. Hansen & B. Wasson (submitted). Teacher Inquiry through the TISL Heart. Special Issue of BJET.
- Z. Misiak, W. Utz, M. Kossowski, Tailoring modelling method to non-technical user needs in TEL-related project. Experiences of the NEXT-TELL project, ICEEE 2013
### Other Dissemination Activities

The following table provides an overview of other dissemination activities, mainly presentations in non-conference environments.

<table>
<thead>
<tr>
<th>Title</th>
<th>Venue</th>
<th>Date</th>
<th>Place</th>
<th>Main leader</th>
<th>Type of audience</th>
<th>Size of audience</th>
<th>Countries addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching and Learning in Classrooms of the 21st Century.</td>
<td>NEXT-TELL project presentation to the Danish Minister</td>
<td>30.09.2010</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Policy makers</td>
<td>12</td>
<td>Denmark</td>
</tr>
<tr>
<td>Teaching and Learning in Classrooms of the 21st Century.</td>
<td>NEXT-TELL project presentation to the Academic Council</td>
<td>04.10.2010</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Policy makers</td>
<td>20</td>
<td>Denmark</td>
</tr>
<tr>
<td>NEXT-TELL Presentation</td>
<td>NEXT-TELL project presentation to ministry of education and cultural affairs, school authorities, teachers and principals of different schools in the past!!!</td>
<td>01.12.2010</td>
<td>Germany</td>
<td>Katharina Gieler (MTO), Rena Sircar (MTO)</td>
<td>officials of the ministry of education and cultural affairs, teachers and principals</td>
<td>35</td>
<td>Germany</td>
</tr>
<tr>
<td>Intercultural work at schools.</td>
<td>voXmi-teacher meeting</td>
<td>06.12.2010</td>
<td>Vienna, Austria</td>
<td>Gerhilde Meissl-Egghart (TALK)</td>
<td>Teacher</td>
<td>12</td>
<td>Austria</td>
</tr>
<tr>
<td>ICT innovation in Austrian schools.</td>
<td>eLSAL jourfixe</td>
<td>13.01.2011</td>
<td>Vienna, Austria</td>
<td>Gerhilde Meissl-Egghart (TALK)</td>
<td>Teacher</td>
<td>20</td>
<td>Austria</td>
</tr>
<tr>
<td>NEXT-TELL Presentation</td>
<td>Elsa Advanced national meeting</td>
<td>28.01.2011</td>
<td>Stegersbach, Austria</td>
<td>Gerhilde Meissl-Egghart (TALK)</td>
<td>Key Stakeholder, Policy makers</td>
<td>50</td>
<td>Austria</td>
</tr>
<tr>
<td>Designing for Technology enhanced Teaching and Learning (DTeTL)</td>
<td>Master of ICT in Learning Seminar</td>
<td>04.02.2011</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Researchers, Teachers, Practitioners</td>
<td>12</td>
<td>Denmark</td>
</tr>
<tr>
<td>NEXT-TELL Presentation</td>
<td>Brownbag meeting at KMRC</td>
<td>09.02.2011</td>
<td>Tuebingen, Germany</td>
<td>Gabriele Cierniak (KMRC), Birgit Imhof (KMRC)</td>
<td>PhD students, researchers</td>
<td>20</td>
<td>Germany</td>
</tr>
<tr>
<td>Technology enhanced Teaching and Learning (TeTL)</td>
<td>ICT in Education Programme</td>
<td>04.03.2011</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Researchers, Teachers</td>
<td>25</td>
<td>Denmark</td>
</tr>
<tr>
<td>Technology enhanced Teaching and Learning (TeTL)</td>
<td>ICT in Education Programme</td>
<td>09.03.2011</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Researchers, Teachers</td>
<td>30</td>
<td>Denmark</td>
</tr>
<tr>
<td>Technology enhanced Teaching and Learning (TeTL)</td>
<td>ICT in Education Programme</td>
<td>16.03.2011</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Researchers, Teachers</td>
<td>20</td>
<td>Denmark</td>
</tr>
<tr>
<td>NEXT-TELL project</td>
<td>eXact web site</td>
<td>18.03.2011</td>
<td>Fabrizio Giorgini (EXACT)</td>
<td>Industry</td>
<td></td>
<td></td>
<td>International</td>
</tr>
<tr>
<td>Title</td>
<td>Venue</td>
<td>Date</td>
<td>Place</td>
<td>Main leader</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Teaching and Learning in Classrooms of the 21st Century.</td>
<td>NEXT-TELL project presentation to the Hordaland District School Board on collaboration (they have 5 schools in an assessment project in the District)</td>
<td>27.04.2011</td>
<td>Bergen, Norway</td>
<td>Barbara Wasson (UniRes)</td>
<td>Policy Makers, Stakeholders</td>
<td></td>
<td>Norway</td>
</tr>
<tr>
<td>Technology enhanced Teaching and Learning (TeTL)</td>
<td>Assistant Professor Pedagogical Programme</td>
<td>02.05.2011</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Researchers, Teachers</td>
<td>9</td>
<td>Denmark</td>
</tr>
<tr>
<td>21st Century Classroom Teaching and Learning</td>
<td>EALTA Conference</td>
<td>05.05.2011</td>
<td>Siena, Italy</td>
<td>Eli Moe (UniRes)</td>
<td>Researchers, Teachers, Practitioners, Policy Makers</td>
<td>200</td>
<td>International</td>
</tr>
<tr>
<td>NEXT-TELL Presentation</td>
<td>NEXT-TELL project presentation to teachers and principal of the Realschule Gammertingen</td>
<td>20.05.2011</td>
<td>Gammertingen, Germany</td>
<td>Katharina Gieler (MTO), Rena Sircar (MTO)</td>
<td>Teachers and principal</td>
<td>8</td>
<td>Germany</td>
</tr>
<tr>
<td>Assessment &amp; Technology</td>
<td>Educational Technology Research Unit, University of Oulu, Finland</td>
<td>26.05.2011</td>
<td>Oulu, Finland</td>
<td>Barbara Wasson (UniRes)</td>
<td>PhD students &amp; researchers</td>
<td>15</td>
<td>Finland</td>
</tr>
<tr>
<td>NEXT-TELL presentation</td>
<td>NEXT-TELL project presentation to teachers and principal of the Helene-Lange-Schule Markgröningen</td>
<td>29.5.2011</td>
<td>Markgröningen, Germany</td>
<td>Katharina Gieler (MTO), Rena Sircar (MTO)</td>
<td>Teachers and principal</td>
<td>8</td>
<td>Germany</td>
</tr>
<tr>
<td>Intercultural work at schools.</td>
<td>voKmi-teacher meeting</td>
<td>12.6.2010</td>
<td>Vienna, Austria</td>
<td>Gerhilde Meissl-Egghart (TALK)</td>
<td>Teacher</td>
<td>12</td>
<td>Austria</td>
</tr>
<tr>
<td>Supporting Assessment Mechanisms through Technology</td>
<td>Bristol Festival of Education, 2011; Symposium: Assessment and Learning in the Digital Age</td>
<td>17.06.2011</td>
<td>Bristol, UK</td>
<td>Barbara Wasson (UniRes)</td>
<td>faculty, researchers &amp; PhD students, policy makers (educational institutions), assessment agencies</td>
<td>50</td>
<td>UK</td>
</tr>
<tr>
<td>Panel Discussion: The Role and Future of Assessment in the Digital Age</td>
<td>Bristol Festival of Education, 2011; Symposium: Assessment and Learning in the Digital Age</td>
<td>17.06.2011</td>
<td>Bristol, UK</td>
<td>Barbara Wasson (UniRes)</td>
<td>faculty, researchers &amp; Ph.D students</td>
<td></td>
<td>International</td>
</tr>
<tr>
<td>Title</td>
<td>Venue</td>
<td>Date</td>
<td>Place</td>
<td>Main leader</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
</tr>
<tr>
<td>-------------------------------------------</td>
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</tr>
<tr>
<td>NEXT-TELL Presentation</td>
<td>NEXT-TELL project presentation to teachers and principal of the Helene-Lange-Schule Markgröningen</td>
<td>29.06.2011</td>
<td>Markgröningen, Germany</td>
<td>Katharina Gieler (MTO), Rena Sircar (MTO)</td>
<td>Teachers and principal</td>
<td>8</td>
<td>Germany</td>
</tr>
<tr>
<td>NEXT-TELL project</td>
<td>ICALT 2012</td>
<td>05.07.2011</td>
<td>Rome</td>
<td>Fabrizio Giorgini (EXACT)</td>
<td>Scientific Community</td>
<td>200</td>
<td>International</td>
</tr>
<tr>
<td>NEXT-TELL</td>
<td>eSLA Sommertagung</td>
<td>29.08.2011</td>
<td>Fiss (Tyrol), Austria</td>
<td>Gerhilde Meissl-Egghart (TALK)</td>
<td>teachers</td>
<td>30</td>
<td>Austria</td>
</tr>
<tr>
<td>YEAR 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEXT-TELL: Invitation to join as a teacher with your students.</td>
<td>AVATAR workshop</td>
<td>13.09.2011</td>
<td>Bourges, Bulgaria</td>
<td>Klaus Hammermüller (TALK)</td>
<td>teachers, researchers</td>
<td>45</td>
<td>European countries</td>
</tr>
<tr>
<td>NEXT-TELL</td>
<td>UniHeise seminar</td>
<td>16.09.2011</td>
<td>Os, Norway</td>
<td>Cecilie Hansen (UniRes)</td>
<td>researchers</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Assessment in the Digital Age</td>
<td>IML Symposium: Creative Learning Cultures – Educational Innovations in a Web 2.0 World (see <a href="https://apps.iml.um.u.se/wordpress/symposium/program/">https://apps.iml.um.u.se/wordpress/symposium/program/</a>)</td>
<td>21.09.2011</td>
<td>Umeå, Sweden</td>
<td>Barbara Wasson (UniRes)</td>
<td>faculty, researchers &amp; Ph.D students</td>
<td>International</td>
<td></td>
</tr>
<tr>
<td>Killing school spirit: testing times</td>
<td>„Heretics“ Seminar Series, Faculty of Education and Social Work</td>
<td>22.09.2011</td>
<td>Sydney, Australia</td>
<td>Peter Reimann (MTO)</td>
<td>Teacher educators, educational researchers</td>
<td>50</td>
<td>International</td>
</tr>
<tr>
<td>Technology enhanced Teaching and Learning (TeTL)</td>
<td>Assistant Professor Pedagogical Programme</td>
<td>10.10.2011</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Researchers, Teachers</td>
<td>10</td>
<td>Denmark</td>
</tr>
<tr>
<td>Fachtagung eDidaktik</td>
<td>Fachtagung eDidaktik - TGM Wien</td>
<td>18.10.2011</td>
<td>Vienna, Austria</td>
<td>Klaus Hammermüller (TALK)</td>
<td>teachers</td>
<td>30</td>
<td>Austria</td>
</tr>
<tr>
<td>NEXT-TELL</td>
<td>Danish Newspaper</td>
<td>08.11.2011</td>
<td>Kalundborg, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>General Public</td>
<td>1000</td>
<td>Denmark</td>
</tr>
<tr>
<td>Title</td>
<td>Venue</td>
<td>Date</td>
<td>Place</td>
<td>Main leader</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Using Classroom ICT to track learning activities and knowledge growth</td>
<td>ASCILITE Conference; Symposium on educational e-research</td>
<td>05.12.2011</td>
<td>Hobart, Australia</td>
<td>Peter Reimann (MTO)</td>
<td>Tertiary sector e-learning</td>
<td>40</td>
<td>International</td>
</tr>
<tr>
<td>Learning and assessment in virtual worlds</td>
<td>eLSA school networking seminar</td>
<td>13.12.2011</td>
<td>Gym Purkersdorf</td>
<td>Gerhilde Meissl-Egghart (TALK)</td>
<td>teachers</td>
<td>16</td>
<td>Austria</td>
</tr>
<tr>
<td>NEXT-TELL project</td>
<td>Presentation to Teeled, a consulting company offering e-learning services</td>
<td>20.12.2011</td>
<td>Sestri Levante</td>
<td>Fabrizio Giorgini (EXACT)</td>
<td>Industry</td>
<td>3</td>
<td>Italy</td>
</tr>
<tr>
<td>NEXT-TELL</td>
<td>NEXT-TELL project presentation to e-learning company</td>
<td>19.01.2012</td>
<td>JOANNEUM RESEARCH</td>
<td>Harald Mayer (JRS)</td>
<td>bit media e-Learning solutions (company)</td>
<td>5</td>
<td>Austria</td>
</tr>
<tr>
<td>NEXT-TELL</td>
<td>Learning Technologies Exhibition</td>
<td>30.01.2012</td>
<td>London, UK</td>
<td>Federico Dondero (EXACT)</td>
<td>TEL consumers</td>
<td>80</td>
<td>Germany</td>
</tr>
<tr>
<td>Technology enhanced Teaching and Learning (TeTL)</td>
<td>Master of ICT in Learning Seminar</td>
<td>01.02.2012</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Researchers, Teachers, Practitioners</td>
<td>50</td>
<td>Denmark</td>
</tr>
<tr>
<td>NEXT-TELL</td>
<td>LearnTec Exhibition</td>
<td>01.02.2012</td>
<td>Karlsruhe, Germany</td>
<td>Andrea Lorenzon (EXACT)</td>
<td>TEL consumers</td>
<td>80</td>
<td>Germany</td>
</tr>
<tr>
<td>Designing for Technology enhanced Teaching and Learning (DTeTL)</td>
<td>Master of ICT in Learning Seminar</td>
<td>03.02.2012</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Researchers, Teachers, Practitioners</td>
<td>15</td>
<td>Denmark</td>
</tr>
<tr>
<td>NEXT-TELL</td>
<td>Copenhagen Business School- Sauder School of Business, University of British Columbia</td>
<td>09.02.2012</td>
<td>Copenhagen, Denmark</td>
<td>Ravi Vatrapu (CBS)</td>
<td>Researchers, Teachers, Practitioners, and Administrators</td>
<td>15</td>
<td>Denmark and Canada</td>
</tr>
<tr>
<td>Using NEXT-TELL for addressing the newly defined IT literacy skills for 14 year old Austrian students</td>
<td>Landesschulrat für NÖ</td>
<td>28.02.2012</td>
<td>Landesschulrat für NÖ</td>
<td>Gerhilde Meissl-Egghart (TALK)</td>
<td>Landesschulinspektor für Informatik, Mag, Alfred Nussbaumer</td>
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## Dissemination, Standardisation and Exploitation Activities Report and Plan 3

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<td>NEXT-TELL</td>
<td>Presentation to imaginary, an Italian SME specialised in serious games for education</td>
<td>02.03.2012</td>
<td>Milano</td>
<td>Fabrizio Giorgini (EXACT)</td>
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<td>Technology enhanced Teaching and Learning (TeTL)</td>
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<td>05.03.2012</td>
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<td>NEXT-TELL</td>
<td>Presentation to the Top Management Team of Sikkim-Manipal University-Distance Education</td>
<td>19.03.2012</td>
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<td>IKT-støttet vurdering for læring (ICT-supported assessment for learning)</td>
<td>&quot;NKUL 2012 - Nasjonal konferanse om bruk av ICT i undervisning og læring (National Conference on use of ICT in teaching and learning)</td>
<td>10.05.2012</td>
<td>Trondheim Norway</td>
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<td>Process mining for activity visualisation</td>
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<td>3rd International Workshop &quot;MODELLING METHODS IN MOTION&quot;</td>
<td>13.09.2012</td>
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<td>Poster Session NEXT-TELL, Flyers and Discussion</td>
<td>3rd International Workshop &quot;MODELLING METHODS IN MOTION&quot;</td>
<td>13.09.2012</td>
<td>Vienna, Austria</td>
<td>Robert Woitsch, Wilfrid Utz, Vedran Hrgovcic (BOC-AT)</td>
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<td>Poster Session NEXT-TELL, Flyers and Discussion Fair booth</td>
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<td>13.09.2012 -</td>
<td>Vienna, Austria</td>
<td>Robert Woitsch, Wilfrid Utz, Vedran Hrgovcic (BOC-AT)</td>
<td>Business community</td>
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<td>Towards Theory and Practice of Teaching Analytics (TaPTA)</td>
<td>EC-TEL 2012</td>
<td>18.09.2012</td>
<td>Saarbrücken, DE</td>
<td>Ravi Vatrapu (CBS), Wolfgang Halb (JRS), Susan Bull (BHAM)</td>
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<td>Learning experiences in virtual worlds in schools, including formative assessment methods to create feedback for learners and educators with the NEXT-TELL project</td>
<td>11. eLearning Tag der FH JOANNEUM E-Didaktik - Lernen in virtuellen sozialen Räumen</td>
<td>19.09.2012</td>
<td>Graz, AT</td>
<td>Klaus Hammermüller (TALK)</td>
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<td>NEXT-TELL: vision and tools</td>
<td>Invited informal visit at Deutsche Telekom</td>
<td>09.10.2012</td>
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<td>KMRC, MTO</td>
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<td>Planung und Dokumentation in einem individualisiertem Lernumfeld</td>
<td>KIRCHLICHE PÄDAGOGISCHEN HOCHSCHULE WIEN, Mayerweckstraße 1, 1210 Wien</td>
<td>24.10.2012</td>
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<td>On-going</td>
<td>Web</td>
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<td>Formative assessment in the school classroom - NEXT-TELL approach</td>
<td>EU Schools - roadmapping the future, TEL-Map meeting</td>
<td>2012-11-27</td>
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<td>Developing Orchestration competencies in the technology-rich mathematics classroom</td>
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<td>Berlin, DE</td>
<td>KMRC</td>
<td>Teachers and Researchers</td>
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<td>Presentation of the NEXT-TELL project (project overview and objectives, TUG contributions)</td>
<td>TU Graz</td>
<td>13.12.2012</td>
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<td>Martin Ebner (Graz University of Technology); Onjira Sitthisak (University of Southampton)</td>
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<td>Teacher Inquiry into Student Learning</td>
<td>Trying out the TISLheart method with teachers</td>
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<td>UniRes</td>
<td>Hordaland District School Board, school leaders and teachers</td>
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<td>2013-01-10</td>
<td>Sestri Levante, IT</td>
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<td>Feedback-Kultur in der Schule digital unterstützen</td>
<td>KMRC Evaluation</td>
<td>2013-01-24</td>
<td>Tuebingen, Germany</td>
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<td>Virtuelle Welten im Unterricht</td>
<td>2. NEXT-TELL Workshop</td>
<td>2013-01-25</td>
<td>Bad Waltersdorf, AT</td>
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<td>Short presentation for recruiting teachers’ trainers</td>
<td>Presentation of the &quot;Profil-AC für Realschulen&quot; at the school of education</td>
<td>2013-01-25</td>
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<td>Dokumentation und Lerndiagnostik in virtuellen und physischen Lernumgebungen mit NEXT-TELL</td>
<td>Pädagogische Hochschule Wien</td>
<td>2013-02-21</td>
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<td>Selbstbestimmtes Lernen mit Web 2.0 unterstützen</td>
<td>EduCamp Hamburg, 2013</td>
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<td>Language quests and data analytics in secondary schools</td>
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<td>Two day teacher workshop virtual worlds in the classroom</td>
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<td>Teacher workshop on 1x1 Ninja tool</td>
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<td>Interactive Event: From a Virtual Village to an Open Learner Model with NextTELL</td>
<td>International Conference on Artificial Intelligence in Education 2013</td>
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<td>Language Quests and Learning Analytics in Primary, Secondary and Tertiary education</td>
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<td>Workshop: &quot;Meta- innovation— supporting open innovation processes around ICT for Education&quot;</td>
<td>Australian Digital Futures Initiative</td>
<td>2013-08-28</td>
<td>University of Southern Queensland, Toowoomba, QL</td>
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<td>Changing Teacher Practice Through Student Learning Evidence</td>
<td>Uni Health seminar</td>
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<td>UniRes (C. Hansen)</td>
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<td>Enhancing teachers’ assessment for learning practices through implicit and explicit job aids</td>
<td>JURE conference (by EARLI)</td>
<td>2013-08-27</td>
<td>Munich, DE</td>
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### 3.7 Upcoming Activities

#### 3.7.1 Planned Workshops

NEXT-TELL, through its partners, also has been active in developing and proposing workshops at relevant conferences. Two examples are described below. These workshops will take place in the fourth project year.

**3rd International Workshop on Teaching Analytics (IWTA-2013b)**

@ EC-TEL 2013: Eight European Conference on Technology Enhanced Learning

Paphos (Cyprus), 18 September 2013

**Organizers:** Ravi Vatrapu (CBS), Peter Reimann (University of Sydney, Australia), Susan Bull (BHAMB), Andreas Breiter (University of Bremen, Germany)

**Abstract:** The core problem that this workshop series on “Teaching Analytics” addresses is that in comparison with many other professionals that involve rapid decisions in a dynamically changing environment, presently teachers often do not get the data they need for decision-making in a timely fashion and in a meaningful and actionable format. Teaching Analytics as an emerging research area focuses on the design, development, evaluation, and education of visual analytics methods and tools for teachers in primary, secondary, and tertiary educational settings. Teachers’ professional practices with visual analytics methods and tools are a central concern of teaching analytics. Teaching analytics methods and tools aim to develop innovative solutions to assist and augment teachers’ dynamic decision-making in the classrooms of the 21st century. Furthermore, institutional learning can be supported by using aggregated data for decision-making in educational organizations. This can range from diagnostics, to data from standardized tests to socio-economic context data.

**Website:** [http://www.next-tell.eu/teachinganalytics/iwta-2013b/](http://www.next-tell.eu/teachinganalytics/iwta-2013b/)
Dagstuhl Perspectives Workshop

We discussed with Deutsche Telekom to organise a “Dagstuhl Perspectives Workshop” (https://www.dagstuhl.de/en/program/dagstuhl-perspectives/) in the final project year. The working title for this workshop, which will address relevant stakeholders mainly from Germany, was “New opportunities for and challenges with technology-enhanced learning”.

These plans have not been followed up as the interests of Deutsche Telekom moved to other domains which did not match with NEXT-TELL anymore.

EAPRIL 2013 in Biel

A workshop contribution was submitted to the EAPRIL conference that takes place in Biel, Switzerland by KMRC and BHAM. The acceptance level will be sent at the beginning of October. EAPRIL stands for the European Association for Practitioner Research on Improving Learning (in education and professional practice). EAPRIL will try to increase the impact of practice-based and applied educational research on educational policy, and is a newly founded sister organisation of EARLI.

3.7.2 ICT 2013 in Vilnius

NEXT-TELL will be present with a booth at the ICT 2013 “Create, Connect, Grow” in Vilnius, Lithuania. More than 270 proposals were submitted for the ICT 2013 exhibition, where 186 projects have been selected to showcase the latest findings in advanced research, technologies, new systems, innovation in services & business.

The topic will be “21st Century Classroom - Visually supporting learners and teachers”. We will present visual tools supporting the entire chain of the student-teacher relationship in schools. This ranges from graphical planning by the teacher through student activities (even in 3-dimensional virtual worlds) to the teacher’s visualization and analysis of interaction patterns in the context of an Open Learner Model.

The ICT 2013 will take place in Vilnius on 6-8 November, 2013. See also http://ec.europa.eu/digital-agenda/ict-2013.

3.7.3 didacta 2014 in Stuttgart

NEXT-TELL will be present with a booth at didacta 2014 in Stuttgart. didacta is an educational fair and the largest trade fair for the education sector in Europe. With more than 800 exhibitors the fair is a national and international contact forum for businesses.

3.7.4 Final Workshop/Conference

We are currently investigating opportunities to organize final workshops to disseminate the results of NEXT-TELL to our stakeholder communities. Probably there will be several such workshops with some regional focus, i.e. German speaking countries, UK (International) and Scandinavia.

Finding good dates for such events is a challenge, due to the official project end of NEXT-TELL, which coincides with the summer holiday season where we will not be able to attract many participants.

3.7.5 Book proposal

A team of co-editors has been formed (Susan Bull, Barbara Wasson, Michael Kickmeier-Rust, Ravi Vatrapu, led by Peter Reimann) that developed a proposal for Routledge/Taylor & Francis during July. The proposal has been reviewed by Routledge during August, and only minor changes were requested. At this stage, we are optimistic that a contract can be finalised during September 2013.
3.8 Network Activities

Network activities are concerned with holding frequent contact to other groups external to the project and keeping them informed about on-going developments. One important target group in this respect can be seen in other EU projects and activities, in order to realize synergies and extend the scope and impact of the project. The following overview is a collection of activities of since the start of the project, not only of Year 3.

- **FP7 EMOTE project**
  
  [http://www.emote-project.eu](http://www.emote-project.eu)

  EMOTE is a collaborative project, coordinated by University of Birmingham, that aims to develop artificial tutors capable of emotionally engaging with learners. The acronym EMOTE stands for “EMbOdied-perceptive Tutors for Empathy-based learning”. EMOTE is planning to use the NEXT-TELL OLM in a classroom study due to take place in November or December 2013.

- **iTEC project**
  
  [http://itec.eun.org](http://itec.eun.org)

  We have begun more systematic cooperation with iTEC. After an initial meeting between Peter Reimann with Will Ellis (Project Coordinator iTEC) in Brussels, talks commenced on integrating one NEXT-TELL scenario (on meeting facilitation competencies) into the suite of scenarios iTEC offers to schools. This work has been advanced in cooperation between Peter Reimann (NEXT-TELL), and Sue Cranmer, Alison Oldfield, and Fabrizio Giorgini from iTEC. The plan is to have the meeting scenario becoming integrated into iTEC “Phase 3” school activities.

- **Metafora**
  
  [http://www.metafora-project.org/](http://www.metafora-project.org/)

  Metafora is an FP7 STREP project focussed on the creation of a Computer-Supported Collaborative Learning (CSCL) system to enable 12 to 16-years-old students to learn science and mathematics in an effective and enjoyable way. Of particular interest is their work on designing a visual language to support students’ reflection on their individual and collaborative learning, the implementation of a platform integrating state-of-the-art argumentation tools with exploratory environments and the development of an adaptive diagnostic system which provides visualisations of student learning for teachers. Contact has been made with Professor Andreas Harrer, who is the technical manager of Metafora.

- **AVATAR project**
  

  The AVATAR project educated European school teachers in the usage of virtual worlds for teaching. It has ended in November 2011, however, the community lives on. talkademy.org has offered help in preserving the community and hosting the developed 3D content on its island to keep it available for further teaching. Teachers from the AVATAR project are an interesting target group for NEXT-TELL's further teacher recruitment.

- **TILA project**
  
  [http://tilaproject.eu/](http://tilaproject.eu/)

  The TILA project works on improving the quality of foreign language teaching and learning processes by means of meaningful telecollaboration among peers. It uses various sorts of technology, including OpenSim and Moodle. TILA focusses on secondary schools, which makes it an especially interesting partner for NEXT-TELL. TILA is funded by the EU's Lifelong Learning Programme.
• **EUROVERSITY project**
  

  The EUROVERSITY project is a network-project within the EU’s Lifelong Learning Programme that brings together eighteen European partners (and a partner from Israel) in the exploration and collection of good practice with respect to teaching and learning within virtual worlds. talkademy.org was one of its initiators.

• **MIRROR project**
  
  [http://www.mirror-project.eu/](http://www.mirror-project.eu/)

  The MIRROR project is an EU-project of the FP7 which brings together 15 European partners of which one is KMRC that builds a direct departmental connection to NEXT-TELL. The focus of 'Mirror' is the creation of an easily used set of applications ('Mirror' apps) that enable employees to learn lessons from their own and others’ experiences to perform better in the future. The 'Mirror' apps at workplace form a tight link to NEXT-TELL's ECAAD for students and TISL for teachers.

• **TEL-Map project**
  

  The TEL-Map project is a Support Action of the FP7 TEL. The project focuses on exploratory/roadmapping activities for fundamentally new forms of learning to support the adoption of those new forms, via awareness building and knowledge management on the results of EU RTD projects in TEL and socio-economic evaluations in education.

  NEXT-TELL is one of the selected EU TEL projects that are cooperating with TEL-Map to the definition of the TEL roadmap of next ten years.

• Information about the project is continuously updated in the CoCo, Chai, and Latte research groups at the University of Sydney. These research teams from Education, Computer Science, and Software Engineering, respectively, cover a range of internationally renown researchers in various areas of educational technology.
4 Standardisation

4.1 Overview

Standards provide the opportunity to coordinate and make independently created and run infrastructure, products, and systems compatible. Standards are created by bringing together all interested parties such as manufacturers, consumers and regulators of a particular product, process or service.

The types of standards range from standards agreed on by dedicated formal governmental or international bodies to standards that are little more than a documented common way of working agreed on by a small group of developers. Previously, in D8.2, we identified the types of standards as official standards, specifications, de facto standards, community-based standards, and informal standards. In D8.3 we explored the possibility for NEXT-TELL to participate to those working groups dealing with official standards, in particular the CEN, European Committee for Standardization.

The CEN Workshop Learning Technologies (CEN WS/LT) which contribute to the effective development and use of relevant and appropriate standards for learning technologies for Europe was identified as the best candidate for NEXT-TELL to cooperate with. The CEN Workshop LT aims at supporting European stakeholders with the creation, use, and deployment of learning processes, systems and technologies to enhance learning, education and training by the use of information and communication technologies.

4.2 Current Activities

NEXT-TELL has been presented to the 51st meeting of CEN/WS-LT hold on October 24th 2012 in Brussels (Belgium) where potential requirements for standardization have been discussed. At the workshop representatives of universities, national standardisation bodies and industry were present.

During the Workshop it has been discussed the work that some members of the group is doing on the competency frameworks (the full plan is available at ftp://ftp.cen.eu/CEN/Sectors/TCandWorkshops/Workshops/CEN%20WS-LT%20Business_Plan.pdf). NEXT-TELL will continue to look at this from the perspective of 21st century competences, which may map onto professional/vocational competences. The idea would be to show the group our meeting competences, for instance, mapped onto the one or other 'professional' or 'workplace' competence.

Further discussions with workshop Vice Chair and Chair concerned the possible participation of NEXT-TELL to the next CEN WS/LT workshop to be held on October 15th 2013 in Athens.
5 Exploitation

This section describes the general exploitation and dissemination strategy for the final project year and in addition the individual exploitation strategy of the consortium members.

Within a strategy meeting with the key senior representatives we developed an exploitation strategy along the following three strands

- Academic exploitation
- Commercial exploitation
- Long term perspective – building a community

These strands are described in more detail below, followed by an overview of individual partner exploitation plans.

5.1 Academic exploitation

Academic exploitation is achieved by disseminating our results to the scientific community. The publication of research results and user studies by NEXT-TELL academic partners is actively encouraged. We continue to publish articles in scientific publications, presentation of papers at relevant conferences and to develop special academic workshops on (selected) topics of interest in the project. Details to this planning can be found in the previous section 3 on Dissemination.

One item of particular importance should be highlighted here again: the commitment of the consortium to publish a book on the research topics of NEXT-TELL. This tangible asset will probably have the highest impact and sustainability of academic exploitation. A team of co-editors has been already formed (Susan Bull, Barbara Wasson, Michael Kickmeier-Rust, Ravi Vatrapu, led by Peter Reimann) that developed a proposal for Routledge/Taylor & Francis during July. The proposal has been reviewed by Routledge during August, and only minor changes were requested. At this stage, we are optimistic that a contract can be finalised during September 2013. The current book proposal is attached as Annex A.

5.2 Commercial exploitation

5.2.1 Brief Market Analysis

Information about the market, the current social and economic context and current trends is relevant for the identification of opportunities to create services that will satisfy the needs of particular target market segment for NEXT-TELL. The analysis of external factors, combined with the study of the target market allows to understand how to position the NEXT-TELL services and helps drawing the market strategies of NEXT-TELL.

The e-Learning market broadly splits between the educational market and the market for corporate training. Although NEXT-TELL addresses teachers’ and students’ needs, we briefly examine the dynamics of both sectors, confident that some services can find an exploitation also in the corporate sector.
The e-learning opportunity

The e-Learning market is driven by a range of factors from both the supply and demand side. Technology and infrastructure are key factors for the supply side whilst the relationship between consumer, government and corporate are driving demand. The following data has been extracted from a number of sources¹ and summarized in bullet points demonstrating why there are opportunities for e-learning and consequently for NEXT-TELL solutions:

Healthy Ecosystem
- There are 1.4bn students out of 7.1bn world population
- $4,435bn global education expenditure
- 7.4% p.a. growth in overall education spend through to 2017
- 23.0% p.a. growth in e-Learning over same period ...
- ... which is a currently a $91bn global market

Need for Change
- Education costs have risen 84.0% since 2000.
- ... which is 46.6% higher than the rise in the CPI (the cost for education has been rising faster than inflation for decades)
- 0.7bn adults are expected to lack basic literacy skills by 2015
- >$1.0tn is the current total US student loan debt and is increasing at a faster rate

Technology to Prosper
- 870.0% growth to >2.4bn internet users since 2000
- m-Education is set to grow at a 30.8% CAGR² to 2020; the penetration of mobile devices is significantly increasing the number of access points to e-Learning
- 65.5% of Chief Academic Officers believe that online teaching is critical to long-term strategy
- 41.7% of the G500 use technology adapted training

New Companies in Europe and World-wide
- About 3,000 e-Learning companies in Europe alone
- 173 companies raised funds in the past 2 years, of which 66% were US-based companies
- 100 of the 140 e-Learning companies in India were founded in the last 3 years


² Compounded Average Growth Rate
Government

- Government budgets under pressure
- Blended instruction has proved more effective than purely online instruction or traditional face-to-face teaching
- The Tin Can Project is setting technical industry standards for e-Learning software

Fundraising and Consolidation

- $8.5bn of Merge & Acquisition (M&A) deals in 2012
- $1.0bn raised through 94 fundraisings in 2012
- 71% of fundraisings were in the e-Learning distribution space in 2012

Growing Education Market Driven by Growth of e-Learning

In 2011, global education expenditure was $4,109.5bn. Post K-12 education represents a total of 25% of global education expenditure and is a key focus for hybrid learning environments which NEXT-TELL supports. The major markets in all subsectors are North America and Europe:

Figure 13: a) Global Education Expenditure by Geography and Subsector b) Global Education Expenditure by Geography and Subsector

Figure 14 shows the growth of the global education expenditure market which is projected to grow at 7.4% until 2017 while the e-Learning expenditure is expected to grow at 23.0% p.a. to $255.5bn from 2012-2017 which comprises:

- K-12 CAGR of 33.0%
- Higher Education CAGR of 25.0%

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3 Source: McKinsey
4 Source: Ibis Capital
● Corporate market CAGR of 8.0%

Finally, the global language learning market is set to grow at 20.0% p.a. to $247.5bn in 2017, with English language learning growing at 25.0% p.a., datum particularly interesting if thought in correlation with the TESL scenario of NEXT-TELL.

![Figure 14: a) Global Education Expenditure Forecast by Subsectors b) Fast Growing Segments (2012–2017 CAGR)](image)

By combining Figure 13 and Figure 14, with the hypothesis of limiting the exploitation to the European post-K12 market, it is possible to deduce that the dimension of the market which NEXT-TELL can address will be about $15.9bn in 2017.

5.2.2 Commercial strategy

This part of the document explores ways to make a successful transition from NEXT-TELL as a co-funded EU project to products and services that meet the learning needs of 21st Century schools and individuals and that can be sustained over a longer term. The result of such considerations is a market strategy basically based on the open source model and consultancy approach and a plan for future marketing activities that will support our exploitation plan.

Partnership

The exploitation of the NEXT-TELL outcomes is in the interests of all the NEXT-TELL project partners. Naturally, partners have had different profiles and roles in the project, and this is reflected in their position with regards to exploitation. On the one hand, the different project outcomes can be exploited either by the partners who have developed them, or in collaboration with other partners. On the other hand, the NEXT-TELL partners can work as a virtual organization, putting their effort together to provide the most efficient and high quality services to the identified user groups (see the stakeholders list presented in 5.1.1, D8.3) that show interest in learning solutions, assessment methods and IT planning.

The partners can be categorized as follows, depending on their input in the project and the main activity they would carry out in the virtual organization. Most of the partners can have multiple resources and might be able to contribute to various activities. The envisaged categories of users are:

● Developers (technical consulting and implementation): Lattanzio Learning, BOC-AT, BOC-PL
• Services providers for IT planning: BOC-AT, IOE, MTO
• Services providers for assessment methods and learning analytics: KMRC, TUG, CBS, Talkademy, BHAM, UniRes
• Research organizations (organizational consulting, research): JRS, UniRes, BOC-PL, BHAM, MTO
• Promoters (dissemination, advertising): JRS, Talkademy, KRMC, UniRes, MTO
• Teacher and school leader training and policy makers’ consultancy: MTO

Based on the idea to mainly focus on the integration of NEXT-TELL solutions in existing organizations, the idea is to use existing structures and create a collaborative network that could carry out the enterprise activities, which brings much stronger leverage to the exploitation than creating any new company to exploit the results of NEXT-TELL.

NEXT-TELL members have the capacity to engage with academic researchers, teachers and school leaders, local administrations and other stakeholders to provide customised advice, training and support. The idea is to draw upon existing core competencies of direct response consulting and support services.

The virtual organization can be turned into a concrete partnership made of a restricted number of partners which have been selected and agreed on the basis of a commercial opportunity and in relation to the partners’ knowledge. Of course this possibility as well as the exploitation agreement among the partners for defining responsibilities and revenues sharing has to be evaluated (business) case by (business) case.

Finally, every partner has contributed to the project development, has acquired knowledge, training experience or developed software components. This constitutes an asset that each partner will be able to exploit individually. Individual product development strategy and exploitation plans are described in the section 5.4.

Market Strategy

The short context and market analysis, the market segmentation presented above and the stakeholders’ analysis shown in D8.3 have provided useful information to draft the following market development model. The structure of the Consortium, the role of the partners in the project and the kind of services offered by NEXT-TELL has been also taken into consideration. On the one hand, the model considers the joint exploitation of the project results, under the form of a virtual organization (see previous paragraph). On the other hand, some components or knowledge can be exploited by partners individually as described in D8.3.

The strategy of NEXT-TELL to address the e-learning market is strictly related to the open source business model the Consortium decided to adopt for the exploitation of the NEXT-TELL system. Instead of licensing code for a fee, the NEXT-TELL revenues will be generated from related services like technology diagnosis, feasibility studies, guidance regarding the selection of components, standards to be considered, installation and management support, performance measurement, training and ad-hoc adaptations or integration of the components to particular environments as well as providing training material and guides on how-to, using the knowledge generated during the project. The general idea is to approach the potential client offering services and solutions, ranging from supporting strategy development through to technological solutions. The NEXT-TELL partners’ capabilities include a fully integrated approach that ensures that every aspect of organizations – people, process and technology – is fully aligned to this approach.

The exploitation of the NEXT-TELL outcomes is of the interest of all the NEXT-TELL project partners. Naturally, partners have had different profiles and roles in the project, and this is reflected in their position with regards to exploitation and market approach. On the one hand, the different project outcomes can be exploited by single partners who have developed them. This is the case, for example, of Lattanzio Learning which approach will deal with offering the integrated platforms Moodle and Mahara that will behave as a mix of learning system, e-portfolio and activity and performance recording.

On the other hand, the NEXT-TELL partners have agreed to work as a virtual organization which faces the market by putting their effort together to provide the most efficient and high quality services to organizations that will show interest in advanced e-learning solutions for schools of the 21st Century. An example is
represented by the joint effort of Lattanzio Learning and BOC for the commercialisation of the Activity Planner integrated with Moodle and Mahara.

In 2011 the ELIG marketplace group (of which Lattanzio Learning is member) has devised a simple mechanism, the ELIG Industry framework (Figure 15), to provide a way of looking at the industry structure and to support a segmentation and analysis of the e-learning industry to help the members build more effective strategies.

![ELIG Industry Framework](image)

**Figure 15: ELIG Industry Framework**

The framework ELIG represents the e-learning market from the perspective of both purchaser (represented by columns) and suppliers from the learning delivery industries and the learning supporting industries (both represented by rows).

The open source approach adopted in NEXT-TELL may also allow a third possibility in addition to the single and project partnership exploitation: the creation of new alliances with other commercial partners not necessarily belonging to the project. That will allow finding competitive advantage by becoming part of a high-value value chain across the industry. Where being part of the chain adds value to both other suppliers and the purchasers within the chain. An example of high-value value chain for NEXT-TELL is shown in Figure 16. Although the NEXT-TELL platform can be considered already an innovative solution, being part of this high-value value chain would allow creating new applications of more traditional solutions and reach new markets that single component could not.
This would be the case of those, like the educational IT companies that do not develop system solutions like NEXT-TELL’s but are willing to approach their internal market with new tools and services. For example, an application of such scenario is represented by the possibility for MTO to introduce the NEXT-TELL tools to those partners from the IT sector they are already working with to enhance and flank traditional means of psychological diagnostics.

5.3 Long term perspective – building a community with an open innovation platform

5.3.1 Preliminaries
We may want to think of an impact hierarchy:

- Lowest level: Reading about NEXT-TELL or reading NEXT-TELL papers/reports
- Medium level: Using NEXT-TELL methods, or building on our results
- Highest level: Contributing back to research: methods, tools, topics, and moving things further.
“Piggybacking”: Even the smartest device needs a helping hand.

A “project Web site” is of course necessary, but it is not a dissemination instrument for any sector other than “academic”; as a matter of fact, a research project is a difficult partner for any institution, given its short lifetime, the unpredictability of researchers’ interests, the continuous ‘prototype’ stage of software produced, etc. To have at least a chance for real impact, one has to relate to/team up with “others”: other actors, larger topics of relevance to the client sector. Other actors (co-innovators, complementors ...) need to be (perceived as) more ‘stable’ and more product/service-oriented. In consequence, a research project may have to “piggyback” on larger ‘movements’, ideas, initiative, even ‘hiding’ behind topics that matter to the client. The leader/driver of the invention need not be the leader/driver of the innovation ... and often should not be.

We need to design for large-scale online cooperation informed by “lessons learned” from open source, open innovation, and open science, as for instance described by Nielsen (2012). For instance, meaningful contributions should be possible to be produced fast and targeted, in order to remove initial barriers. How to divide interesting problems so that they can be worked on in parallel by a number of people (who might not know each other) is difficult, hence needs to be thought through.

A joint activity that extends beyond the project’s funding time needs to make sense for the individual partners/contributors. What makes sense will mean different things to different partners, from creating revenue to create new research opportunities to contributing to a public good. Given the differences, it is challenging to find a single common solution that makes sense to everybody. An alternative strategy is to work together on a framework that can then be customized and tweaked by partners, and also be used for working with third parties outside of the consortium. This document is more aligned with the later approach.

5.3.2 Basic strategy: Open innovation and ‘piggybacking’ on big topics

Instead of foregrounding the single research project, such as NEXT-TELL, we would foreground a topic/theme/challenge. NEXT-TELL would not cover the whole topic, only be but one element of the puzzle.

Examples for topic candidates:

- 21C formative assessment
  - process assessment
  - artefact scoring; this because there are no general solutions to this; it’s often harder than process assessment --> there is value in many minds to contribute
D8.4 Dissemination, Standardisation and Exploitation Activities Report and Plan 3

- 21C project-based learning
  - including topics of meeting management and project management
  - projects in the school/for the school and outside of the school

- (E)portfolio pedagogy and tools for 21C learning

For one or more topics on this level, we could think of providing a website that offers a number of elements. A key requirement is that the site is of a kind that will have “impact” in the sense of (a) creating traffic and (b) creating value from visitors’ input. If we engage in such a project, which is effortful, there should be more than “hit” rates. It needs to be returning value to the community of those that grapple with respective problems, and be valuable in parts for us.

The kind of web presence one could build around such topics should reflect a “problem solving” culture: Not describing all the things that are known and important (too much), and not gathering long lists of “tools” (including rubrics etc.), but to be more around the harder problems, and solutions to them. For instance, the whole area of analysing/scoring/appraising learning artefacts (as different from ‘learning process’) could keep many people busy for a long time, and has no real end because there will always be no kinds of artefacts being invented (today it’s mind maps, PowerPoint presentations, essays, computer programs, models and designs of all kinds of things …)

To not only focus on assessment, the combination with eportfolio pedagogy, self-regulated learning, and assessment (including of artefacts, which is of course a key challenge for eportfolios) might be for NEXT-TELL the right focus. This would also give OLMs a ‘natural’ place, in addition to the established role in the context of intelligent tutoring systems.

Elements of such a “site” could be:

- Problems and solutions by various categories
  - the nomenclature will be an important aspect, so that solutions are
  - support tagging/folksonomy
- A wiki place where the “real” solutions are described and further developed.
  - Alternatively to wiki, a more structured space with “fields” along a simple design pattern
  - (Likely needs both for users with different levels of engagement, and different scales of challenges.).
  - Either the wiki provides a design pattern framework, or one needs to provide one in other formats, for instance along the lines of the pedagogical pattern collector.6
- Access to ECAAD to describe the solution.
- There can be more or less controlled brokering
  - Minimally, it should be visible where “the action is” at point in time.
  - One could have a small set of “open challenges”.
  - One could think of crowd-sourcing the funding of incentives/prices, such as on challenge.gov., in some cases. This could lead to a bit of a business model for maintaining the “site”

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5 E.g., http://www.soundout.org/
6 http://thor.dcs.bbk.ac.uk/projects/LDSE/Dejan/ODC/ODC.html. But it’s also clear that this tool is too much “designed” already for a specific purpose. Also, this type of pattern language is more suited for describing a process, not so good for describing inference rules.
5.3.3 Improvable knowledge objects for education

Compared to many other professional disciplines, such as health services or engineering, education lacks a widely shared culture of continuous quality improvement by small changes, or what Kenney (2008) calls a “science of improvement”. In K-12 education, the pre-dominant innovation model is one of large-scale quasi-experimental field trials (at least, this is the purported ‘gold standard’, National Research Council, 2002). However, this method is chronically slow and faces many challenges on the way to affecting actual educational practices. Also, it suffers from the “one model fits all” constraint. Alternative innovation methods that can be deployed in a more agile manner, and with more concern for local contexts, are slowly making their way into policy-relevant areas; for instance, design research (Plomp, 2009) and design-based research (Barab, 2006).

In the absence of useful innovation and quality enhancement methods that work at scale, quality improvement and innovation in K-12 and higher education often takes the form of “tinkering” with local solutions. Tinkering in itself is not the problem; the problem is that the tinkering remains a local or a private practice, with lessons learned not disseminated to other practitioners, and with no systematic means to engage with others in collective tinkering. The internet and related communication technologies have, in principle, made it easier to collaborate in innovation, and to share solutions and experience world-wide, with the click of a mouse button. However, it turns out that this kind of infrastructure is necessary, but not sufficient, for on-going innovation and quality improvement to occur.

We agree with Morris and Hiebert’s (2011) suggestion that a major reason for the lack of continuous improvement and innovation in education is the absence of public, changeable knowledge products and shared practices around such products. In K-12 education, the only globally used knowledge product is the lesson plan, and even that is scarce/missing in higher education. Educational knowledge products are important for guiding practice, and for providing a repository for the continuously accumulating knowledge about practice. In their absence, practice becomes highly fragmented, and knowledge does not accumulate. Building on research on innovation practices in a number of disciplines, in particular in health services, Morris and Hiebert (2011) identify three features that enable the development and refinement of jointly constructed knowledge products:

1. Shared problems across the system: For instance, in health it is not only the frontline practitioners, but also researchers and everybody else involved in the chain from basic research to application, who agrees on the shared goal of fighting diseases.
2. Small tests of small changes: In addition to large-scale field trials and evaluation studies, many practitioners engage in experimenting with small changes, in gathering data just sufficient to document the outcome of these small changes, and in sharing these data so that they add to the larger picture. Knowledge is thus created through the accumulation of small trials, and through the replication of small trials in diverse settings.
3. Multiple sources of innovation: For instance, every employee in a hospital agrees that his or her primary task is to help patients regain their health; it is not only the doctors’ task. The hospital provides the means for all its employees to improve processes.

In K-12 education, lesson study (originating in Japanese schools), is the best example of approaches that embody the second and third of these innovation features. In higher education, educational design patterns (Goodyear & Retalis, 2010; Laurillard, 2012) offer an example of innovation aligned with the second feature. Providing the means to create such and other types of knowledge artefacts for education, to store them, share them, and modify them in a highly distributed and parallel manner requires a new approach, which we describe below.

Research in open source projects and on open science initiatives begins to yield a number of key concepts and lessons learned. Nielsen (2012) provides a very useful overview, with the main concepts being:

- Amplifying collective intelligence by scaling up collaboration
  - Increase diversity of thinking
  - Increase range of expertise
- Architecture of attention:
  - Micro expertise
  - Channel attention to where it is maximally useful
  - Designed serendipity
- Modularize the collaboration
  - To reduce barriers to entry
  - To capture micro-expertise
- Encourage small contributions
- Develop rich and well-structured information commons
  - Thus supporting re-use
- Actors must be committed to a shared body of methods for reasoning;
- They also need to have a shared set of values and norms

These principles make in particular clear that channelling attention is a key challenge: Since solution providers have little time, only for providing relative small contributions (every now and then), one must find a way to direct their attention to where they effort would be best spent. In open source software projects bug and issue management systems such as Bugzilla do a great job for that, and also because software can be compiled and compilers will throw errors, thereby telling programmers what to fix. These are great tools for attention channelling. But what about problems in areas other than software development? How do we channel attention there? A general solution could be that one would need to model the problem domain in some way, so that one can use a kind of meta-level knowledge—what elements must a solution to a problem of type x contain?—to direct attention to solutions that are not yet fulfilling these requirements. This might be an approach we can pursue in NEXT-TELL, given the competence in meta-modelling in the consortium. The relation to recommender systems needs further exploration.

5.3.4 A generic architecture for a “challenges and solutions” web platform

The C/S platform could be realised as a web portal, comprising the following main components:

1. Challenge browser
2. Solution browser
3. Asset browser - assets are what gets generated/developed/produced using
4. Data browser - data sets come from the application/deployment environment.
5. Recommender system (guiding users to the challenges and developing solutions that could most likely profit from their attention, or meet their needs)
6. Discussion support
7. Project work support
8. User and authentication management

Figure 17 depicts these components and the main relations.

A typical use case is that a user (e.g., teacher) has a problem he/she faces regarding a technical or pedagogical issue. The user would search for answers to their question in existing solutions (Search/Browse Solutions). She may look at various solutions to similar problems, and optionally access one or more of the example videos that illustrate the solution. This may solve his/her problem. If the user does not find a suitable solution, they may decide to post a challenge.
Another user may pick up that challenge and describe a solution, and if none exists, create a new solution. Solutions take the form of design patterns, and optionally design models. Design models are closer to an implementation and contain (much) more detail, as well as make use of a controlled vocabulary and common method to describe the solution step by step. Developing a solution for a complex problem may require the coordinated work of multiple users, which C/S supports through a wiki engine, and basic support for project management (e.g., TRAC\(^7\)).

Users may wish to discuss certain topics or complex solutions in more general terms, form special interest groups etc. In order to achieve this, C/S will either offer a discussion Forum type of software, or link to Google groups.

The upper part of Figure 17 depicts the main elements of the user interface, which will be rendered in a web browser approximately as shown in Figure 18. The lower part lists the databases and other services that realize the functionality available to the user.

The user interface will have to support these main areas:

1. Browsing existing challenges and posting new challenges
2. Browsing existing solutions and posting new solutions
3. Browsing existing assets and linking to new assets.
4. Browsing existing data sets and uploading new ones.
5. Providing recommendations

C/S will provide a browse and search interface for all three types of artefacts. This will be a variant of the one depicted in Figure 18. Search will be provided by way of full text search, type filters, and tag based search. Results will be returned as a list with the names of the contributing user, a description of the artefact, metadata, and links with additional information, links to similar resources, etc.

“Challenges” are essentially text documents that will be managed on a database server and rendered in HTML. A web form interface will be provided to post new challenges. Challenges will be linked to corresponding solutions via links, comprising both ‘hard’ links and search links that get interpreted by the databases for design patterns and design solutions.

Assets will only be represented by their meta-data, and a still image. User-produced assets (other than patterns and models) will reside on users’ servers, and on YouTube etc., and all aspects of accessing and rendering the asset will be handled by the asset provider, not by the C/S platform. This also helps to address IP issues.

\(^7\) trac.edgewall.org
Data Browser: From time to time, users may want to share data sets that reflect the use of instructional assets in an operational environment, such as their class, course, school. In some instances, this may come from a full NEXT-TELL deployment, in which case one can link the data source to TISL or some such. In general, the platform should allow to represent/access such data sets; minimally, they should be described with a set of metadata. To which extent the data are stored on the C/S platform, or on an open data repository (such as datahub.io), or on the server of the user/provider needs to be discussed. CKAN (ckan.org) is now used widely as the platform for open data initiatives.
Of central importance for the C/S are the two knowledge products: the design patterns and design models. They are created and managed using the ECAAD framework. ECAAD provides a web-based interface for users to a model library, for re-use of pattern and models, and a graphical construction space, for creating new patterns and models, as shown in Figure 19.

Other components:

Forum: C/S will provide a discussion forum type of tool, either by integrating an open-source component, or by providing a Google Forum. This decision will be made during the first month of the project.

Group/project support: C/S will provide and link to the TRAC software tool (trac.edgewall.org/) for cases where groups of users want to work together on solving more complex problems, or cater to specific issues. Among other functionality, TRAC provides a wiki, and lightweight support for milestone planning and task/issue tracking. It is open source and is commonly used by software development teams.

Authentication: In order to provide single logon to all components that make up C/S, we will employ the Central Authentication Service, developed by the project with the name same (www.jasig.org/cas).
5.3.5 Customizing the architecture

What is required to customize the architecture for a specific area? Let’s look at these examples:

1. Artefact scoring
2. Teaching collaboration competences
3. TEL evaluation frameworks

What needs specification/customisation:

1. The design pattern language
2. The modeling language, and maybe the modeling method.
3. Meta data scheme for assets
### Design pattern language

<table>
<thead>
<tr>
<th>Artefact scoring</th>
<th>The pattern language needs to capture (artefact) assessment challenges and solutions. It could for instance be similar to the pattern language developed for evidence-centred assessment design, in the PADI project.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Variants of ECAAD formative assessment method. The language ‘primitives’ would be steps that are part of the process of scoring learning artefacts.</td>
</tr>
<tr>
<td></td>
<td>Assets would be rubrics etc.</td>
</tr>
<tr>
<td>Teaching collaboration</td>
<td>The pattern language needed here would be close to those developed in the pedagogical pattern language literature and respective projects in general. It would need to describe challenges of developing collaboration competences, and solutions to these.</td>
</tr>
<tr>
<td></td>
<td>The modelling language and method here would resemble “classical” course design, such as used in EDUWEAVER for instance.</td>
</tr>
<tr>
<td></td>
<td>Assets would be instructional materials, up to whole “courses”, on how to “teach” collaboration/develop collaboration competences in students/employees.</td>
</tr>
<tr>
<td>TEL software evaluation</td>
<td>The pattern language needs to describe challenges of evaluating TEL software products, and solutions to these challenges. For instance, how to evaluate usability, learning effectiveness, impacts on motivation, epistemic beliefs, etc.</td>
</tr>
<tr>
<td></td>
<td>Methods and language elements would in generic terms resemble SPICE, and concrete measurement methods for key variables/performance indicators.</td>
</tr>
<tr>
<td></td>
<td>The assets developed here would be evaluation methods, up to complete evaluation frameworks (measurement systems).</td>
</tr>
</tbody>
</table>

### References


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8 Minimally SCORM or the likes, perhaps specialised to the asset type at hand.
5.4 Partner Specific Exploitation Strategies

The following Section describes the individual exploitation strategies of the NEXT-TELL partners (ordered by partner number). They have not changed too much from last year, but some details have been updated.

5.4.1 JOANNEUM RESEARCH (JRS)

Partner profile

JOANNEUM RESEARCH (http://www.joanneum.at/) – located in Graz, Austria – is a non-profit organisation concentrating on applied R&D with a highly qualified staff of more than 400 people. Services include R&D for industry, SMEs and public institutions, complex interdisciplinary national and international assignments as well as tailored techno-economic consulting. They participate in setting up and organising national competence centres as well as in numerous large international projects.

DIGITAL - Institute of Information and Communication Technologies is a leading international research partner and centre of expertise in the area of information and communication technology. The Institute’s technological and scientific basis includes web and internet technologies, image, video and acoustic signal processing along with remote sensing, communication and navigation technologies. These technologies are implemented in hardware and software development and in application-oriented solutions using scientifically sound methods. The research services are complemented by expertise in prototype development, project management and consulting.

Individual goals of exploitation

As a public non-profit organization JRS has a special role in the exploitation of project results.

JRS will exploit the project’s results for its future R&D activities. The enhanced know-how will enable JRS to acquire further industrial relevant projects and it is also open to extend its involvement in related projects with all partners in the project. Although not authorized to product development on its own, JRS will encourage project partners as well as other industrial contacts to further develop results of the project from prototype to industrial applications.

Finally, as an applied R&D institution, JRS influences the market by proactively disseminating information, giving support and acting as a consultant in its role as a technology transfer hub.

Identified exploitable NEXT-TELL results

In particular JRS intends to exploit components developed by themselves not only in the technology enhanced learning domain, but in other application domains as well. All kinds of tools for (social) media (text/audio/video) analysis and semantic enrichment will be applicable in other domains as well.
5.4.2 Uni Research (UniRes)

Partner profile

Uni Research Ltd is a research company (85% owned by the University of Bergen) with more than 500 highly-qualified staff from 50 different nations. The company has an annual turnover of NOK 400 million and is organised in seven departments. Uni Research carries out research and development in the fields of health, ICT, modelling, marine molecular biology, the environment, climate, energy and social sciences. Uni Research, the University of Bergen’s (UiB) strategic research partner, carries out research projects in all the university’s discipline areas. We have advanced scientific equipment and modern laboratory facilities in collaboration with UiB. In NEXT-TELL, UniRes brings expertise on computational linguistics, language testing, electronic publishing, digital media, and e-learning.

Individual goals of exploitation

UniRes will exploit the project’s results for its future R&D activities. The enhanced know-how will enable UniRes to acquire further relevant projects connected to learning and health related issues, with both new partners and partners involved in this project. UniRes will use the project findings and the developed applications for further development of R&D activities - research projects and dissemination. In addition, the research findings related to our research in NEXT-TELL will form the basis of one PhD dissertation. The collaborations we have established with the participating schools will be continued.

Identified exploitable NEXT-TELL results

As leader of the training work in NEXT-TELL, UniRes will cooperate with the other partners to offer consultancy services related to training on the NEXT-TELL tools and methods within organisation (schools, SME or large companies) focused on both teachers and their classroom work (e.g., ECAAD, RPGRID, PRONIFA, OLM), and principals and schools leaders with respect to vision and strategies for ICT integration in teaching and learning (e.g., SPICE, TISL).

The TISL Heart Method developed by UniRes can form the basis of training workshops for teachers and as the basis for future R&D projects in Norway.

The various assessment strategies in which we have been involved (e.g., RGFA + OLMlets + OLM) can form the basis of training workshops for teachers, and for future research and R&D applications in Norway.

5.4.3 Medien in der Bildung Stiftung (KMRC)

Partner profile

The Knowledge Media Research Center (KMRC, www.iwm-kmrc.de), situated in Tuebingen, Germany, is an extra-faculty research institute. Its responsible body is the non-profit foundation under non-public law "Media in Education". The KMRC is member of the Leibniz Association which connects 86 independent research institutes.

Sustainable research in the field of media-based learning and teaching approaches not only is in need of excellent basic research, but also of cooperation with practitioners. The KMRC tries to build such a bridge between basic research and applied science by working together with schools, universities, museums, and the industry. The institute realizes pilot studies whose suitability for practitioners is proven in cooperation with external partners. One example is the internet portal www.e-teaching.org, a platform to inform about and qualify for the implementation of digital media in higher education.

Knowledge acquisition, knowledge exchange, and knowledge communication using innovative technologies form the core of the research topics at the Knowledge Media Research Center in Tuebingen. The researchers are concerned with cognitive topics important for teaching and education in schools and higher education, as well as with promoting learning in informal settings, such as in museums, the internet, and the work place.
Individual goals of exploitation

KMRC aims to exploit the results of the NEXT-TELL for its further R&D activities. NEXT-TELL serves as inspiring research field for a PhD-project dealing with ICT-based instructions for students’ self-determined learning. This project also needs to consider how to train teachers in order to enable them to support their students in becoming self-organized learners. Here, we plan to cooperate with the German Institute for Adult Education to consider teacher training and the graduate school LEAD (Learning, Educational Achievement and Life Course Development) at the University of Tuebingen.

Moreover, one of KRMC’s main goals is to bridge basic research and applied sciences. The Ministry for Education asks teachers to do both formative assessment and teachers’ own development of his/her teachings, however, despite federal initiatives many teachers still lack methods and tools to do so. Hence, in order to support teacher trainings and investigate teachers’ formative assessment and their own teaching development we plan to work further with partners from the project but we also aim at cooperation with local partners having strong relations to schools and federal trainers for teachers like the Schulkompetenzzentrum at the University of Tuebingen financed by the Ministerium für Kultus, Jugend und Sport (Ministry for Education) and research partners like the Leibniz Institute for Science and Mathematics Education within the Leibniz Association. Here, we will work on a proposal within the recently founded research network “Potentials for Education” with one focus on formal education (Forschungsverbund “Bildungspotentiale” für den Kontext Bildungsinstitutionen).

Identified exploitable NEXT-TELL results

Besides the benefits of fostering our relations with international research partners as well as international technical partners we see two important types of results generated within NEXT-TELL:

On the one hand, there are the technical developments for activity tracking and OLMs which build a necessary opportunity to collect students’ data in the technology-rich classroom. Such (semi-)automatized data-tracking seems to be an important argument to familiarise teachers with ICT. Otherwise, teachers’ efforts in learning ICTs (e.g., Moodle, GDocs or Mahara) might overweight the expected benefits of using it. Moreover, the real data-visualisations form an important result for KMRC’s interest in knowledge and information awareness tools.

On the other hand, the method development of TISL (supported by the planners) is a valuable outcome because there are only few projects in Germany dealing with this issue (e.g., EMU supported by the Kultusministerkonferenz) but without focus on ICT or classroom orchestration (considering ICT use). Here, the development of cognitive density measures might form an informative addition in order to reflect on teaching.

The most benefit for us, however, is that NEXT-TELL works on the integration of both types, thereby offering realistic opportunities for teachers to do the data-intensive methods of formative assessment and teachers’ inquiry into students’ learning.

5.4.4 Technische Universität Graz (TUG)

Partner profile

The Knowledge Technologies Institute at the Graz University of Technology (http://kri.tugraz.at) undertakes interdisciplinary research on Knowledge Management and Technology-enhanced Learning in a broad spectrum of domains, integrating technological and application-oriented perspectives, including aspects of cognitive and social sciences, as well as workplace learning. Leveraging its expertise, TUG aims to make a substantial contribution to teaching within the “Software Development and Economy” Study Program of Graz University of Technology. The technology-oriented research stream focuses on acquiring, managing and applying semantic metadata and ontologies. From an applied perspective, TUG investigates the use of social software in the context of Web 2.0 to build structures and transfer knowledge within and across individuals, institutions, and organizations. A special focus in this area is on contextualizing and personalizing learning events in the professional workplace and other learning environments. The focus of research from a cognitive psychological
viewpoint is on the investigation of the structures of cognitive processes, the representation and modelling of knowledge and skills as well as their applications in individualised web-based testing and in personalised, adaptive eLearning systems.

**Individual goals of exploitation**

For TUG, the project means a massive boost of bringing the software manifestation of the CbKST framework forward. On the one hand, we have the opportunity to combine existing tools and services into a complete and usable product, on the other hand we are enabled to develop new and market-oriented (meaning a focus on schools and educators) features. Maybe more importantly, Next-Tell opens the chances to introduce, apply, and evaluate the whole CbKST-related software package in and to schools and teachers and to retrieved practical and focused feedback. These opportunities open up options of creating ‘real’ products (e.g., in form of ProNiFA or the novel myClass platform) with real market perspectives – in contrast to mere research prototypes that usually are the output of academic research undertakings. Thus TUG is presently generating a concrete business plan to realize a spin-off to commercially exploit the results of this project and, in the sense of a melting pot, to integrate the achievements of other research and R&D projects.

In addition, as research institution focused on cognitive science and learning science, TUG will exploit and apply the foregrounds primarily for empirical and theoretical research. This holds particularly true for the theoretical achievements in researching into CbKST, learning analytics, evidence-centred assessment design, problem spaces, multi-source student appraisal, and related visualization techniques. Obtained results (in the course of the project and beyond) will be presented at conferences and communicated by publishing in scientific journals and books, which finally strengthens the position and reputation of TUG as prime researching organisation in the field of personalized, adaptive, intelligent learning and teaching solutions.

**5.4.5 Copenhagen Business School (CBS)**

**Partner profile**

Copenhagen Business School (CBS) is one of the largest business schools in Europe with more than 15,000 students, 65 different degree programs, and more than 250 PhD students. CBS is a research oriented university covering a broad range of topics, including not only traditional fields of business and economics, but also areas such as philosophy, law and politics, as well as languages.

The Computational Social Science Laboratory (CSSL) at the Department of IT Management of CBS conducts transdisciplinary basic research at the socio-technical intersections of computer science, cognitive science, cultural studies, and consciousness studies with specific applications to work and learning in organizational and classroom contexts. The basic research program is aimed at explaining socio-technical interactions.

**Individual goals of exploitation**

Apart from the common exploitation goals of the NEXT-TELL project consortium, CBS will exploit the methods and tools from the NEXT-TELL project in its own education system. The creation of teach.cbs.dk” as a common gateway service portal for all teachers at CBS was a step in this direction. Further, Ravi Vatrapu aims to integrate the NEXT-TELL infrastructure into the proposed Master of Technology Integration degree program at the Norwegian School of Information Technology (NITH) in Norway. In summary, the individual exploitation goals of CBS are to incorporate NEXT-TELL infrastructure, methods, and tools into tertiary educational settings.

**Identified exploitable NEXT-TELL results**

CBS identifies at this stage the following exploitation items:

- NEXT-TELL IT Infrastructure for Tertiary Education
- NEXT-TELL Methods and Tools for Training of University Teachers
5.4.6 University of Birmingham (BHAM)

Partner profile

As a research-intensive university, The University of Birmingham is committed to carrying out research that is world-leading in terms of its originality and distinctiveness, significance and rigour. The University of Birmingham attracts £85 million of funding per year, and belongs to the Russell Group - an association of 20 major research-led universities in the UK with a commitment to maintaining the highest standards of research, education and knowledge transfer. Birmingham is a university rich in high-calibre research, with academic staff who are global experts in their field.

In the school of Electronic, Electrical and Computer Engineering research in educational technologies focuses mainly on mobile, wearable and pervasive computing; simulations and training for defence and emergency services; and adaptive learning environments for a variety of stakeholders in the education process. In particular, the adaptive learning environments research considers issues relating to: open learner models for learners and teachers, promoting learner reflection and metacognitive activities; computer-supported collaborative learning and computer-assisted language learning.

Individual goals of exploitation

BHAM will exploit the NEXT-TELL research results in particular in the area of teacher training, as a means to introduce new teachers to the benefits of the project (concerning teachers themselves, their students and other educational stakeholders). Thus, newly qualified teachers will become familiar with (some of) the approaches offered by the project, facilitating its introduction into more school settings.

The outcomes will also be exploited in the Higher Education sector, beginning in its own institution before introduction to linked institutions with whom its School has formal academic exchanges; and to other interested universities.

The software being developed during the project will be extended in future work to meet target user-specific requirements, where these differ (for example, to encompass the more advanced cognitive levels of university students); and will also be directly reused to the extent that this is possible. The methodologies developed in the project will be adapted in further evaluation settings in future projects.

Identified exploitable NEXT-TELL results

Birmingham contributes technology specifically developed for open learner modelling and activity tracking/visualisation in a technology-rich classroom setting. Analysed results and findings of the technology’s use in schools and will be published in journals/books, presented at conferences, and used in future research: disseminating advances in the state-of-the art, where there are currently fewer examples than in higher education.

Our OLM technology platform can draw on data from multiple sources – such as quizzes, discussions, text, interactions in second life, etc. This is an area in which there is limited literature and in which interest is increasing, along with teacher dashboards in learning design. Putting these together will offer new approach uniting aspects of 21st century tools. Further contributions are the use of the OLM in the areas of teacher enquiry into student learning, teacher training and parent participation.

Commercially, this will produce data for designs of software that is pedagogically useful, and can influence the design of VLE features that are not otherwise present. The software may help with teacher administration, management, and orchestration of classes. It can be used together with other NEXT-TELL components, and so may also share exploitation routes with other project partners.
5.4.7  Institute of Education, University of London (IOE)

Partner profile
The Institute of Education (IOE) is a public research university located in London, United Kingdom specialised in postgraduate study and research in the field of education and a constituent college of the federal University of London. It is the largest education research body in the United Kingdom, with over 700 research students in the doctoral school. It also has the largest portfolio of postgraduate programmes in education in the UK, with approximately 4,000 students taking Master's programmes, and a further 1,200 students doing PGCE (Postgraduate Certificate of Education) teacher-training courses.

The IOE will exploit the project’s research results to enhance the profile of technology-supported learning (TEL) in the UK, through outreach and dissemination. As a major leader in secondary education and teacher training, the IOE will be able to incorporate key research findings into its teacher training programme. The London Knowledge Lab is the IOE’s research lab in Technology-Enhanced Learning. LKL offers frequent seminars and public dissemination events comprising both academic and corporate delegates. Outputs from the project will enhance the research profile of LKL, and cross-pollenate to other TEL research projects that are being undertaken within the Lab.

Individual goals of exploitation
The IOE will encourage project partners and international research contacts in Education to further develop results of the project, including the identifying the practical considerations of the use of NT technology in schools.

Identified exploitable NEXT-TELL results
The IOE intends to exploit NT components primarily in e-learning or the school domain. The use of new types of research methods employing social media and traditional (text/audio/video) analysis will be especially relevant to its research initiatives and in supporting continuing professional development programmes for teachers and school leaders.

5.4.8  Lattanzio Learning (LL)

Partner profile
Lattanzio Learning (former EXACT) is Europe’s leading Learning Content Management Technology Vendor, Bespoke Learning and Content Producer.

With operational sites in Italy (Florence, Genoa and Rome) and a network of selected VARs or partners in all EMEA, Middle & Far East, LL can count on a specialized sales force dedicated to market:

- Learning Content Management Technology development, integration & deployment services based on our eXact learning solutions 3rd generation Learning Content Management Suite eXact LCMS for learning content authoring, templating, indexing, packaging, storage, harvesting & brokerage, delivery & tracking based on XML, Learning Objects and new generation interoperability specifications. Commercial services include support, training, consultancy & integration skills for the set up and deployment of new generation learning/knowledge and structured content publishing architectures within organizations.

- Bespoke content creation services offering consultancy, design and implementation skills for content productions on any market available new media support (e.g. web, mobile), web based platform and standard (AICC, IMS, SCORM, LRN, …). LL has developed a structured content management approach to design, produce and manage cross platform and cross standard contents to be then returned to commissioning bodies with the content management architecture for content storage, management and re usage granting high ROI in content production processes.
The acquisition of EXACT by the Lattanzio Group at the end of 2012, enabled the Company to strengthen its competitiveness, further enhancing the quality and range of its offering. Lattanzio Group is a leading management consulting company in Italy generating over 50% of its turnover from international activities. In particular, the group aims to enhance and grow the performance of businesses and public administration organizations.

**Individual goals of exploitation**

LL aims to exploit the results of the NEXT-TELL project to reinforce its commercial offer both for what concerns the learn eXact suite and Moodle services. Moreover, building on the broad experience of Lattanzio Group, LL will aim to introduce the implemented new services of NEXT-TELL in the field of human resources development, ‘the green economy’, digital innovation, blended learning and communications.

Furthermore, one of the main goals of LL as partner of the European Learning Industry Group is to promote e-Learning throughout Europe, in schools and universities, at the workplace and homes. Therefore LL sees a great opportunity with the participation in NEXT-TELL to enforce this promotion process.

Lastly, LL will look for using the knowledge developed in the NEXT-TELL project as a basis for future R&D projects or external collaborations which require experience in e-portfolio-based services and personalised services-oriented infrastructure for content/knowledge and competence management.

**Identified exploitable NEXT-TELL results**

Two project results are suitable for further exploitation beyond NEXT-TELL: the Mahara e-portfolio and the “enriched” NEXT-TELL Moodle. The intention is to reinforce the LL’s offer with commercial services for the integration of the e-portfolio system in the eXact LCMS through the open interfaces developed in NEXT-TELL. That would improve the company’s offer for the management of users’ skills and competencies, providing a single entry point and data storage for the evidence of users’ abilities of employees of enterprises as well as public administrations.

In addition, LL being already a certified Moodle service provider, the improvements made in NEXT-TELL regarding the tracking and visualization of users’ activities and performances, will underpin our offer in terms of offered Moodle services. It will also be used as showcase for demonstrating the company’s experience in Moodle customisation and improvement.

Finally, LL will cooperate with the other partners to offer consultancy services for the successful integration, partial or complete, of the Moodle/Mahara systems within organisation (schools, SME, large companies and public administrations), also offering the needed training for the correct use of the deployed technology (LL has significant successful track records in offering such services).

**5.4.9 Verein offenes Lernen (TALK)**

**Partner profile**

Verein Offenes Lernen (talkademy) is a charitable non-profit organization in Austria. It therefore has a special role in the exploitation of project results. The objective of the charity is to investigate and promote new forms of learning independent from legacy structures. This enables talkademy to take a special position in the educational market place, avoiding many constraints which might restrict innovative solutions.

talkademy is serving a number of educational institutions in the German speaking region, including universities and public schools. It is taking the roles of technical enabler and sometimes acts as (virtual) classroom teacher.

**Individual goals of exploitation**

The main goal talkademy's exploitation is to make an impact for the classroom and learning experience of the individual learner and involved pedagogues. Therefore talkademy is linking physical and virtual learning materials to web-services which might benefit from the NEXT-TELL toolset and methods. The goal is to monitor
and feedback the individual learner’s learning process. This shall empower the learner to advance at his own speed, provide guidance and enable the teacher to provide a more individualized teaching approach.

talkademy’s special focus is using virtual environments (as already described) as well as the newly developed tablet-based approach for supporting teachers with capturing and analysing children’s activities “in the heat of the moment”. This approach (the working title is “LIP” for “learning is personal”) has proved to be especially attractive for Montessori-style teaching, where individual self-chosen activities make out the bigger portion of the school day. In the already running trials for the current school year we have included classes that use “traditional teaching” in order to explore LIP’s usability also in non-Montessori contexts.

LIP had gained quite a lot of attention at recent presentations. Not only teachers were interested, but also publishing houses who see the inclusion of learning analytics into their products (eLearning platforms, textbooks, etc.) as the next logical step of their product development. We see a big potential in such cooperation and will invest further effort here.

We see the integration of learning analytics as a coming trend for all sorts of learning, be it in traditional teaching or eLearning

**Identified exploitable NEXT-TELL results**

For the exploitation strategy talkademy is executing, the classroom related methods and tools are relevant, especially the OLM, the assessment and tracking methods and tools, LIP and to some degree also planning tools.

As we are following a “bottom up” approach, focusing on the individual (also the individual teacher) strategic planning and assessment methods are not as relevant for our exploitation strategy. Anyhow we are looking for support on ministerial level thus this part of the NEXT-TELL tool and method stack is very valuable.

### 5.4.10 BOC Asset Management (BOC-AT)

**Partner profile**

BOC-AT was founded as a spin-off from the University of Vienna developing the Business Process Management System (BPMS) – paradigm together with the BPMS group of the University of Vienna. Since then BOC-AT has a tight cooperation with the University of Vienna mainly in the field of business process engineering and knowledge engineering covering aspects such as modelling, meta-modelling, semantics, agents, technology enhanced learning and knowledge management. As core competences BOC deals with the development of commercial software products that aim to support management approaches from different domains (Business Process Management using ADONIS, IT-Service and Architecture Management using ADOit, Strategy and Performance Management using ADOscore, Supply Chain and Logistics Management using ADOlog) built upon the ADOxx® meta-modelling platform, advances in the area of technology-enhanced learning (ADVISOR platform as a result from the EC-project ADVISOR) and knowledge management (PROMOTE platform as a result from the EC-project PROMOTE) and related consulting services.

As an organisational unit in BOC-AT, the EU Project Group deals with all research related topics of the BOC group relating to defined domains such as eLearning and knowledge management from a content perspective and meta-modelling concept and platforms from a technology viewpoint as a initially preparation/prototyping action for further activities on product and service management level.

**Individual goals of exploitation**

The exploitation goals of BOC-AT relate to the defined project role in NEXT-TELL, as a technology provider for tools, application and services applying meta-modelling concepts on the ADOxx® platform. The goal to support e-learning modelling methods/planning activities with the appropriate software foundation aims at developing a new type of products for the domain of TEL, with a strong focus on a) the approach how such tools are developed and b) the tool/application/service itself as a prototype to demonstrate added-value to existing products and services.
From a content perspective, the methodology is in focus of exploitation (such as ECAAD, TISL, SPICE) and how these methodologies are applicable in settings of existing customers but also to pave the way to approach new markets on an international scale.

**Identified exploitable NEXT-TELL results**

BOC-AT identifies at this stage the following exploitation items:

- ECAAD/SPICE/TISL methodology as an application domain for BOC’s ADVISOR platform (conceptually) built upon the ADOxx platform (technology, see BOC-PL exploitation): for BOC-AT the method from a conceptual modelling perspective is of interest to acquire knowledge in the domain but also in horizontal aspect such as collaboration and interaction with experts (novel information acquisition approaches.

- Method content and management of distributed information sources: as an approach to build up a common knowledge base for method development and integration (hybrid approach) with aspects related to community building and agile development scenarios

### 5.4.11 BOC Information Technologies Consulting (BOC-PL)

**Partner profile**

BOC-PL is a member of the BOC Group. It was founded in 2002 with headquarters in Warsaw. Starting with global customers support on the Polish market, BOC-PL constantly developed service portfolio, including Polish versions of BOC products and consulting services. BOC-PL provides its customers with competence and assists them in identifying their IT potentials, optimising their business processes, better utilising their knowledge assets and the optimal deployment of their human and IT resources. BOC has successfully implemented a number of large re-organisation projects in Europe in the banking, insurance, telecommunications, health care and public administration sectors. Customers and partners include some of the largest financial institutions in Europe as well as software houses, telecommunications and consulting companies.

BOC-PL actively supports leading Polish Universities in promoting BPM concepts by providing software tools and trainings for educational purposes.

**Individual goals of exploitation**

By creating tools that support the methods developed and specified in NEXT-TELL, we aim at developing on one hand new products and service portfolio for the technology enhanced learning market. Considering tight ties with universities in Poland, we plan to extend our offer for higher education by providing innovative tools and services to foster teaching in this context.

In addition to the target market oriented tooling and technology focus, we do expect that software components developed in the NEXT-TELL project can be exploited as extensions and additional product components to our standard product portfolio for existing customer solutions.

**Identified exploitable NEXT-TELL results**

The main exploitation results are related to a technology view on one hand and a content view on the other. The software prototypes developed within the NEXT-TELL project by BOC-PL represent the main exploitable results for BOC-PL as generic functionality/technology that can be integrated as extensions and adoptions to existing products, and also as a initial prototype for product development in the educational market, based upon BOC’s experience and foundation in this area. The three prototypes are the ECAAD planner as a result of WP2, TISL planner, and SPICE planner as a result of WP5.

From a content perspective we also develop content in form of reference models, which could be used as a driver and knowledge base for consulting projects in the educational domain.
A combination of tool, method and reference content will create unique offer on the Polish market in the educational domain.

5.4.12 MTO Psychologische Forschung und Beratung (MTO)

Partner profile
MTO GmbH is a private enterprise that is primarily specialising in consultancy and research regarding evaluation, development and implementation of products and processes that involve humans as a crucial factor. Its branches are divided into man-machine-interface, diagnostics/organisational change and education. Education is the branch that participates in the NEXT-TELL project.

MTO-Education is part of NEXT-TELL to advance its own and its future and present clients understanding of relevant processes for the next wave of changes appearing in the classroom. MTO contributes specific knowledge regarding its vast experience in change management, teacher training and evaluation and competence based diagnostics.

Also, MTO works with partners from the IT sector to enhance and flank traditional means of psychological diagnostics. This cooperation will widely benefit from the new insights gained during the NEXT-TELL project. These insights will help to update, adapt and change these measures applied for the core business of MTO-Education.

MTO plans to use the instruments and insights of NEXT-TELL and its cooperation partners to counsel all its clients from pupils in economic school projects to ministries of education interested in implementing products for occupational orientation, to improve their work with the measures of the 21st century.

Individual goals of exploitation
We plan to identify potential fields of benefit for our customers due to the NEXT-TELL cooperation.

The use or misuse of ICT may be the defining factor for the management of schools in the next decade(s). We plan to help our clients on different levels and with different approaches. We can spot potential ineffectiveness in the school’s management that creates frictions on a monetary level and frustration for the professionals.

Based on this, NEXT-TELL’s organisational instruments may be applied to communicate, change and evaluate the changes needed to improve the school’s function: to transmit knowledge to, spark interest and fascination in and strengthen the youth. These functions need to be assessed, shaped and quality controlled to work with as little effort as possible. ICT usage is a great catalyst for these three steps of evaluation, change and maintaining high quality. Finally, the cooperation of schools, the establishing of networks that can generate and transport knowledge and innovation from principal to principal and from there to boards of education is a great source that can be tapped. This can be furthered by the insights from NEXT-TELL how to ascertain, address and evolve these links.

Identified exploitable NEXT-TELL results
Apart from the secondary benefit of improving our ties with innovative partners throughout Europe, the potentially most beneficial results from NEXT-TELL will be

- the possibility of using TESL/TISL/STEM components to help teachers in improving their lessons and
- to help principals to put into effect their vision and strategies using ICT via the balanced scorecard method developed in NEXT-TELL’s “SPICE” components
- the widespread new knowledge generated by the research and evaluation of the methods used during the formation of NEXT-TELL’s final products
- the furthering of formative assessment and the “no-grades-school” (especially in form of the Gemeinschaftsschule) that is changing the traditionally segmented and highly selective school system in Germany via the OLM
- the possibility to have at hands an established model of usage and training of the ePortfolio Mahara that could fulfill the needs of vocational training schools in Germany to establish a ready-to-use model of presenting an application for their students
- finally, the outlook of a follow-up research project which targets ICT use used in change management during the transition from traditional three-branch school system schools to comprehensive schools in Germany.
6 Glossary

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

BSCW The document store used in NEXT-TELL used for storing internal documents
Document store see BSCW
EuresTools The reporting tool used in NEXT-TELL
PM Person month
T Task
WP Work package

Partner Acronyms

JRS JOANNEUM RESEARCH Forschungsgesellschaft mbH, AT
UniRes UNI RESEARCH AS, NO
KMRC Medien in der Bildung Stiftung, DE
TUG Technische Universität Graz, AT
CBS Copenhagen Business School, DM
BHAM University of Birmingham, UK
IOE Institute of Education, University of London, UK
LL Lattanzio Learning Spa, IT (former eXact Learning Solutions SPA)
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 (e.g. PADI project)
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 Epistemic Network Analysis
ESL English as a Second Language; refers to learning English in the target language environment
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

Acknowledgement: The research leading to these results has received funding from the European Union’s Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 258114.
Annex A – Book proposal

The following pages contain the book proposal “Measuring and visualising competence development in the information-rich classroom” as presented to a publishing house.
Book proposal:

“Measuring and visualising competence development in the information-rich classroom.”

Peter Reimann, Susan Bull, Michael Kickmeier-Rust, Ravi Vatrapu, & Barbara Wasson (Eds.)

Overview

- Include a brief description of the book in which you explain the main purpose, thesis, and general plan of the book.
- Please specify the details of your finished book, including the expected number of words, the number and type of illustrations, and your planned completion date. (It is not necessary to have completed your book before you contact us. If you have completed it, please do NOT send the entire manuscript. Instead, please draft a proposal using these guidelines).
- Include a sample chapter (preferably an introductory chapter) and/or a representative writing sample.

The vision of the modern school as a technology- and information-rich environment has been elaborated mainly from the student perspective—as a learning environment. More recently, the vision has been extended to teachers—the school as a data-rich work environment. This book starts from the view that the use of ICT for bringing about a “data culture” in schools has been dominated by a focus on data, rather than information and knowledge; and by combining data that are easily available, rather than data that inform about student learning. On the one hand, while there has been much development of new forms of assessment and diagnosing learning, researchers in this area often focus on individual methods, with less concern for integration with other methods and other kinds of data. On the other hand, integrated information systems are becoming increasingly deployed in schools, but there is little innovation regarding the kind of data that are made available to users of these systems (school leaders, teachers, students, and parents).

With this book, we aim to address this disconnection between innovations regarding learning and assessment on the one side, and innovation in school information systems on the other. Single tools and methods play out their potential only to the extent that they are embedded in an efficient infrastructure. However, an infrastructure without good content, methods and tools is not the solution either. Building on research conducted by a multinational and multidisciplinary team of European learning technology experts, and by specialists from around the globe, this book contributes to a holistic approach for building the information infrastructure of the 21st Century school.
While there has been much progress on making testing data available to schools in recent years, a holistic approach needs to pay equal, if not more attention to the kind of data on students’ learning produced in schools as part of classroom assessment (see Mandinach & Honey, 2008, for a good overview). We go a step further by integrating not only classroom assessments (such as quizzes, teacher-constructed tests), but also performance-based and artefact-based information, for the purpose of gaining a holistic view of students’ development of understanding and competences. The rationale being that as classrooms are becoming increasingly technology-rich, students’ learning can be tracked to enable interpretation of what they produce (e.g., an essay, a presentation, a mathematics problem solution) and how they produce it (e.g., the revision history of an essay or a presentation, the steps taken for a mathematics solution, each kept in a log file of the software used, such as Google Docs, Google Spreadsheets). Furthermore, with today’s classrooms being networked via the Internet, learning products and activities can be recorded and analyzed for both individual and collaborative forms of learning, and for learning in and outside the classroom. This affords use of information technologies not only to support the teaching of traditional curriculum content, such as languages and STEM, but also for new competences, coined “21st Century skills”, “horizontal” or “general” competences.

The book is structured in four sections that reflect the holistic approach. Section I contains chapters that present and reflect the state of the art regarding use of learning data to improve pedagogical decision making. This includes updates on the state of the art on school information systems, developments in computer-based assessment and diagnostics, learning analytics, and importantly, teacher capacity development for using ICT and data on their students’ learning. Section II focuses on innovative ways to use IT to track students’ learning and diagnose reasons for learning difficulties. The chapters in Section III show how such information on learning can be integrated across software tools, methods and classrooms, and how this wealth of information can be made available to teachers, students, and parents. The book closes with a range of case studies from the NEXT-TELL project, conducted in classrooms in several countries, illustrating experiences with the use of new diagnostic methods, with information integration, and with teacher capacity development.

Page number estimates:
- 20 chapters of about 15 pages length each: ~ 300 pages

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Section I: Foundations and State of the Art

1. From educational applications to school infrastructures (Jeremy Roschelle)
   This chapter will set the stage by introducing the notion of "infrastructure", which Jeremy together with Kaput and others introduced to educational computing. We invite Jeremy to summarize his experiences with research on developing “curriculum activity systems”, and to reflect on the implications of his research and his experiences for what infrastructure could mean for a whole school.

2. Student learning and engagement: A cognitive density approach (Friedrich Hesse)
   Cognitive Density is a construct suggested by Crawford and others, then SRI, in 2008 with a view to describe learning as an emergent phenomenon in the “high-performance”, and “high-tech” classroom. It relates to the notion of technology infrastructure introduced in I.1 because it describes the function and the effects of technology on the level of a classroom, or lecture room - not in terms of effects on the individual actors (students, teachers). This chapter will describe how to develop the construct of cognitive density into a measurement framework, and how to make it useful during the lesson planning stage.

3. Assessment design and information technologies (Peter Reimann)
   As educational assessment becomes increasingly computer-based, new opportunities arise for extending not only what to assess and how to assess, but also for extending the formats in which assessment results are communicated, and for making diagnostic information on students’ learning more rapidly available. This chapter will summarize the state of the art regarding computer based assessment, including classroom assessment, and delineate the innovation potential for conducting and delivering formative as well as summative assessment.

4. Student data computer systems (Jeffrey Wayman)
   State of the art of student data computer systems and extension towards data types that get produced in the classroom as a side effect of engaging in learning activities. Challenges of integrating classroom level with school level data, and school level with district and beyond level data.

5. Learning analytics and educational data mining (Kalina Yacef)
   State of the art in educational data mining, in particular for data that speak directly to learning, e.g., those that are stored in log files of educational web applications. Particular focus on the extent to which knowledge about the semantics of learning data imposes limits on the interpretation of “bulk data” for the purpose of informing pedagogical decision making.

As author at this stage only the lead author is mentioned. It is up to the lead author to co-author the chapter together with colleagues, or individually. The title are working titles, subject to change as authors finalize their chapters.
6. Teacher capacity I: Teaching with ICT, assessment literacy (Barbara Wasson)
   State of the art regarding what is known about the kinds of knowledge and skills teachers need to deploy ICTs effectively in the classroom, including ICT for assessment purposes. Synthesis of research on teacher assessment literacy, in particular for the new kinds of diagnostic data that ICT-supported (classroom) assessment can make available.

7. Teacher capacity II: Data literacy, researching pedagogical innovations (Rose Luckin)
   State of the art report on research into teacher data literacy, and teacher capacity to conduct systematic inquiry into students' learning, in particular into the effects of technical innovations on students' learning. Relations to action research and design-based research methodologies. This will include a case study of teacher inquiry in a UK school.

8. School leadership and strategic ICT planning (Ruben Vanderlinde)
   Linking ICTs to a school's strategic and human capacity planning is essential for any systematic effects ("scaling up"), but little systematic research has been conducted on this link. This chapter will review existing research, distil implications for practical school leadership, and identify an agenda for further research.

Section II: Technology-enhanced methods to gauge students' learning

1. New applications of competency-based Knowledge Space Theory (Dietrich Albert)
   Chapter provides an overview of the foundations of cbKST, and how cbKST is used in a variety of educational research contexts, such as game-based learning, to provide diagnostic information as well as support automatic instructional planning for personalised learning. This will include a case study from Austria on using iPads in the classroom.

2. Repertory Grids and related methods for diagnosing declarative knowledge (Ravi Vatrapu)
   The chapter provides a short introduction into the repertory grid methods, summarizes its applications in educational settings, and introduces a new web-based software for conducting repertory grid exercises and diagnostic assessments in a teacher and student friendly format. This chapter will include a case study on using the repertory grid method for STEM teaching in Norway.

3. Diagnosing learning in immersive learning environments (Michael Jacobson)
   Immersive learning in form of an element of inquiry learning as well as an element of game-based learning ("serious games") has received quite some attention in recent years, but the challenge of how to track students' learning in such environments is still a big challenge. This chapter will review the state of the art regarding knowledge tracing in such environments, and will also analyse recent developments of using immersive technologies in the context of dedicated assessment programs.

4. Analyzing collaborative learning and knowledge building (Jan van Aalst)
   Collaborative learning is an important element of 21C pedagogy, making the question of how to diagnose and assess learning on the group level a pivotal one. This chapter will synthesize the state of the art regarding the automatic diagnosis of collaborative knowledge development, with a particular focus on applications in knowledge building classrooms.

5. Integrating and visualising diagnostic information for the benefit of learning (Susan Bull)
How the wealth of information that modern ICT enhanced diagnostic methods produce can be made accessible and meaningful to teachers and also to students and parents is the focus of this chapter. It will portrait the state of the art regarding research on Open Learner Modelling and describe lessons learned regarding the use of OLM in real classrooms. This chapter will include a case study on 21st Century classroom pedagogy in Singapore.

Section III: Classroom Information Infrastructure - methods and technologies

1. Planning for integration: a meta-modelling approach (Wilfrid Utz)
   To integrate information on learning across a range of applications, locations, and student activities so that this information can be displayed to teachers and students in meaningful form requires careful planning. This chapter describes advances in meta-modelling research and how they have informed the development of a software tool for planning the use of ICT in classrooms and beyond.

2. Tracking learning activities within and across applications (Roland Unterberger)
   This chapter describes and compares various approaches to tracking learning relevant data across applications using a log file approach as well as web browser based approaches. Some of these methods are integrated into the NEXT-TELL tracking infrastructure, and experiences with this comprehensive implementation will be described. This includes amongst other components the Moodle learning management system and the Google Docs applications.

3. Storing and sharing student learning data with eportfolios (Fabrizio Giorgini)
   This chapter describes advances in the use of eportfolio tools for K-12 education, and reports on recent research devoted to the design of a second-generation e-portfolio system that integrates automatic uploading of learning relevant artefacts and the integration of a competence framework, realised as an Open Learner Model.

4. A unified approach to school-wide competence diagnostics (Michael Kickmeier-Rust)
   While the wider research background on competence-based Knowledge Space Theory has been covered in section II.1, this chapter describes a range of new implementations of cbKST in the PRONIFA framework. Examples of these applications for STEM and language education are provided, and research on these applications is synthesised. This chapter will include a case study on using immersive learning for foreign language learning in Norway and Austria.

5. Visualising and negotiating information on student learning (Matthew Johnson)
   This chapter builds on chapter II.5 and extends that chapter by describing the rationale for, design of, and experiences with a new Open Learner Modelling software. Different for former open learner modelling approaches, this second generation tool is no longer confined to the area of intelligent tutoring systems, but can be used in any context where characterizing students’ learning in terms of the development of competences is seen as appropriate.

6. Supporting school leaders in aligning ICT with school strategy (Michal Kossowski)
   This chapter builds on Chapter I.8 and extends it by describing the rationale for, design of, and experiences with a software tool for school leaders to conduct a balanced scorecard inspired strategic planning initiative in their school. This approach to strategic planning aims for aligning mission, processes, capacities, and finances.
Market

● Please discuss the intended audience for your book. Is it written primarily for scholars (if so, what disciplines), professionals (if so, which fields), students (if so, what level) or general readers? Please be as specific and realistic as possible and remember few, if any, books appeal to all of the above simultaneously.

● List a few specific journals, publications, and/or scholarly groups or divisions, you think this book would most appeal to.

● List any courses (including the level) for which this book would be relevant. Where possible, please state specific universities, courses, and professors who may adopt the book and why.

● List three key selling points for your book

Intended audience
The first audience for this book are researchers in the area of technology-enhanced learning in general, and those working on computer-based assessment, learning design, and school information systems in particular.

The second audience are teachers and graduate students in teacher education institutions (faculties of Education, colleges) because of the focus of the book on methods and tools that are targeting the K-12 classroom.

Journals and groups/societies this book would appeal to
● Computers & Education
● British Journal of Educational Technology
● Journal of Educational Data Mining
● International Journal of Artificial Intelligence in Education
● Journal of the Learning Sciences
● Journal of Learning Analytics
● Information Systems Research

Courses
This edited collection is not a textbook, but it could be useful for graduate level courses on ICT in education, nowadays part of all teacher education programs.

Three key selling points
1. Holistic view of ICT in schools: “whole school” approach, integration of pedagogy and technology
2. Combination of conceptual chapters and chapters with concrete methods and examples for IT realisation
3. Case studies from multiple countries, covering TESL, STEM, and C21 learning.
List three or four similar titles (include author, title, publisher, publication date, price, and length).

How is your book like, or unlike, these other books?

More or less recent books with similar or related topics:

1. Balancing Dilemmas in Assessment and Learning in Contemporary Education. Edited by Anton Havnes, Liz McDowell (Routledge, 2013)
3. Data Analysis for Continuous School Improvement. 3rd edition. By Victoria Bernhardt Published 2013 by Routledge

(1) and (2) are edited collections that capture a fairly broad spectrum. They contain mostly theoretical contributions. Our book is different in that the theoretical chapters are linked to methods and tools that can be used by educators, in particular, teachers.

(3) and (4) are single author books that take a very practical approach to data analysis, targeting school leaders in particular. The main difference from our book is that we suggest new kinds of data, whereas these two books work with data that are routinely available in schools (in particular attendance data, assessment data, and test data). Also, these two books are of the How-To type, i.e. they provide largely procedural step-by-step descriptions of data analysis, whereas our book describes the rationale for certain methods and data, what can be learned from them, and how they can be combined. But it is not a “How-To” book, as such.

(5) is a pragmatic guide for teachers on how to assess 21C “skills” on a classroom level that are aligned with the Common Core curriculum in the USA. Our book is different in that it has a much deeper level of ICT integration, and in it goes beyond rubric-based assessment, which is the basic assessment method suggested in the Greenstein book.

(6) is an edited collection, describing a range of formative assessment methods from a research perspective. Different from our book, it is not particularly focused on ICT as an enabler for new ways of assessment, and it is not concerned with integration of methods, the infrastructure aspect that we foreground.
Other Relevant Information

- Please provide us with a brief biography of yourself (and any co-authors) as well as a copy of your c.v. or resume.
- List three to five people who would make qualified reviewers for the manuscript (preferably individuals whom you do not know personally). Be sure to include affiliations. Though we do not always use these suggestions, they help give us an idea of where you think your ideas fit into current debates.
- If this book will be an edited collection, please include a short biography (including current institution and recent publications) for each of these contributors. Also note which contributors have made a commitment to the project and/or completed their contribution.
- Finally, please tell us whether or not your proposal has been submitted to other publishers and, if so, to whom.

Potential book proposal reviewers

1. Mandinach, Ellen. (WestEd, USA; she is co-editor of “Data-driven school improvement”, Teachers College Press, 2008)
2. Baker, Ryan. (Worcester Polytech, USA, he is an educational data mining expert.)
3. Roos, Bertil (Umea University, Sweden; expert on Technology Enhanced Formative Assessment)

Editors’ CVs
(Provided as attachments)

Biographic information on chapter authors

Aalst, Jan van
Jan is Associate Professor in the Faculty of Education at the University of Hong Kong. As a learning scientist he specialises in the study of computer-supported collaboration, in particular on the analysis of knowledge building processes and knowledge building in the classroom. He has contributed also to methodological developments, in particular the automatic analysis of computer-mediated interactions amongst students. Jan has widely published on these matters and holds leading roles in a number of journals and conferences on the learning sciences. He gained his PhD at the University of Toronto.

Albert, Dietrich
Dr. Dietrich Albert currently is Professor of Psychology at University of Graz, Senior Scientist at Graz University of Technology, Knowledge Management Institute, and Key Researcher at the Know-Center (Graz). At UniGraz, Department of Psychology, he is the head of the
Cognitive Science Section (CSS) since 1993. In the preceding years he served on the faculties of the Universities of Göttingen, Marburg, Heidelberg, and in 2001/02 Hiroshima. His research topics cover several areas, including learning and memory, psychometrics, anxiety and performance, psychological decision theory, computer based tutorial systems, values and behaviour. D. Albert's actual focus in R&D is on knowledge and competence structures, their applications, and empirical research. By working with psychologists, computer scientists, and mathematicians several academic disciplines are represented within his research team. Beside national activities, his expertise in European R&D projects is documented by several projects since FP5.

Avramides, Katerina
Katerina is a research fellow on the TAKTEEN and NEXT-TELL projects. Her research is interdisciplinary, situated between Psychology, Education, Human Computer Interaction, and Artificial Intelligence. She's primarily interested in the design and development of learning experiences to support understanding of socio-scientific issues, including the application of existing and design of new technological tools. Her research into the learning process has focused on the areas of epistemic cognition and metacognition, affect and motivation, and social communication. She received her DPhil in Educational Technology in 2009 and MSc in Human Centred Computer Systems in 2004 from the University of Sussex. She completed a BSc in Psychology and Artificial Intelligence at the University of Nottingham. She has previously worked at the Memory Lab at Carnegie Mellon University, and the Human Centred Research Group at the University of Sussex.

Carmen Biel
Carmen Biel has been working as a research scientist at the Knowledge Media Research Center since August 2011. She is involved in the EU funded project NEXT-TELL. She studied educational science (focus on adult education) as well as psychology, sociology and computer science at the universities of Bremen and Hamburg. During her studies, she worked at the Institute for School Development in the department for human resource development. In 2009, she was coordinator of the sub-project “training” at the Norddeutscher Rundfunk for an in-house software changeover. Within this project she was also administrator and tele-tutor for the in-house e-learning platform. Carmen Biel is currently a Ph.D. candidate within the NEXT-TELL project on “Self-determined learning in the 21st century classroom”.

Cierniak, Gabriele
Gabriele Cierniak has been a research assistant at the Knowledge Media Research Center since 2008. She is interested in applied research on learning processes at school and in fundamental research on cognitive processes. Since 2010 she has been investigating how digital tools can be used to enhance collaborative and self-guided learning at school in an interdisciplinary team at the EU-Project „NEXT-TELL“. She has been studying Gestalt Therapy also since 2010. From 2010 to 2012 she worked on the project „Adaptive Instructional Environments Based on Brain Computer Interfaces Methodology“ within the Science Campus Tuebingen, and investigated how to use EEG-data for developing learning environments. Before joining the KMRC, she was a scholarship holder at the DFG virtual Ph.D. program „Knowledge Acquisition and Knowledge Exchange with New Media“. During
her Ph.D. she investigated cognitive load and visual attention in multimedia learning with a focus on spatial text-picture contiguity and learners’ prior knowledge.

Debus, Kolja

Meissl-Egghart, Gerhilde
Gerhilde Meissl-Egghart is a free-lancer in the field of educational technology and co-founder of http://talkademy.org, a not-for-profit organisation, that engages in using and creating virtual environments for learning purposes. talkademy.org services universities, companies and individuals with learning events using Second Life and OpenSim and is a frequent partner in European projects (Avalon, Talk-with-me, NEXT-TELL, euroversity, eNspiration). Before starting talkademy.org, Gerhilde received a degree in computer science from the Technical University of Vienna and gathered about 10 years of professional experience in software engineering, project management, quality management and training.

Giorgini, Fabrizio
Fabrizio Giorgini has a PhD in Electronic Engineering and Computer Science. He joined eXact learning solutions in 2000. Since 2003 he has been the Director of the R&D department where main research focuses on advanced technology (e.g. RFID, NFC, mobile, wearable computer, virtual and augmented reality) for the authoring, publishing and visualization of multimedia and interactive learning contents. Giorgini has more than 15 years of experience in Project Management, Project Coordination and raising funding of national and European Commission's projects. He is also a contributing member of IMS Global Learning Consortium and author or co-author of numerous papers published in international conference proceedings and journals.

Hammermüller, Klaus

Hansen, Cecilie Johanne Slokvik
Cecilie Hansen is working as a researcher at Uni Health, Uni Research AS. Since 2001 she has been working on national and international projects on technology enhanced learning, blended learning, self-regulated learning, technology enhanced assessment, and mobile learning (e.g., BLearn, MGain, SCY, NEXT-TELL). She has a Masters in cultural studies from University in Bergen, and is authorised as a teacher for upper secondary teaching with teacher training studies from HISF University College. She is doing her PhD on Teacher Inquiry Into Student Learning, technology and formative assessment, within the NEXT-TELL project.

Hesse, Friedrich
Friedrich W. Hesse studied psychology at the University of Marburg and the University of Duesseldorf (diploma 1976), received his doctorate at the University of Aachen (1979) and qualified as professor for psychology (1989) at the University of Goettingen. From 1976 to 1979 he was assistant researcher at the University of Duesseldorf and Aachen, where he worked as post-doc research fellow from 1979 till 1982. From 1982 till 1983 he was research
fellow at LRDC and Carnegie Mellon University in Pittsburgh; from 1983 until 1990 he was academic council at the faculty for psychology at the University of Goettingen. Since 1990 up to the present he has been professor in Tuebingen, initially (from 1990 until 1992) as debaty of the chair and from 1993 until 2000 as Head of the Department of Applied Cognitive Science at the German Institute of Research for Distance Education (DIFF). Since 1999 he has been holding the chair of applied cognitive psychology and media psychology at the University of Tuebingen. Since 2001 he is executive director of the Knowledge Media Research Center. Together with his lab he works on fundamental principles of individual and cooperative knowledge acquisition and knowledge exchange with new media and the practical implementation of concepts of virtual learning and teaching. Prof. Hesse is also initiator and spokesman of the ScienceCampus Tuebingen "Informational Environments". Since November 2010 Friedrich W. Hesse is also scientific vice-president of the German Leibniz Association, an umbrella organization for 86 research institutions in Germany.

Hunter, Jade

Jade Hunter is a Research Officer at the London Knowledge Lab, working on the Next Generation Teaching, Education and Learning for Life (Next-TELL) project. Her research for the project relates to teachers’ inquiries into their students’ learning (TISL). She holds a Master’s degree in Culture, Globalisation & City from Goldsmiths College, as well as being a qualified teacher. She has previously taught in compulsory and post-compulsory settings, in schools, sixth forms and FE colleges in the UK, where she delivered a range of Media related subjects.

Jacobson, Michael

Michael J. Jacobson, Ph.D., is a Professor and Chair of Education in the Faculty of Education and Social Work at the University of Sydney. He also is the Co-director of the Centre for Research on Computer-supported Learning and Cognition (CoCo) and Deputy Director, Institute for Innovation in Science and Mathematics Education. Previously, he was an Associate Professor in the Learning Sciences Laboratory (which he helped establish) at the National Institute of Education (NIE), Nanyang Technological University in Singapore and the Senior Associate Director and an Associate Professor at the Korea University Center for Teaching and Learning in Seoul, Korea. His research has been funded by groups such as the Australian Research Council, Singapore Ministry of Education, Korean Ministry of Information and Communication, and U.S. National Science Foundation. In addition, he is an Affiliate of the New England Complex Systems Institute. Professor Jacobson received his Ph.D. from the University of Illinois at Urbana-Champaign in 1991.

Johnson, Matthew

Matthew is a Research Associate at the University of Birmingham, working on the European Community based Next Generation Teaching, Education and Learning for Life (Next-TELL) project. Since 2011 has has been responsible for the development of Next-TELL's multi-datasource open learner model, and the support of its use in schools across Europe. Alongside his Research Associate post, Matthew is currently completing a Ph.D. in Educational Technology which he commenced in 2008 and worked on full time before taking up his current research post. His research is investigating learners' interaction patterns within OLM systems. In 2008, Matthew graduated from the University of Birmingham with a
first class Master's degree with honours in Computer Systems Engineering. His dissertation was in the field of Education Technology. Matthew's research interests include open learner modelling, computer learner interaction, adaptive systems, and intelligent tutoring systems.

Kossowski, Michal

Luckin, Rose
Rose Luckin is a Professor of Learner Centred Design at the London Knowledge Lab. Her research applies participatory methods to the development and evaluation of Technology for learning. This work is interdisciplinary and encompasses education, psychology, artificial intelligence and HCI. I investigate the relationship between people, their context, the concepts they are learning, and the resources at their disposal. She is currently developing the Ecology of Resources design framework as discussed in Re-designing Learning Contexts, available from Amazon and from Routledge.

Roschelle, Jeremy (invited)
Jeremy Roschelle, Ph.D. director of the Center for Technology is in Learning at SRI International. Roschelle examines the design and classroom use of innovations that enhance learning of complex and conceptually difficult ideas in mathematics and science. Through cognitive science-based research on the Envisioning Machine and later SimCalc, he has explored how computer-based representations can make the mathematics of change and the related physics of motion accessible to many more students. Two running themes in his work are the study of collaboration in learning and the appropriate use of advanced or emerging technologies (such as component software and wireless handhelds) in education. Dr. Roschelle specializes in the design and development of integrated interventions to enhance learning of complex and conceptually difficult mathematics and science; learning sciences-based research in mathematics education, on collaborative learning, and with interactive technology; and the management of large-scale multiyear, multi-institutional research and evaluation projects.

Unterberger, Roland
Roland Unterberger is working at JOANNEUM RESEARCH, DIGITAL - Institute for Information and Communication Technologies since September 2011. He studies Software Development and Business Management at the technical university of Graz. He got his M.Sc with the master thesis called “Design and Application of Self Developing Organisms”. His areas of experience and interest cover Web based information systems and systems for supporting decision making. Additional he works in the field of web applications by using newest internet technology which is used in the projects like NEXT-TELL.

Utz, Wilfrid
Wilfrid Utz is working for BOC’s research and innovation group since September 2004. He holds a MSc in international business administration/management and gained experience in the field of method development and web-application development during various commercial and research projects with a specific focus on meta-modeling concepts and
platforms. From a research perspective, he was and is involved in FP6 projects EC-FUN, FIT and AKOGRIMO as well as in the FP7 project MOST, MATURE, eSAVE, ADAPT4EE and NEXT-TELL concentrating on the applicability of BOC's meta-modeling platform ADOxx (www.adoxx.org) for research and educational purposes.

Vanderlinde, Rubens (invited)
Ruben is a post-doctoral researcher in the Department of Education at the University of Gent, Belgium. His research comprises school improvement, ICT integration, professionalisation, practitioner research, school policies, reading comprehension, and parental involvement. He received his PhD (“School-based ICT policy planning in a context of curriculum reform”) from the University of Gent.

Wake, Jo
Jo Dugstad Wake is a researcher at Uni Health, Uni Research, and is involved in the NEXT-TELL project and as a data technician for a research project on music therapy. He has a Cand Polit degree (equivalent to masters) in Information Science from the University of Bergen, and has recently submitted a PhD-thesis about Smartphones, Computer Games and Learning/Education. As part of the PhD work, he designed a location-based game for teaching and learning history, which was studied in various school settings, using a variety of methods. His research interests include Computer Supported Collaborative Learning, Mobile Learning, Computer Games and Learning, Location-based and pervasive technologies, Ubiquitous computing, Human-Computer Interaction and Design Science.

Wayman, Jeffrey (invited)
Dr. Wayman's teaching and research interests focus on the effective use of data for school improvement; he also teaches quantitative research methods. Dr. Wayman's research on data-based decision-making includes efficient structures for creating data-informed school districts, software that delivers student data to educators, effective leadership for data use, and systemic supports that enable widespread teacher use of student data. Dr. Wayman's current research project is a 3-year study funded by The Spencer Foundation titled "The Data-Informed District: Implementation and Effects of a District-Wide Data Initiative." In this project, Dr. Wayman and his research team are working with three districts to help them become "Data-Informed Districts." Prior to joining the UT faculty, Dr. Wayman worked at Johns Hopkins University with the Center for Social Organization of Schools, at Colorado State University in the area of prevention research, and as a junior high math teacher in Kansas City and Salt Lake City.

Yacef, Kalina
Kalina Yacef's research lies in the fields of Artificial Intelligence in Education, Educational Data Mining and Human Computer Interaction. It aims to create smart, personalised computing systems to support learning and teaching. A particular focus of her research is to create ways to mine the rich stream of interaction data between learners and computer systems, and build interfaces to control this data and visualise results. Her projects are funded by the Smart Services CRC and by the Australian Research Council. She is the Editor of the Journal of Educational Data Mining (JEDM). She serves as
co-Program Chair of the international conference on Educational Data Mining (EDM 2012) and the international conference on Artificial Intelligence in Education (AIED 2013).