Proceedings of the Sixth IASTED International Conference on

Web-based Education

March 14–16, 2007
Chamonix, France
# Table of Contents

## WBE 2007

### Streaming Media, Adaptive and Authoring Systems

- 557-014: Recording Computer Video Output for Educational Purposes  
  
  *R.O. Rogers and D. Labello* .................................................. 62

- 557-017: Development of e-Learning Resource for Teacher Education Utilizing a VOD-Compatible Teaching Portfolio  
  
  *H. Miyata* ................................................................. 7

- 557-064: Towards a Pattern Language Approach to Establishing Personal Authoring Environments in E-Learning  
  

- 557-119: Streaming Technology as an Enabler of Top Quality Web-based Education  
  
  *A. Uskov and V. Uskov* ...................................................... 19

- 557-048: Graph-Automation Model of an Adaptive Distance Learning and Knowledge Control System  
  
  *P. Fedoruk* ................................................................. 25

- 557-141: Lessons Learned using Two Versions of Textbook for Programming Language Learning: Classical and Electronic  
  
  *S. Djenic, J. Mitic, and S. Strbac* ........................................... 31

- 557-148: Web-based Inquiry Learning Environment "Young Scientist"  
  
  *M. Pedaste and T. Sarapuu* .................................................. 35

- 557-087: On the Specification of Learning Objectives for Course Configuration  
  
  *G. Fernandez, A. Sterbini, and M. Temperini* .............................. 41

### Virtual/Remote Scientific Labs and Virtual Reality

- 557-010: The Internet-based Laboratory System for Technical Education  
  
  *D. Karayel, S.S. Ozkan, A. Caliskan, and I. Ozsert* .......................... 47

- 557-160: Design of Networks for Real-Time Tele-Education  
  
  *G. Graschew, T.A. Roelofs, S. Rakowsky, and P.M. Schlag* .................. 51

- 557-083: Development of Remote-Controlled Laboratories for Distance Education  
  
  *D. Lieberman and T. Cheung* ................................................ 56

- 557-052: Personalized Education Planner (PIP): An Online Education Ontology Construction for Personalized Learning Object Annotation  
  
  *A.W.P. Fok and H.H.S. Ip* .................................................. 80

- 557-079: Engaging Every Student in Large Laptop-Enhanced Courses  
  
  *R.P. Pargas* ................................................................. 86

- 557-027: Web-based Direct Instruction in Mathematics for Low Achievers  
  
  *M. Graff and M. Lebens* .................................................... 98

- 557-035: Web-based Learning Tools: Storing Usage Data Makes a Difference  
  
  *A. Merceron and K. Yacef* .................................................. 104

- 557-091: Semantic Web-based Interoperability of Distributed Learner Profile  
  
  *M. Ouziri* ................................................................. 110

- 557-100: Measuring the Effectiveness of ProgrammingLand  
  
  *C. Hill, B.M. Slator, and V. Shanmugasundaram* .............................. 116

- 557-038: A Tool for Creating Speaking Web Pages: Text-to-Speech Integrated Development Environment (TTS-IDE)  
  
  *D.C. Gibbs* ................................................................. 122

- 557-186: The Contents-Sharable Management System for Active Learning  
  
  *M. Kayama and T. Okamoto* .................................................. 126
557-101: A New Interactive Teaching Support System with Both Infrared Data Broadcasting and Cellular Communication
D. Cai and R. Kawashima ........................................... 270

557-130: Online Interactive Learning Arena over the Internet
A. Staupe and L. Kolás .................................................. 276

557-165: From Task Model to Multi-Channel Access: Services Integration in the Ubi-Learn Platform
S. Kaddouci, T. Vantroys, and V. Chevrin .......................... 282

BEST PRACTISES IN WBE

557-102: Collaborative Curriculum and Instruction Design for Personalized Online Instruction Delivery
A.W.P. Fok and H.H.S. Ip ................................................ 287

557-030: Web-based Education for Central-Finland Students: The Motto-Project
S. Gröhn ................................................................. 293

557-072: Case Studies for Self-Directed Learning Environment using Lecture Archives
S. Hasegawa, Y. Tajima, M. Matou, M. Futatsudera, and T. Ando .................................................. 299

557-122: Profiling Online Learners: Insights Gained from Learning Indicators, Learner Behaviors and Learner Perceptions
D. Casey, J. Fraser, and D. Murphy .................................. 305

557-073: Web-based Education in Mathematics and Sciences
S. Tzanova ................................................................. 312

557-146: A Framework for Music Analysis Instruction System with Synchronization of MIDI and Real Performing Audio
H.-T. Lin, Y.-Y. Lin, T.-Y. Ma, and H.-Y. Chen ........................ 316

557-084: Online Education and Learning Management Systems from Service-Centered Perspective
A. Lassila and P. Pöyrä .................................................. 322

557-086: Evaluating Asynchronous and Synchronous Distance Learning Platform in a High School
S. Manitsaris, S. Pavlidis, and E. Bompoli .......................... 331

557-074: An European Project “Virtual Performance Centred Environment for Training in Nanoelectronics”
S. Tzanova, P. Morey-Chaisemartin, C. Schaeffer, and M. Tzanov .................................................. 337

557-018: Capacity Building for Sustainable Agricultural Development in the GMS: Taking Advantage of eLearning
B.R. Abdon .............................................................. 342

557-104: Webquest Improvement of the Chemical Equilibrium Study
C.S.L. Morais, J.C. Paiva and J.L.S. Barros ........................ 347

LEARNING OBJECTS: PORTALS AND DIGITAL LIBRARIES

557-029: A System for Creating and Managing Reusable Learning Objects
E.L. Meyen and J.R. Miller ........................................... 353

557-060: An Ontology-based Framework for Author-Learning Content Interaction
S. Nešić, D. Gašević, and M. Jazayeri .............................. 359

557-159: Using the Google Web Toolkit to Create SCORM 2004 Compliant Online Tests
A. Kronawitter and J.-T. Milde ........................................ 365

557-133: Learning Process Sharing on the Web: Approach to Course Material Generation
H. Mitsuhara, K. Kanenishi, and Y. Yano .......................... 369

557-067: World Wide Web: Online Core Concept Thesauratic Database Development to Improve Information Seeking
V. Redfern .............................................................. 375

557-137: Educational Resources Integration in Russia: Electronic Library and Metadata Catalogue
A. Ivanikov, M. Bulgakov, E. Gridina, A. Sigalov, and M. Bulakina .................................................. 381

557-166: Scientific Content Creation for Web-based Education
R. Kumar ................................................................. 386

557-169: Web-based Instruction for High School Students: Exploration of Individual and Cultural Learning Styles
Y.S. Ryu, C.S. Nam, and T.L. Smith-Jackson ........................ 391

QUALITY ISSUES, TESTING AND ASSESSMENT IN WBE

557-036: Introduction of Summative and Formative Web-based Assessment to the Circuit Theory Course
J. Rutkowski and K. Moscinska ...................................... 395
<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>557-031</td>
<td>Evaluation of Biochemistry Web-based Course Units in Medical Education – A Comparison</td>
<td>A.W. Koeblng, J. Krueckeburg, G. Meyer, and H.K. Matthies</td>
<td>401</td>
</tr>
<tr>
<td>557-047</td>
<td>E-Portfolio to Assess Professional Competences in University Virtual Classrooms</td>
<td>E. Barberà, T. Guasch, and A. Espasa</td>
<td>406</td>
</tr>
<tr>
<td>557-055</td>
<td>Constructing Learning Objects for Adaptive Assessments</td>
<td>H.G. Barbosa León, F.J. García Penaño, M.J. Rodríguez Conde</td>
<td>410</td>
</tr>
<tr>
<td>557-177</td>
<td>A Trusted Assessment Environment in a Network-Booted OS</td>
<td>G. Biacchi, P. Grew, and E. Pagani</td>
<td>415</td>
</tr>
<tr>
<td>557-082</td>
<td>A Learning Evaluation Framework to Support the SchoolSense@Internet Project</td>
<td>C.A. Gomes, M.J. Marcelino, M.J. Silva, and F. Lima</td>
<td>421</td>
</tr>
<tr>
<td>557-127</td>
<td>Designing a Summative Evaluation Tool for the Online Class</td>
<td>A. Saleh and M. Lamkin</td>
<td>433</td>
</tr>
<tr>
<td>557-088</td>
<td>Adapting an Open-Source Web-based Assessment System for the Automated Assessment of Programming Problems</td>
<td>O. Goteland and C. Scharff</td>
<td>437</td>
</tr>
<tr>
<td>557-078</td>
<td>Reorganizing and Consolidating Faculty Development to Support Online Teaching and Learning: One University’s Experience</td>
<td>A.T. McFadden, J. LeBaron, B.T. Lofquist, and P. Brown</td>
<td>443</td>
</tr>
</tbody>
</table>

**BLENDED EDUCATION**

<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>557-033</td>
<td>SSS Website: An Online Community which Supports Successful Extensive Reading for Learning English</td>
<td>A. Furukawa, H. Nishizawa, H. Uruno, and T. Yoshioka</td>
<td>449</td>
</tr>
<tr>
<td>557-043</td>
<td>Acculturated Blended Learning: Localizing a Blended Learning Course for Russian Trainees</td>
<td>J.B. Struther, Z. Fazal, and M. Gurevich</td>
<td>455</td>
</tr>
<tr>
<td>557-065</td>
<td>A Practical Experience of Usage and Evaluation of the USABLE Course</td>
<td>L. Sommaruga and N. Catenazzi</td>
<td>461</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>557-044</td>
<td>A Blended Education Approach to Teaching Second-Level Accounting at the University of South Africa</td>
<td>P. Prinsloo and A.A. van Rooyen</td>
<td>466</td>
</tr>
<tr>
<td>557-125</td>
<td>A Blended Learning Approach to Teaching K. Fraser</td>
<td>K. Fraser</td>
<td>470</td>
</tr>
<tr>
<td>557-807</td>
<td>The Web-based Knowledge Map: The Combination of Practise-Oriented and Scientific Knowledge</td>
<td>S. Sattari, W. Backhens, K. Henning, P. Fabian, E. McQuade, P. Pimenia, and E. Sjoer</td>
<td>475</td>
</tr>
</tbody>
</table>

**INNOVATIVE SOFTWARE AND HARDWARE SYSTEMS AND TOOLS FOR WBE**

<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>557-123</td>
<td>Web-based Education System for Elementary Mathematics</td>
<td>Y. Okuyama, T. Nagahama, and M. Kitamura</td>
<td>481</td>
</tr>
<tr>
<td>557-081</td>
<td>Teaching Programming using Visualization</td>
<td>A. Rudder, M. Bernard, and S. Mohammed</td>
<td>487</td>
</tr>
<tr>
<td>557-164</td>
<td>Design Concept of a Course Visualization Platform</td>
<td>O. Yamakawa, M. Kikusawa, T. Tanaka, K. Yasutake, T. Sumiya, T. Tagawa, and H. Inoue</td>
<td>499</td>
</tr>
<tr>
<td>557-154</td>
<td>Graphical Drawings on Web Browsers using AJAX Techniques</td>
<td>N. Osawa and K. Asai</td>
<td>511</td>
</tr>
<tr>
<td>557-050</td>
<td>An Intelligent Tutoring System for Education by Web</td>
<td>W. Fajardo Contreras, E. Gibaja Galindo, E. Marin Caballero, and G. Marin Caballero</td>
<td>522</td>
</tr>
<tr>
<td>557-805</td>
<td>Organisational Knowledge Management System for E-Learning Practice in Universities</td>
<td>T. Okamoto and T. Ninomiya</td>
<td>528</td>
</tr>
</tbody>
</table>
557-808: An Innovative Training System by Digital Terrestrial Television: TSC-Learning
M. Recchioni, N. Casalino, V. Castello, and M. Roscani .............................................. 537

COLLABORATIVE LEARNING

557-056: Development of a Collaborative Platform for Art Education: From Pedagogy to Technology
C.B. Price .............................................. 543

557-039: Ad Hoc Transient Communities to Enhance Social Interaction and Spread Tutor Responsibilities
P. Sloep, L. Kester, F. Brouns, P. van Rosmalen, F. de Vries, M. de Croock, and R. Koper .............. 548

557-170: Collaborative E-Learning as a Driving Force Towards Standardisation and Higher University Standards
B. Ask and H. Haugen .................................. 555

557-809: Evaluating Exploratory Learning in LAVA
K. Getchell, J. Nicoll, C. Kerbey, A. Miller, C. Allison, R. Sweetman, and R. Michaelson ............... 561

557-112: An Attempt to Enhance Conversation in CSCL Text Chat by Displaying Learners' Typing Process
W. Tsukahara, S. Akamatsu, K. Sakurada, X. Wang, H. Ito, and T. Okamoto ............................. 568

557-077: The Development of a Collaborative Learning Environment through the TE3 Funding Initiative
R. Harris .............................................. 574

557-144: Promoting Critical Thinking with Computer Mediated Communication Technology
W.W. Goh, B. Dexter, and W.D. Murphy .................. 580

557-171: Collaborative Support Among Distance Teaching Assistants with a Dialog Pattern-based Bulletin Board Tool
R. Takaoka, K. Kusano, and T. Okamoto .................. 586

SPECIAL SESSION: CURRENT ADVANCEMENT OF ICT IN CHILDHOOD EDUCATION

557-801: WALe - A Problem-Oriented Computer-based Learning Environment to Foster Quality of Interpretation and Argumentation
R. Stark and B. Koch .................................. 592

557-812: Towards Personalized Feedback in Educational Computer Games for Children
E. Vasilyeva ........................................... 597


557-814: Development Recording Support System Stage Adaptable (DRESS-SA) Proposal based on a Web Service Concept
A. Muranishi, K. Shintani, A. Kono, H. Haga, and S. Kaneda ............................................ 609

557-815: Direction Detection Method using Active RFID
K. Hashizume, S. Kaneda, and H. Haga .................. 615

557-816: Child Watching Support System with Dynamic Routing of Motion Pictures
A. Kaneko and S. Kaneda ................................ 621

557-817: Children Observation Support System using Multiple Cameras COSS-MC
M. Hirano, K. Shintani, H. Nakao, S. Ohta, S. Kaneda, and H. Haga ................................. 627

SIXTH INTERNATIONAL COMPETITION OF PH.D. STUDENTS IN WBE AREA

557-034: An Integrated Platform, Implementing Real, Remote Lab-Experiments for Electrical Engineering Courses
D. Karadimas and K. Efstathiou .......................... 631

557-095: Contribution to the E-Learning Brokerage Systems using Semantic Technologies
J.M. Santos, L. Anido, and M. Llamas .................. 637

557-105: Children's Navigation of Hyperspace – Are Spatial Skills Important?
S. Jones and G.E. Burnett ............................... 643

557-147: Tracking, Analyzing, and Visualizing Learners' Activities on Discussion Forums
M. May, S. George, and P. Prévôt ......................... 649

557-161: The e-Maturity of the Organization as Barometer of the e-Readiness of Warehouse Workers
H.B. Moolman and A.S. Blignaut ........................ 657

ADDITIONAL PAPER

557-182: The Influence of Feature-Rich Computerized Glosses on Reading Comprehension and Vocabulary Acquisition
E. Ben Salem and R. Aust ................................ 663

AUTHOR INDEX .......................................... 669