Using the Internet as a data gathering tool to Research an online Collaborative Learning Environment: Advantages and Pitfalls ................................................. 626
Ieda Santos, University of Warwick, UK; John LeBaron, College of Education and Allied Professions Western Carolina University, USA

Development of an Online Adaptive Vocabulary Test System ............................................. 632
Won-shuenn Wu, Chung Hua University, Taiwan

SCIENCELAB - an educational virtual laboratory .......................................................... 638
Carmen Ciubotariu, Philip Daum, University of Calgary, Canada

RODP: Meeting the Needs of the Online Learner .......................................................... 639
Carol Helton, Rayleen Henry, Tennessee Board of Regents, USA

Experience with WINDS Virtual University ................................................................. 642
Milos Kravcik, Marcus Specht, Fraunhofer FIT, Germany

A Critical Evaluation of Student Support Services provided by the National Open University of Nigeria (NOUN) ......................................................... 650
Godwin Ogieva, Ministry of Education (IT & Distance Learning Section), Post-Primary Education Board and Government Science and Technical College, Nigeria

What makes online learning a success: profiling successful online learners? .................. 655
Ramesh Sharma, Indira Gandhi National Open University, India

Applying Pedagogical Models in Network-Based Education: Research Findings from the Finnish HeliLa Project Case Studies ........................................ 656
Varpu Tissari, Sanna Vahtivuori-Hänninen, University of Helsinki, Finland; Virpi Vaattovaara, Heli Ruokamo, University of Lapland, Finland; Seppo Tella, University of Helsinki, Finland

HUMAN-COMPUTER INTERACTION (HCI/CHI)

A Conceptual Framework for Scaffolding Critical Thinking in an Online Conference for a Science Education Methods Course ......................................................... 664
Charoula Angeli, Nicos Valanides, Department of Education, University of Cyprus, Cyprus

Virtual Community: Re-Interpreting the Learning Relations ........................................ 670
Luciana Backes, Eliane Schlemmer, Universidade do Vale do Rio dos Sinos, Brazil; Susane Martins Lopes Garrido, Universidade do Vale do Rio dos Sinos/Universidade Federal do Rio Grande do Sul, Brazil

A Role for Weblogs in Electronic Course Delivery .......................................................... 677
Philip Barker, University of Teesside, UK

Analysis of Interactions Patterns in Video-Mediated Virtual Communities to Model Social Capital .................................................................................. 683
Ben Daniel, Ben Daniel, ARIES Lab, University of Saskatchewan, Canada; Nancy Poon, Nancy Poon, Department of Sociology, University of Saskatchewan, Canada

The Distance Education Electronic Portal: A Study of the Communicative Dimensions in an Asynchronous Forum Board ......................................................... 689
Soon Fook Fong, Zuraidah A. Rahman, Hanafi Atan, Ahmad Hj. Mohamad, Zulham Hamdan, Rozhan M. Idrus, Universiti Sains Malaysia, Malaysia

From Post-mortem Daguerreotypes to Post-modern Deconstructions: Students Make Documents Reveal ................................................................. 696
Ken Golden, Queensborough Community College, USA

Instant Messaging Use and Its Effect on Student Participation in Online Group Work .... 701
Stefan Hrastinski, Jönköping International Business School, Sweden

Research on Computer-Mediated Communication in Education: Summarizing the Past to Prepare for the Future ................................................................. 707
Stefan Hrastinski, Jönköping International Business School, Sweden

Familiarity among participants on a BBS: Analysis of relationship between depth of self-disclosure of questions and replies ......................................................... 715
Shogo Kato, Kanji Akahori, Tokyo Institute of Technology, Japan

Effects of Emotional Transmissions between Senders and Receivers on Emotions Experienced in E-mail Communication ......................................................... 723
Yuuki Kato, Kanji Akahori, Tokyo Institute of Technology, Japan

Awareness Support for Student Led Online Conferencing ............................................. 731
Kimmo Koivunen, University of Tampere, Finland
Student Knowledge Construction during Asynchronous Online Discussions in a
Face-to-Face course ........................................... 739
Swapna Kumar, Boston University, USA

Factors That Affect Students Involvement in Synchronous Online Communication .............. 743
Pei-Lin Liu, Hsing-Kuo University of Management, Taiwan; Chiu-Jung Chen, University of Southern California, Taiwan

What Email Can Do for Foreign Language Writing .................................................. 748
Jia Ma, Faculty of Education, Queen’s University, Canada

Students Taking Control: Patterns in Students’ Questions in Online Math Help .................. 754
Dragana Martinovic, Sheridan College, Canada

The Pre-Service Training of Foreign Language Teachers in CMC Learning Environments ........ 762
Francesca Mastrogiacomi, UCSC - Università Cattolica del Sacro Cuore di Milano IT, Italy

An Analysis of Student Practices in Asynchronous Computer Conferencing Environments .......... 778
Vanessa Peters, Jim Hewitt, Ontario Institute for Studies in Education of the University of Toronto (OISE/UT), Canada

Modelling writing as the basis for a writing tutor computer program .............................. 786
Dee Pratt, Durban Institute of Technology, South Africa

Mariá and ET: Evaluating Conversational Agents ....................................................... 792
Soraia Raupp Musse, UNISINOS, Brazil; Susane Garrido, UFRGS - UNISINOS, Brazil; Eliane Schlemmer, Marcelo Borba, Felipe Bica, Fabio Boehl, Rodrigo Almeida, UNISINOS, Brazil

Instant Messaging in distributed and distance language learning ........................................ 800
Klaus-Dieter Rossade, Barbara Heins, Regine Hampel, The Open University, UK

Effect of Visualizing Social Interaction on Bulletin Board Systems to Enhance Social Presence of the User .............................................................. 814
Kouki Sato, Kanji Akahori, Dept. of Human System Science, Graduate School of Decision Sciences and Technology, Tokyo Institute of Technology, Japan

Bimodal text and speech conversation during on-line lectures .......................................... 822
Russell Schick, University of Toronto, Canada; Dominique Scheffel-Dunand, York University, Canada; Ron Baecker, University of Toronto, Canada

Best Practices in Teaching Online Students about Online Learning ................................... 830
Kristen Sosulski, Ann Clarkson, New York University, USA

The Development of Perceptions of Social Presence in Online Course Discussions .............. 836
Karen Swan, Research Center for Educational Technology, USA; Li Fang Shih, University at Albany, Taiwan

Effects of CMC on Students’ Attitudes to School and Behavior in a Virtual Mentoring Program .......................................................... 844
Sophia Tan, Coastal Carolina University, USA

Opportunities and Challenges of Online Mentoring in Teacher Education ......................... 848
Marty Thomas, The University of Georgia, USA

A Blended Learning Environment for a Science Education Methods Course: Content Analysis of a Text-Based Online Conference ............................................................... 854
Nicos Valanides, Charoula Angeli, Department of Education, University of Cyprus, Cyprus

Does technology transform dialog? Transposing face-to-face interviews into email interviews in qualitative investigation ................................................................. 856
Nicolas Vieuville, Laboratoire des Sciences de la Communication, France; Laurent Morillon, Laboratoire LERASS, France; Sylvie Leleu-Merviel, Michel Labour, Laboratoire des Sciences de la Communication, France

A ubiquitous discussion forum: Introducing mobile phones and voice discussion into a web discussion forum .............................................................. 867
Fu-Hsiang Wei, Gwo-Dong Chen, Po-Yao Chao, Chih-Wei Chang, Department of Computer Science and Information Engineering, National Central University, Taiwan

Coalescent media & the design of computer mediated education ........................................ 875
Eric Wignall, Purdue University Calumet, USA

The Effects of Internet-based Desktop Videocference on EFL Students’ Oral Skills in Terms of Linguistic Accuracy, Fluency and Complexity ........................................... 882
Mingli Xiao, Xiangui Yang, Ohio University, USA
E-Learning: Learning How to Think through Interaction via Computer Conferencing
Ya-Ting Yang, Heng-An Chou, National Cheng Kung University, Taiwan

Remote Work System for High School Students
Jason Yeung, Bertha Konstantinidis, Deborah Fels, Centre for Learning Technologies, Ryerson University, Canada

Learning from Animated/Static Diagrams in Computer Aided Learning Environments: Can Instructional Methods make a Difference to ‘Accurate’ and ‘Meaningful’ Learning?
Ruqiyaibi Naz Awan, Brett Stevens, University of Portsmouth, UK

Fostering Creativity in Learning Media: Applying Insights Learned From Creative Design
Jeffrey Bardzell, Shaowen Bardzell, Indiana University, USA

Streamlined Web Design: A Study of Expert Visual Designers Developing Web Site Interfaces
Joanne Beriswill, University of Toledo, USA

Unlocking visual interface design principles for technology students
Joanne Beriswill, University of Toledo, USA

The Challenging Marriage of Interaction Design and Learning Design in Multimedia Educational Products
Allison Brown, Queensland University of Technology, Australia

When can animation improve learning? Some implications on human computer interaction and learning
Margaret Chan, Columbia University, USA; John Black, Teachers College Columbia University, USA

Learner Recognition of Presentation Content With Alternative Text/Background Combinations
Ming-Jay Chang, John Taylor, University of Northern Colorado, USA

An Evolutionary Approach to the Design of E-Learning Environments and Knowledge Tools
Koen DePryck, CVO Antwerpen-Zuid, Belgium

Understanding informal learning with technology: Insights for ICT integration
Robert Fitzgerald, University of Canberra, Australia

Three-Dimensional Computer-Based Animations: A Study of Mental Visualisation Performance
Soon Fook Fong, Abdul Hadi, Seong Chong Toh, Hanafit Atan, Rozhan M Idrus, Universiti Sains Malaysia, Malaysia; Kean Chern Fong, Multimedia University, Malaysia

Imagining a Science of Instructional Design
Franca Garzotto, Politecnico di Milano, Italy; John Hedberg, Macquarie University, Australia; Yong Zeng, Concordia Institute for Information Systems Engineering, Canada

Learning Management Systems Learnability: Requirements from Learning Theories
Said Hadjerrouit, Agder University College, Faculty of Mathematics and Sciences, Norway

The Effectiveness of Knowledge Technologies in Accommodating Learning Styles
Bettie Hall, Joyce Pittman, University of Cincinnati, USA

Towards a Framework for Improving the Design of Programming Exercises
Roland Kitstermann, Dietmar Ratz, Detlef Seese, University of Karlsruhe (TH), Germany

Relations among Flow, Information Processing Strategies, and Performance in a Computer-based Simulation Game
Insook Lee, Sejong University, Korea (South); Hyuk-Jun Kwon, Korea Institute of Curriculum & Evaluation, Korea (South)

The Design Factors of the Initial Trust in the Internet environment
Juinde Lee, Graduate Institute of Communication Studies, National Chiao Tung University, Taiwan, Taiwan; Yu-chen Huang, Graduate Institute of Communication Studies, National Chiao Tung University, Taiwan

Boundary Learning in an Online Community of Practice
Meng-Fen Lin, University of Houston, USA

The Effect of Teaching Metacognitive Learning Skills on the Performance of Online Learners Demonstrating Different Levels of Self Regulated Learning (SRL)
Claude Martel, Concordia University, Canada

The technical and pedagogical usability criteria for digital learning material
Petri Nokelainen, University of Tampere, Research Centre for Vocational Education, Finland
Revisiting Activity Theory As a Theoretical Framework For Designing Goal-Based Simulations
Jonghwi Park, McGill University, Canada

Cognitive Style’s influence on Media Preference: Does it matter or do they know?
Michael M. Phillips, Michigan State University, USA

The Design of Digital Tools for the Primary Writing Classroom
Janet Read, Matthew Horton, Emanuela Mazzone, University of Central Lancashire, UK

Bucket or Funnel-Based? Creating Task-Oriented Online Courses
Martha Sammons, Wright State University, USA; Marci Sammons, Miami University, USA

Digital Text Presentation for Learning
Miriam Schcolnik, Sara Kol, Tel Aviv University, Israel

Micro-Level Design of Interactive Visual Learning Environments
Kamran Sedig, Sonja Rowhani, University of Western Ontario, Canada

Design Guidelines for a Children's Programming Environment
Robert Sheehan, University of Auckland, New Zealand

Another Brick in the Courseware OR How to Create Reusable Learning Objects
Claudia Steinberger, University Klagenfurt, Austria; Judit Bajnai, University Vienna, Austria; Wolfgang Ortner, FH Joanneum, Austria

A design framework generated from the conceptual framework for the design and development of an interactive multimedia neonatology tutorial, supported by the design experiment methodology, in a South African Higher Education Institution
Duan Van der Westhuizen, University of Johannesburg, South Africa

Designing for Teacher Presence, Re-thinking the Design of Online Courses
Frank Wright, Marie-Pierre Huguet, Rensselaer Polytechnic Institute, USA

Instructional Design Principles Towards Intrinsic Motivation
Hanan Yaniv, University of Calgary, Canada

Considering The Current Status Of CMS In Terms Of Technology Life Cycle And From A User-Centered Approach
Dai Zhang, Steven Shaw, Concordia University, Canada

Enhancing the Human Element in Remote Training via Satellite-mediated Interactive Distance Learning (IDL) in Central Australia
William Bean, Charles Darwin University, Australia; Juhani Tuovinen, Batchelor Institute of Indigenous Tertiary Education, Australia

Luca Botturi, University of Lugano, Switzerland

Investigating Students’ Use of Information and Communication Technologies (ICTs):
How to enlarge the picture?
Périne Brotcorne, Université Libre de Bruxelles, Belgium

Involving Preschoolers in Design of Interactive Multimedia for Learning: An Activity-Driven Approach
Sandra Cairncross, Suzanne Waugh, School of Computing, Napier University, UK

The impact of the technology acceptance model (TAM) in determining the success or failure of computer-integrated education
Rabelani Dagada, University of South Africa, South Africa

An Ongoing Research on the Behavior of Students with ADHD Symptoms While Working with ICT
Fotini Garagouni-Areou, Christina Solomomidou, University of Thessaly, Greece

Web-Based Educational Software in Computer Science: Technical and Pedagogical Usability
Said Hadjerrouit, Agder University College, Faculty of Mathematics and Sciences, Norway

The learning effect of cognitive load under different structure hypertext environments
Ah-Fur Lai, Yu-Juin Huan, Taipei Municipal Teachers College, Taiwan

Evaluating students’ problem solving ability on the earthquake related topics through Web-based testing
Ming-Chao Lin, Chun-Yen Chang, Department of Earth Sciences, National Taiwan Normal University, Taiwan; James P. Barufaldl, Center for Science and Mathematics Education, The University of Texas at Austin, USA; Jing-Ye Jhan, Yi-Chun Chen, Yi-Shin Chien, Department of Earth Sciences, National Taiwan Normal University, Taiwan
Audience response systems for large enrollment undergraduate classes – does it make a difference? .......................................................... 1155

Jacques Morin, University of Chapel Hill, USA

Attention Metadata Management: Tracking the use of Learning Objects through Attention.XML .................................................. 1157

Jehad Najjar, Michael Meire, Erik Duval, Computer Science Department, K.U.Leuven, Belgium

Improving the Design of Web-based Games and Simulations through Usability Research .......... 1162

Ron Owston, York University, Canada; Andre Kusniruk, University of Victoria, Canada; Francis Ho, York University, Canada; Kevin Pitts, Seneca College, Canada; Herb Wideman, York University, Canada

Evaluating VLEs: Problems and Solutions ........................................... 1168

Rachel Ellaway Rachel, David Dewhurst, The University of Edinburgh, UK

A User-Centered Content Architecture for an Academic Digital Research Portal .................. 1172

Erika Rogers, Mary Somerville, Alissa Randles, California Polytechnic State University - SLO, USA

Accessibility of a graduate school website for users with disabilities: developing guidelines for user testing ........................................... 1178

Bernadette Sibuma, David Boxer, Paul Acquaro, Guillermo Creus, Teachers College, Columbia University, USA

Evaluating Usability, Fun and Learning in Educational Software for Children .................. 1180

Gavin Sim, Stuart MacFarlane, Matthew Horton, University of Central Lancashire, UK

Iterative Usability Evaluation Methods Applied to Learning Technology Development .......... 1188

John Sullivan, Richard Hall, Michael Hilgers, Ronaldo Luna, Matt Buechler, William Lawrence, University of Missouri - Rolla, USA

How to integrate games or game elements in educational multimedia: a typology of educational game use ........................................... 1194

Bert Wylin, Piet Desmet, K.U.Leuven Campus Kortrijk, Belgium

Exploring learner preferences about the forms of instructional structure, interaction and cognitive process in the web-based learning environment ........................................... 1200

Fang-Ying Yang, Cheng-Chieh Chang, National Taiwan Normal University, Taiwan; Chin-Chung Tsai, National Chiao-Tung University, Taiwan

The Effect of Online Instruction Interface Design on Future Teachers’ Cognitive Learning Outcome .................................................. 1207

Hope Adams, Jane Strickland, Albert Strickland, Idaho State University, USA

Augmenting Whiteboard Interaction in the Classroom .................. 1214

Henning Breuer, University of Applied Sciences Potsdam, Germany; Nelson Baloin, University of Chile, Chile

Online Science News in the Classroom: Human Computer Interaction Design Issues .......... 1222

Sebastian de la Chica, Torin Chichirico, Phong Le, Jerry Sun, Huda Khan, University of Colorado, USA

Adaptive Website Chunking: What You See is What You Need .......... 1230

Joseph Frantiska Jr., Fitchburg State College, USA

Interactive Instructional Design Using Director: A Multimedia Software .................. 1234

Kumuda Gururao, S.I.T.U. Council of Educational Research, India

3D interface inspired by Constructivist Art Principles .................. 1237

Gray Hodgkinson, Massey University, New Zealand

The effects of verbal metaphor on learners’ development of mental models .................. 1243

Yu-chen Hsu, National Tsing-Hua University, Taiwan

The impacts of using a technology-supported advance organizer on teachers’ performance in classroom behavior management .......... 1249

Wei-Chen Hung, Northern Illinois University, USA

Cultural Visual Interface Design .................................................. 1255

Irina Kondratova, National Research Council Institute for Information Technology e-Business, Canada; Ilia Goldfarb, National Research Council Institute for Information Technology e-Business, Canada

Methodology for analyzing Children’s understanding of computer Interfaces .......... 1263

Kristin Lester, Shuli Gilutz, John Black, Teachers College, USA

Clio’s Worlds: 3D Visualizations of Student Web Usage .................. 1269

Devin Lindsey, Samuel Rebelsky, Grinnell College, USA

Representing Rolling Sequences of Polyhedra to Support Mathematics Comprehension ........ 1279

Jim Morey, University of Western Ontario, Canada

Interaction and Interactivity in Online Mathematical Applets: Two Sides of the Same Coin .......... 1284

Parul Nanda, Hai-Ning Liang, Kamran Sedig, The University of Western Ontario, Canada
Features of Visualization that Help Object Oriented Programming Learning ........................................ 1291
Vijayakumar Shanmugasundaram, Concordia College, USA; Paul Juell, North Dakota State University, USA;
Daniel Aalderks, Concordia College, USA; Aldridge Wilder, Matthew Dimich, Michael Westhoff, Concordia College,
USA

A development method of a metaphorical search engine ................................................................. 1298
Asuka Terai, Masanori Nakagawa, Tokyo Institute of Technology, Japan

The Effects of Emotional Factors in Notification Systems ............................................................... 1304
Chin-min Tseng, Institute of Information System and Application, National Tsing Hua University, Taiwan; Yu-chen
Hsu, National Tsing Hua University, Taiwan

Cross cultural comparison of the effects of computer apology ....................................................... 1310
Jeng-Yi Tseng, Center for Teacher Education, National Tsing-Hua University, Taiwan, Taiwan

Interacting with Web Pages Manifesting Personalities by Visual Elements .................................... 1317
Fang-Yu Wen, Yu-Chen Hsu, National TsingHua University Institute of Information Systems and Applications,
Taiwan

INDIGENOUS PEOPLES & TECHNOLOGY

Digital Album: Analyzing the Use of Technology to Encourage Language Acquisition
within a Family Literacy Program ......................................................... 1324
Marguerite Cahill, Texas State University - San Marcos, USA

Using multimedia to solve daily problems of Community Multimedia Centres in Western
Africa ........................................................................................................ 1327
Isabella Rega, Claudio Del Don, University of Lugano, Switzerland

Digital Learning Resources: Enriching the Appreciation of Aboriginal Canadian
Literature for Undergraduate Students ......................................................................................... 1333
Andrea Ruskin, University of Alberta, Canada

Community Perceptions of Student Multimedia Technology Projects in a Remote First
Nations Village ......................................................................................... 1336
Tish Scott, University of Victoria, Canada

Multimedia for Teaching and Learning Kadazandusun Language .............................................. 1342
Asni Tahir, Siti Hasnah Tanalol, University Malaysia Sabah, Malaysia

Walking Together: LAMS, Learning and Experience for Indigenous Students ............................. 1350
Angela Voerman, Robyn Philip, Macquarie University, Australia

INFRASTRUCTURE

BioMat a Multi-Mode Educational Game ......................................................................................... 1359
Ana Breda, Eugênio Rocha, University of Aveiro, Portugal; Martins José, Universidade de Aveiro, Portugal

Integrating Mobile Devices in a multi-platform Learning Management System using web
services ........................................................................................................ 1367
Luigi Colazzo, Andrea Molinari, Dept. Computer and Management Sciences, Italy; Marco Ronchetti, Department of
Information and Communication Technology, Italy

RECAL: Architecting Teaching Materials for the Future ................................................................. 1373
David Dewhurst, Rachel Ellaway, Stewart Cromar, MVMLTS, The University of Edinburgh, UK

Establishing Learning Objectives via Use Case Analysis for a Homeland Security Training
System ......................................................................................................... 1380
Michael Hilgers, Richard Hall, University of Missouri Rolla, USA

Developing learning models from World Wide Web for empowering E-learning ......................... 1386
Shu-Sheng Liaw, China Medical University, Taiwan; Hsiu-Mei Huang, Department of Management, National
Täichung Institute of Technology, Taiwan

Multimedia Learning Object Metadata Management and Mapping Tool .................................... 1392
Xiaofei Liu, Abdulmotaleb El Saddik, University of Ottawa, Canada