Towards an integrated model of teacher inquiry into student learning, learning design and learning analytics

Conference or Workshop Item

How to cite:
Hansen, Cecilie; Emin, Valérie; Wasson, Barbara; Mor, Yishay; Rodríguez-Triana, María Jesús; Dascalu, Mihai; Ferguson, Rebecca and Pernin, Jean-Philippe (2013). Towards an integrated model of teacher inquiry into student learning, learning design and learning analytics. In: EC-TEL 2013 Eighth European Conference on Technology Enhanced Learning, 17-21 Sep 2013, Paphos (Cyprus), Springer-Verlag, pp. 605–606.

For guidance on citations see FAQs.

© 2013 Springer-Verlag

Version: Accepted Manuscript

Link(s) to article on publisher’s website:
http://download.springer.com/static/pdf/932/chp%253A10.1007%252F978-3-642-40814-4_73.pdf?auth66=1385296515_be83bcf

Copyright and Moral Rights for the articles on this site are retained by the individual authors and/or other copyright owners. For more information on Open Research Online's data policy on reuse of materials please consult the policies page.

oro.open.ac.uk
Towards an Integrated Model of Teacher Inquiry into Student Learning, Learning Design and Learning Analytics

Cecilie Hansen¹, Valérie Emin², Barbara Wasson³, Yishay Mor⁴, María Jesús Rodríguez-Triana⁵, Mihai Dascalu⁶, Rebecca Ferguson⁴, and Jean-Philippe Pernin⁷

¹ InterMedia, Uni Health, Uni Research, Bergen, Norway  
cecilie.hansen@uni.no

² S2HEP, Institut français de l’Éducation, ENS-Lyon, Lyon, France  
valerie.emin@ens-lyon.fr

³ Department of Information Science and Media Studies, University of Bergen, Norway  
barbara.wasson@uib.no

⁴ Institute of Educational Technology, The Open University, UK  
yishay.mor@open.ac.uk, rebecca.ferguson@open.ac.uk

⁵ GSIC-EMIC, University of Valladolid, Spain  
chus@gsic.uva.es

⁶ Department of Computer Science, University Politehnica of Bucharest, Romania  
mihai.dascalu@cs.pub.ro

⁷ Laboratoire d’Informatique de Grenoble, Grenoble, France  
jean-philippe.pernin@imag.fr

This poster introduces the first version of an integrated model of three traditions of research in TEL: Teacher Inquiry into Student Learning (TISL) [1], Learning Design (LD) [2] and Learning Analytics (LA) [3]. The integrated model, is based on four existing models: TISL Heart Model [4], Design Inquiry Model [2], Scenario Design Process Model [5], and the Model for Integrating Design and Analytics in Scripting for CSCL (MIDAS4CSCL) [6]. The result is leading towards a new strand of inquiry, called teacher-led design inquiry of learning.

TISL addresses the professional development of teacher practice by investigating student learning through action-oriented, evidence-based teacher-led research, with a particular focus on formative e-assessment. LD is the act of devising new practices, plans of activity, resources and tools aimed at achieving particular educational aims in a given situation, informed by subject knowledge, pedagogical theory, technological know-how, and practical experience. Although LA can be seen as “the measurement, collection, analysis and reporting of data about learners and their contexts” (LAK’11), it aims to extend beyond proposing tools responsible for analysing learning outcomes, providing a holistic, dynamic and formative view of learning processes.

Fig. 1 depicts the proposed model with emphasis on the target audiences its methods and tools specifically designed for practitioners: teachers who wants to inquire into the learning of their students, teachers/practitioners as designers of pedagogical scenarios, and teachers who want to monitor students’ activities. We envisage this model to be used for designing better learning analytics tools, specifically tailored for learning scenarios. The model provides a context for these different fields to complement one another and build on each other’s strengths.

© Springer-Verlag Berlin Heidelberg 2013
The integrated model can be considered a promising direction for future development of educational practices, as well as a rich field for research. LD and LA are currently gaining ground as potent approaches to technology-enhanced educational practice. Yet, to gain validity, LD needs to incorporate data and to gain impact, whereas LA needs to influence design. Thus, both LD and LA can only manifest their full potential if they are integrated in a coherent cycle of inquiry, as through the TISL cycle and through innovation. We see the model proposed here as a first step in this direction.

**Fig. 1. The Integrated Model**

<table>
<thead>
<tr>
<th>TISL Heart</th>
<th>Design Inquiry Model</th>
<th>Scenario Design Model</th>
<th>MIDAS4CSCL</th>
<th>Integrated Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kick-off</td>
<td>Imagine</td>
<td>Ideas of the learning scenarios, intentions, and pedagogical approaches</td>
<td>Context Analysis, Definition of prerequisites</td>
<td>Initiation</td>
</tr>
<tr>
<td>Set assumptions</td>
<td>Investigate</td>
<td></td>
<td>Context analysis or investigation</td>
<td></td>
</tr>
<tr>
<td>Define R&amp;D Question</td>
<td>Design of the scenario for the class context, successive iterations</td>
<td>Define learning objectives</td>
<td>Formulation of the design objective and the research question</td>
<td></td>
</tr>
<tr>
<td>Design method to answer the question</td>
<td>Inspire and ideate</td>
<td>Select the pedagogical pattern, configure the activity flow, groups, and resources</td>
<td>Design method to achieve learning objectives and to answer research question(s)</td>
<td></td>
</tr>
<tr>
<td>Enact changed teaching and assessment</td>
<td>Prototype</td>
<td>Enactment and successive adjustments</td>
<td>Enact the design</td>
<td></td>
</tr>
<tr>
<td>Evaluate learning outcomes, Provide summative feedback</td>
<td>Evaluate</td>
<td>Evaluation of the scenario enactment</td>
<td>Evaluate learning situation and design, Provide feedback</td>
<td></td>
</tr>
<tr>
<td>Refine overall model (iterative feedback loop)</td>
<td>Reflect</td>
<td>Reflection on the design, current trends, and patterns, Re-design and de-contextualization</td>
<td>Re-design</td>
<td></td>
</tr>
</tbody>
</table>

**References**