

TAMARA SUMNER

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BACKGROUND

I lead an interdisciplinary research and development lab that studies how computational tools – combining cognitive science, machine intelligence, and interactive media – can improve teaching practice, learning outcomes and learner engagement. Inquiry Hub (inquiryhub.dls.ucar.edu), formerly known as Digital Learning Sciences, is a mission-centered, research-practice partnership involving faculty and students from the University of Colorado Boulder, scientific and technical staff from the University Corporation for Atmospheric Research (UCAR¹), and educators and administrators from Denver Public Schools. Our research and development team combines expertise in cognitive science, learning sciences, science education, user-centered design and evaluation, digital content management, software engineering, educational data mining, and machine learning/natural language processing.

I am also a Professor at the University of Colorado, with a joint appointment between the Institute of Cognitive Science and the Department of Computer Science. I am currently serving as the Director of the Institute of Cognitive Science. My research and teaching interests include personalized learning, learning analytics, cyberlearning environments, educational digital libraries, scholarly communications, human-centered computing, and interdisciplinary research methods for studying cognition. I have written 140 articles on these topics, including over 80 peer-reviewed scholarly publications.

PROFESSIONAL PREPARATION

Dec 1995	Ph.D. in Computer Science, University of Colorado at Boulder Designers and Their Tools: Computer Support for Domain Construction Advisor: Professor Gerhard Fischer
Dec 1992	M.S. in Computer Science, University of Colorado at Boulder
June 1985	B.A. in Computer and Information Science, University of California, Santa Cruz
June 1982	B.S. in Earth Science, University of California, Santa Cruz College Honors

APPOINTMENTS

2016 - Present	Professor, Institute of Cognitive Science and Department of Computer Science, University of Colorado at Boulder
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¹ UCAR manages the National Center for Atmospheric Research (NCAR: a federally funded research and development center) and operates programs supporting STEM education and training.

2016 - Present Director, Institute of Cognitive Science, University of Colorado at Boulder

2005 - 2016 Associate Professor, Institute of Cognitive Science and Department of Computer Science, University of Colorado at Boulder

2001 - Present Visiting Scientist, University Corporation for Atmospheric Research Boulder, CO

2005-2016 Executive Director, Digital Learning Sciences

1999 - 2005 Assistant Professor, Institute of Cognitive Science and Department of Computer Science, University of Colorado at Boulder

1999 - 2005 Affiliate Faculty, Knowledge Media Institute The Open University, Milton Keynes, UK

1998 Acting Director, Knowledge Media Institute The Open University, Milton Keynes, UK

1996 - 1998 Lecturer, Permanent Post, Knowledge Media Institute The Open University, Milton Keynes, UK

1994 - 1995 Research Assistant, Center for LifeLong Learning and Design University of Colorado at Boulder

1993 - 1995 Member Technical Staff, Owen Research, Inc. Boulder, CO

1990 - 1994 Research Assistant, Human-Computer Communication Group University of Colorado at Boulder

1984 - 1990 Member Technical Staff, Santa Clara Information Systems Division Hewlett-Packard, Santa Clara, CA

1984 Internship, Sorcim San Jose, CA

1983 Internship, Sierra On-Line Coarsegold, CA

REFEREED JOURNAL ARTICLES AND BOOK CHAPTERS

TOTAL: 45

Severance S, Penuel WR, Sumner T, Leary H. "Organizing for Teacher Agency in Curricular Co-Design." Journal of the Learning Sciences. 25 (4) (January 01, 2016): 531-564.

Dibie O, Sumner T. "Using weak ties to understand the resource usage and sharing patterns of a professional learning community." Social Network Analysis and Mining. 6 (1): 27 pages.

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- Sultan, Arafat Md , Steven Bethard, and Tamara Sumner. 2014. 'Back to Basics for Monolingual Alignment: Exploiting Word Similarity and Contextual Evidence', *Transactions of the Association for Computational Linguistics*, 2: 219-30.
- Wetzler, P., S. Bethard, H. Leary, K. Butcher, S. Danesh, J. Zhao, J. H. Martin, and T. Sumner. 2013. 'Characterizing and Predicting the Multi-faceted Nature of Quality in Educational Web Resources', *ACM Transactions on Interactive Intelligent Systems*, 3: 1-25.
- Mauil, K. , M. G. Saldivar, and T. Sumner. 2012. 'Automated Approaches to Characterizing Educational Digital Library Usage: Linking Computational Methodologies with Qualitative Analyses', *International Journal of Digital Libraries*, 13: 51-64.
- Okoye, I., K. Mauil, J. Foster, and T. Sumner. 2012. 'Educational Recommendation in an Informal Intentional Learning System.' in Olga C. Santos and Jesus G. Boticario (eds.), *Educational Recommender Systems and Technologies: Practices and Challenges* (IGI Global: aDeNu Research Group, Spanish National University for Distance Education (UNED), Spain): 1-23.
- Saldivar, M.G., K. Mauil, B. Kirshner, and T. Sumner. 2012. 'A two-dimensional framework for evaluating teachers' technology adoption.' in M. Orey, S.A. Jones and R.M. Branch (eds.), *Educational Media and Technology Yearbook* (Springer: New York, NY): 49-65.
- Butcher, K., and T. Sumner. 2011a. 'Self-Directed Learning and the Sensemaking Paradox', *Human Computer Interaction*, 26: Pages 123-59.
- Butcher, K., and T. Sumner. 2011b. 'How does prior knowledge impact students' online learning behaviors?', *International Journal of Cyber Behavior, Psychology and Learning*, 1: Pages 1-18.
- Ahmad, Faisal, T. Sumner, and H. Devaul. 2009. 'New Roles of Digital Libraries.' in Yin-Leng Theng, Schubert Foo, Dion Dion Goh and Jin Cheon Na (eds.), *Handbook of Research on Digital Libraries: Design, Development and Impact* (Information Science Reference; 1 edition (January 30, 2009): Hershey, PA): 520-32.
- Butcher, K., S. de la Chica, F. Ahmad, Q. Gu, T. Sumner, and J. Martin. 2009. 'Conceptual Customization for Learning with Multimedia: Developing individual instructional experiences to support science understanding.' in R. Zheng (ed.), *Cognitive Effects of Multimedia Learning* (IGI Publishing: New York, NY): 260-87.
- de la Chica, Sebastian, F. Ahmad, T. Sumner, J. Martin, and K. Butcher. 2008. 'Computational foundations for personalizing instruction with digital libraries', *International Journal on Digital Libraries*, 9: 3-18.
- Marlino, Mary , T. Sumner, K. Kelly, and M. Wright. 2008. 'When the Music's Over.' in K. Skinner and M. Halbert (eds.), *Strategies for Sustaining Digital Libraries* (Emory University Digital Library Publications Atlanta, GA Atlanta, GA): 97-111.
- Marlino, Mary, and Tamara Sumner. 2008. 'From the Library to the Laboratory: A New Future for the Science Librarian.' in R. Katz (ed.), *The Tower and The Cloud: Higher Education in the Age of Cloud Computing* (EDUCAUSE: Boulder, CO): 190-97.
- Jessup, E. , and T. Sumner. 2007. 'Reflective Essay on the Replicability and Generalizability of the Technology for Community Course', *Annals of Research on Engineering Education*, 3: 3 pages.
- Wright, Michael, T. Sumner, R. Moore, T. Koch. 2007. 'Connecting digital libraries to eScience: The future of scientific scholarship', *International Journal on Digital Libraries*, 7: 1-4.
- Butcher, K., Sonal Bhushan, and Tamara Sumner. 2006. 'Multimedia displays for conceptual discovery: Information seeking with strand maps', *ACM Multimedia Systems Journal (Special Issue on Multimedia Technology for Education)*, 11: 236-48.

- Gu, Qianyi, Faisal Ahmad, and Tamara Sumner. 2005. 'Resource discovery in distributed digital libraries through visual knowledge navigation', *Journal of Zhejiang University: Science*, 6A: 1306-11.
- Jessup, E. , and T. Sumner. 2005. 'Design-Based Learning and the Participation of Women in IT', *Frontiers: A Journal of Women Studies, Special Issue on Gender and IT*, 26: 141-47.
- Jessup, Elizabeth, Tamara Sumner, and Lecia Barker. 2005. 'Report from the trenches: Implementing curriculum to promote the participation of women in computer science', *Journal of Women and Minorities in Science and Engineering*, 11: 273-94.
- Sumner, T., Faisal Ahmad, Sonal Bhushan, Qianyi Gu, Francis Molina, Stedman Willard, Michael Wright, Lynne Davis, and Greg Janee. 2005. 'Linking learning goals and educational resources through interactive concept map visualizations', *International Journal on Digital Libraries*, 5: 18-24.
- Coleman, A., and T. Sumner. 2004. 'Digital Libraries and User Needs: Negotiating the Future', *Journal of Digital Information, Special Issue on Digital Libraries and User Needs*, 5, No. 3, Article No. 315: 4 pages.
- Deniman, Dave, Tamara Sumner, Lynne Davis, Sonal Bhushan, and Jackson Fox. 2004. 'Merging metadata and content-based retrieval', *Journal of Digital Information*, 4: 18 pages.
- Aivazian, B. L., Ed Geary, Tamara Sumner, Michael Khoo, and S. Ireton. 2003. 'Serving K-12 education with the Digital Water Education Library (DWEL)', *Knowledge Quest*, 31: 21-22.
- Bonnardel, N., L. Lanzone, and T. Sumner. 2003. 'Designing web sites: The cognitive processes of lay-designers', *Cognitive Science Quarterly*, 3: 25-56.
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- Buckingham Shum, S., and T. Sumner. 2001. 'JIME: An interactive journal for interactive media', *First Monday*, 6: 13 pages.
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- Sumner, Tamara. 2000. 'Promoting scholarship through design', *Information, Communication & Society*, 3: 597-615.
- Sumner, Tamara, Simon Buckingham Shum, Michael Wright, Natalie Bonnardel, Aline Chevalier, and Annie Piolat. 2000. 'Redesigning the peer review process: A developmental theory-in-action.' in R. Dieng, A. Giboin, L. Karsenty and G. De Michelis (eds.), *Designing Cooperative Systems: The Use of Theories and Models* (IOS Press: Amsterdam): 19-34.
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- Fischer, G., K. Nakakoji, J. Ostwald, G. Stahl, and T. Sumner. 1993. 'Embedding critics in design environments', *The Knowledge Engineering Review Journal*, 8: 285-307.

PEER-REVIEWED CONFERENCE PROCEEDINGS ²

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- Quigley, D., Ostwald, J. Sumner, T. (2017). "Scientific modeling: using learning analytics to examine student practices and classroom variation, Proceedings of the Seventh International Learning Analytics & Knowledge Conference (LAK), Vancouver, CA, 329-338. [Nominated for Best Paper](#).
- Penuel WR, Van Horne K, Severance S, Quigley D, Sumner T. 2016. "Students' responses to curricular activities as indicator of coherence in project-based science." 12th International Conference of the Learning Sciences (12th International Conference of the Learning Sciences, June 20, 2016-June 24, 2016) .Ed.Looi CK; Polman JL; Cress U; Reimann P, Singapore: International Society of the Learning Sciences, June 27.855-858.
- Bell PA, Severance S, Penuel WR, Sumner T, Mommandi W, QUigley D, Van Horne K, Johnson R, Lakhani H, Davis K. 2016. "Researchers and practitioners co-designing for expansive science learning and educational equity." 12th International Conference of the Learning Sciences (12th International Conference of the Learning Sciences, June 20, 2016-June 24, 2016) .Ed.Looi CK; Polman JL; Cress U; Reimann P, Singapore: International Society of the Learning Sciences, June 24.1128-1135.

² Publications listed here conform to the specifications for high quality reviewed conference proceedings published by the College of Engineering and Applied Science, University of Colorado at Boulder; Acceptance rates < 30%; Available at: <http://www.colorado.edu/engineering/sites/default/files/ConferencePapers.pdf>

- Sultan MA, Boyd-Graber J, Sumner T. 2016. "Bayesian Supervised Domain Adaptation for Short Text Similarity." *Proceedings of the 2016 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL '16)* (Proceedings of the 2016 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL '16), -), 2016.927-936.
- Sultan A, Salazar C, Sumner T. 2016. "Fast and Easy Short Answer Grading with High Accuracy." *North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL '16)* (North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL '16), -), 1070-1075.
- Sultan A, Bethard S, Sumner T. 2016. "DLS@CU at SemEval-2016 Task 1: Supervised Models of Sentence Similarity." *Proceedings of the 10th International Workshop on Semantic Evaluation (SemEval '16)* (Proceedings of the 10th International Workshop on Semantic Evaluation (SemEval '16), -), 650-655.
- Danesh, S. , T. Sumner, and J. H. Martin. 2015. "SGRank: Combining Statistical and Graphical Methods to Improve the State of the Art in Unsupervised Keyphrase Extraction." In *Fourth Joint Conference on Lexical and Computational Semantics*, Denver, Colorado (June): Association for Computational Linguistics, 117-26.
- Dibie, O. , and T. Sumner. 2015. "Using weak ties to understand resource usage behaviors in an online community of educators." In *IEEEACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, Paris, France (August 25-28): IEEE Computer Press, 4.
- Sultan, Md A., S. Bethard, and T. Sumner. 2015a. "DLS@CU: Sentence Similarity from Word Alignment and Semantic Vector Composition." In *9th International Workshop on Semantic Evaluation (SemEval)*, Denver, Colorado (June): Association for Computational Linguistics, 148-53, [Winner of the shared task](#).
- Sultan, Md A., S. Bethard, and T. Sumner. 2015b. "Feature-Rich Two-Stage Logistic Regression for Monolingual Alignment." In *Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Lisbon, Portugal (September): Association for Computational Linguistics, 949-59.
- Sultan, Md A., S. Bethard, and T. Sumner. 2014a. "DLS@CU: Sentence Similarity from Word Alignment." In *Proceedings of the 8th International Workshop on Semantic Evaluation (SemEval 2014)*, Dublin, Ireland, 241-46, [Winner of the shared task](#).
- Sultan, Md A., S. Bethard, and T. Sumner. 2014b. "Towards Automatic Identification of Core Concepts in Educational Resources." In *Proceedings of the International Conference on Digital Libraries (DL 2014)*, London, United Kingdom (Sep 8 - 12, 2014): IEEE, 379-88.
- Okoye, I., S. Bethard, and T. Sumner. 2013. "Automatic extraction of core learning goals and generation of pedagogical sequences through a collection of digital library resources." In *Proceedings of the 13th ACM/IEEE-CS Joint Conference on Digital Libraries*, Indianapolis, IN (July 22-27): Association for Computing Machinery (ACM) Press, 67-76.
- Sultan, Md. Arafat, S. Bethard, and T. Sumner. 2013. "DLS@CU-CORE: A Simple Machine Learning Model of Semantic Textual Similarity." In *Proceedings of the Second Joint Conference on Lexical and Computational Semantics (*SEM)*, Atlanta, GA, USA: Association for Computational Linguistics, 176-80.
- Dibie, O., K. Maull, and T. Sumner. 2012. "Teacher Sociality and Information Diffusion in Educational Digital Libraries." In *In Proceedings of the 12th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL '12)*, Washington, DC, 27-30.

- Foster, J., A. Sultan, H. Devaul, I. Okoye, and T. Sumner. 2012. "Identifying core concepts in educational resources." In *Proceedings of the 12th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL '12)*, Washington, DC (June 10-14): Association for Computing Machinery (ACM) Press, 35-42.
- Leary, H., M. Recker, A. Walker, P. Wetzler, T. Sumner, and J. Martin. 2011. "Automating Open Educational Resources Assessments: A Machine Learning Generalization Study." In *Proceedings of 11th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2011)*, New York, NY: ACM, 283-86.
- Mauil, K., M.G. Saldivar, and T. Sumner. 2011. "Understanding digital library adoption: A use diffusion approach." In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL 2011)*, Ottawa, Canada: Association for Computing Machinery (ACM) Press, 259-68, [Nominated for the Vannevar Bush Best Paper Award](#).
- Mauil, K., M.G. Saldivar, and T. Sumner. 2010. "Online Curriculum Planning Behavior of Teachers." In *Proceedings of the Third International Conference on Educational Data Mining*, Pittsburgh, PA (June 11 - 13), 121-30, [Nominated for the Best Paper Award](#).
- Sumner, T. 2010. "Customizing Science Instruction with Educational Digital Libraries." In *Proceedings of the 10th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2010)*, *JEQ conference*, Surfer's Paradise, Brisbane, Australia, 353-56
- Bethard, S., S. Ghosh, J. H. Martin, and T. Sumner. 2009. "Topic Model Methods for Automatically Identifying Out-of-Scope Resources." In *Proceedings of the 9th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL '09)*, Austin, TX (June 15-19): Association for Computing Machinery (ACM) Press, 19-28.
- Bethard, Steven, Philipp Wetzler, Kirsten Butcher, J. H. Martin, and Tamara Sumner. 2009. "Automatically Characterizing Resource Quality for Educational Digital Libraries." In *Proceedings of the 9th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2009)*, Austin, TX (June 15-19): Association for Computing Machinery (ACM) Press, 221-30, [Winner of the Vannevar Bush Best Paper Award](#).
- de la Chica, Sebastian, F. Ahmad, J. Martin, and T. Sumner. 2008c. "Pedagogically useful extractive summaries for science education." In *Proceedings of the 22nd Meeting of the International Committee for Computational Linguistics (COLING 2008)*, Manchester, UK (August 18-22), 177-84.
- Gu, Qianyi, S. de la Chica, F. Ahmad, H. Khan, and T. Sumner. 2008. "Personalization for using digital library resources to support intentional learning." In *Proceedings of the 12th European Conference on Research and Advanced Technology for Digital Libraries (ECDL 2008)*, Aarhus, Denmark (September 14-19): Lecture Notes in Computer Science, Vol. 5713, Springer, 244-55.
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- Ahmad, F., S. de la Chica, K. Butcher, T. Sumner, and J. Martin. 2007. "Towards automatic conceptual personalization tools." In *Proceedings of the 7th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2007)*, Vancouver, BC, Canada (June 17 - 22): Association for Computing Machinery (ACM) Press, 452-61.

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- Sumner, T., M. Khoo, M. Recker, and M. Marilino. 2003. "Understanding educator perceptions of "quality" in digital libraries." In *Proceedings of the 3rd ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2003)*, edited by Catherine Marchall, Geneva Henry and Lois Delcambre, Houston, TX (May 27-31): Association for Computing Machinery (ACM) Press, 269-79, [Nominated for the Vannevar Bush Best Paper Award](#).
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- Wright, Michael, and Tamara Sumner. 2003. "Digital Library for Earth System Education (DLESE) Developers' Workshop 2003: Report sponsored by the National Science Foundation." University Corporation for Atmospheric Research (UCAR), Boulder, CO, 78 pages.

OTHER REFEREED PUBLICATIONS AND PRESENTATIONS

TOTAL: 56

- Leary, H., Sumner, T., Ringstaff, C., Brown, D., & Devaul, H. (2015). Cyber Professional Development in Inquiry Science: An Iterative Evaluation Strategy. Roundtable presentation at the American Educational Research Association annual conference, Chicago, IL, April.
- Dibie, O., K. Maull, and T. Sumner. 2014. "A computational approach to understanding and predicting the behavior of educators using an online curriculum planning tool." In *International Conference on Digital Libraries (DL 2014)*, London, United Kingdom (Sep 8 - 12): IEEE, 487-88.
- Lee, V. R., M. Recker, and T. Sumner. 2013. "Variable appropriation of an online resource discovery and sharing tool." In *Paper presented at the CSCW In Education Workshop*, San Antonio, TX (Feb 23 - 27).
- Maull, K., and T. Sumner. 2013. "Toward Predicting Test Score Gains with Online Behavior Data of Teachers." In *Proceedings of the Sixth International Conference on Educational Data Mining*, edited by S. K. D'Mello, R. A. Calvo and A. Olney, Memphis, TN (July 6 - 9), 332-33.
- Okoye, I., S. Bethard, and T. Sumner. 2013. "CU:Computational assessment of short free text answers - a tool for evaluating students' understanding." In *Second Joint Conference on Lexical and Computational Semantics (*SEM), Volume 2: Proceedings of the Seventh International Workshop on Semantic Evaluation (SemEval 2013)*, Atlanta, GA (June 9 - 14) Association Of Computational Linguistics, 603-07.
- Sellers, L., H. Leary, W. Olsen, V. Lee, M. Recker, and T. Sumner. 2013. "Understanding Teacher Use of an Online Curriculum Planning Tool." In *Poster presented at the American Educational Research Association Annual Conference (AERA 2013)*, San Francisco, CA (April 27 - May 1).
- Sumner, T., M. Wright, and D. B. Krafft. 2013. "Customizing STEM Instruction with Educational Digital Libraries." In *Poster presented at Open Repositories Annual Meeting*, Repository Island, Charlottetown, PEI, Canada (July 8 - 12).
- Ye, L., A. Walker, M. Recker, H. Leary, H. Devaul, K. Butcher, and T. Sumner. 2013. "Integrating Technology, Curriculum, and Online Resources: A Multilevel Model Study of Impacts on Science Teachers and Students " In *Poster presented at the American Educational Research Association Annual Conference (AERA 2013)*, San Francisco, CA (April 27-May 1).
- Bethard, S., I. Okoye, A. Sultan, H. Hang, J. Martin, and T. Sumner. 2012. "Identifying science concepts and student misconceptions in an interactive essay writing tutor." In *Proceeding of the Seventh Workshop on Innovative Use of NLP for Building Educational Applications*, Montreal, Quebec, Canada (June 7): Association for Computational Linguistics, 12-21.

- Recker, M., Leary, H., Walker, A., Diekema, A., Wetzler, P., Sumner, T., Martin, J. (2011). Modeling Teacher Ratings of Online Resources: A Human-Machine Approach to Quality. Paper presented at the American Educational Research Association annual meeting, New Orleans, LA.
- Malmberg, J., Odell, M., Hoadley, C., Maull, K., Dibie, O., Sundberg, C. et al. 2010. "From Learning to Research: Developing a Hybrid Teacher Professional Development Model." Presented at AGU Fall Meeting, AGU Fall Meeting Abstracts 1, 0717.
- Becker, L., R.D. Nielsen, I. Okoye, T. Sumner, and W.H. Ward. 2010. "What's Next? Target Concept Identification and Sequencing." In *Proceedings of the Third Workshop on Question Generation (QG 2010)*, Pittsburgh, PA (June 18), 35-44.
- Butcher, K., T. Sumner, K. Maull, and I. Okoye. 2010. "Conceptual personalization technology: promoting effective self-directed, online learning." In *Intelligent Tutoring Systems (ITS 2010): Lecture Notes in Computer Science 6095*, Springer-Verlag, 278-80.
- Gu, Q., F. Ahmad, and T. Sumner. 2010. "Improving Conceptual Learning through Customized Knowledge Visualization." In *WKDD '10: Proceedings of the 2010 Third International Conference on Knowledge Discovery and Data Mining*: IEEE Computer Society, 407-10.
- Okoye, I., K. Maull, and T. Sumner. 2010. "Algorithms for Robust Knowledge Extraction in Learning Environments (Young Researchers Track)." In *Proceedings of the Tenth International Conference on Intelligent Tutoring Systems: Bridges to Learning*, Pittsburgh, PA 245-47.
- Saldivar, M.G., and T.A. Sumner. 2010. "Factors influencing Earth science educators' adoption of a Web-based curriculum customization service." In *Annual Meeting of the American Educational Research Association (AERA), Division C - Learning and Instruction / Section 7: Technology Research*, Denver, CO, 12.
- Sumner, T., K. Butcher, and P. Wetzler. 2010. "Open Educational Resource Assessments (OPERA)." In *Proceedings of the Tenth International Conference on Intelligent Tutoring Systems: Bridges to Learning.*, Pittsburgh, PA, 414-16.
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- Sumner, T., H Devaul, L. Davis, and J. Weatherley. 2009. "A Curriculum Customization Service." In *Proceedings of the 9th ACM/IEEE-CS joint conference on Digital Libraries*, Austin, TX, 479.
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- Custard, M., T. Sumner, M. Marlino, and S. Chica. 2005. "Using machine learning to support quality judgments." In *Poster presentation at the National Science Digital Library Annual Meeting (NSDL)*, Denver, CO.
- Gu, Q., F. Ahmad, F. Molina, and T. Sumner. 2005. "Novel SVG visualizations for exploring distributed digital libraries." In *4th Annual Conference on Scalable Vector Graphics (SVG Open 2005)*, Enschede, Netherlands, Available at: <http://www.svgopen.org/2005/papers/guNovelVis/>.
- Sumner, T., M. R. Marlino, and M. Custard. 2005. "Developing a computational model of "quality" for educational digital libraries." In *Lecture Notes in Computer Science. Research and Advanced Technology for Digital Librarians: 9th European Conference, ECDL 2005*, edited by Andreas Rauber, Stavros Christodoulakis and A Min Tjoa, Vienna, 541-42.
- Ahmad, F., S. Bhushan, Q. Gu, and T. Sumner. 2004. "The concept space interchange protocol." In *Proceedings of the 4th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2004)*, Tucson, AZ (June 7-11_ : Association for Computing Machinery (ACM) Press, 382.
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- Renninger, A., W. Shumar, T. Sumner, M. Recker, J. Slotta, S. Nair, and M. Schlager. 2004. "Why do they come? And, what do they want?: Toward a framework for studying online participation." In *Interactive Session for Advanced Learning Technologies SIG American Educational Research Association*, San Diego, CA.
- Marlino, M. R., and T. Sumner. 2003. "A model and research agenda for educational community-based digital libraries: The Digital Library for Earth System Education." In *2003 Russian Conference on Digital Libraries (RCDL 2003) - Digital Libraries: Advanced Methods and Technologies, Digital Collections*, St. Petersburg, Russia: Fifth National Russian Research Conference.
- Marlino, M. R., T. Sumner, and M. Wright. 2003. "The Digital Library for Earth System Education." In *Poster/demonstration at ED-MEDIA 2003 World Conference on Educational Multimedia, Hypermedia and Telecommunications*, Honolulu, HI: Association for the Advancement of Computing in Education (AACE).
- Pandya, R. E., M. R. Marlino, T. Sumner, and E. McIlvain. 2003. "The Digital Library for Earth System Education: Supporting reform of geoscience education in the U.S. and internationally." In *Presentation at Earth Science for the Global Community - GeoSciEd-IV*, Calgary, Alberta, Canada: International Geoscience Education Organization.
- Sumner, T. 2003. "Briefing on User-Centered Design of the Core Portal and Results from the Evaluation Pilot Study." In *Presentation at the NSDL Annual Meeting, Washington, DC*.

- Sumner, T., S. Bhushan, F. Ahmad, and Q. Gu. 2003a. "Conceptual browsing interfaces for digital libraries. Poster presentation." In *Proceedings of the 3rd ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2003)*, Houston, TX (May 27-31): Association for Computing Machinery (ACM) Press.
- Sumner, T., S. Giersch, and C. Jones. 2003. "Steps Towards Establishing Shared Evaluation Goals and Procedures in the National Science Digital Library." In *Poster presented at the 3rd ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2003)*, Houston, TX, 407.
- Sumner, T., S. Bhushan, F. Ahmad, and Q. Gu. 2003b. "Designing a language for creating conceptual browsing interfaces for digital libraries." In *In Proceedings of the 3rd ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2003)*, Houston, TX: Association for Computing Machinery (ACM) Press, 258-60.
- Sumner, T., S. Bhushan, F. Ahmad, and L. Davis. 2003. "A comparison of two educational resource discovery systems." In *Poster presented at the 3rd ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2003)*, Houston, Texas: IEEE Computer Society, 408.
- Bhushan, S., T. Sumner, S. Hendrix, G. Johnson, and S. Vaidyanathan. 2002. "ELEN: Conceptual browsing interfaces for educational digital libraries." In *Poster presentation at the 6th European Conference on Research and Advanced Technology For Digital Libraries (ECDL 2002)*, Rome, Italy (Sep 16-18).
- Fulker, D., K. Kelly, M. R. Marliano, T. Sumner, and M. Wright. 2002. "Digital Library Initiative (DLI) Meeting: Community Support for a Community-Articulated Need." In, Portland, OR (July 2002).
- Marliano, M., T. Sumner, T. Boyd, K. Kelly, and M. Wright. 2002. "Expanding the scope of community-based digital libraries: The Digital Library for Earth System Education as a test case." In *Proceedings of the Digital Libraries, Advanced Methods and Technologies, Digital Collections: 4th Russian Conference on Digital Libraries (RCDL 2002)*, Dubna, Russia (Oct 15-17), 75-86.
- Marliano, M. R., and T. Sumner. 2002. "A development model and research and evaluation framework for educational community-based digital libraries. Paper presentation." In *Validity and Value in Education Research: 83rd Annual Meeting of the American Educational Research Association (AERA)*, New Orleans, LA.
- Marliano, M. R., T. Sumner, M. Wright, and K. Kelly. 2002. "The Digital Library for Earth System Education (DLESE): A progress report from the DLESE Program Center. Preprint." In *2002 Fall Meeting of the American Geophysical Union (AGU)*, San Francisco, CA: American Geophysical Union (AGU).
- Recker, M., T. Sumner, M. R. Marliano, F. McMartin, K. S. Roempler, G. L. Hanley, E. Hoffman, M. Mardis, and D. McArthur. 2002. "The National Digital Library for Science, Mathematics, Engineering, and Technology Education: A technology demonstration and discussion." In *Annual Meeting of the American Educational Research Association*, New Orleans, LA, (April 4, 2002).
- Wright, M., T. Sumner, D. Deniman, and M. Marliano. 2002. "The Digital Library for Earth System Education." In *Demonstration at the 6th European Conference on Research and Advanced Technology For Digital Libraries (ECDL 2002)*, Rome, Italy.
- Marliano, M. R., C. A. Manduca, D. W. Mogk, K. Ginger, D. W. Fulker, and T. Sumner. 2001. "A Digital Library for Earth System Education (DLESE)." In *10th Symposium on Education, 2001 Annual Meeting of the American Meteorological Society (AMS)*, Albuquerque, NM: American Meteorological Society, J25-J28.
- Marliano, M. R., T. Sumner, M. Dawe, C. A. Manduca, D. Mogk, and D. Fulker. 2001. "The Digital Library for Earth System Education (DLESE) project: A community governed digital library. Poster presentation." In *5th European Conference on Research and Advanced Technology For Digital*

Libraries (ECDL 2001), Darmstadt, Germany (Sep 5-7): Adjunct Proceedings of European Conference on Digital Libraries (ECDL).

- Sumner, T., M. R. Marilino, and T. Smith. 2001. "Task-oriented digital library interactions: An end-user perspective on interoperability." In *In Proceedings of the Third DELOS Network of Excellence Workshop on Interoperability and Mediation in Heterogeneous Digital Libraries, European Research Consortium for Informatics and Mathematics, ERCIM Workshop Proceedings #01/W06*, Darmstadt, Germany.
- Sumner, T., J. Domingue, Z. Zdrahal, A. Millican, and J. Murray. 1999. "Moving from On-the-job Training towards Organisational Learning." In *12th Banff Knowledge Acquisition Workshop*, Banff, Alberta, Canada.
- Sumner, T., S. Yates, S. Buckingham Shum, and J.L. Perrone. 1999. "Managing persistent discourse: Organizational Goals and Digital Texts." In *Hawaii International Conference on System Sciences (HICSS 32), Special Track on Persistent Discourse*, edited by Tom Erikson, Maui, HI (Jan 5-8).
- Buckingham Shum, S., and T. Sumner. 1998. "Document-Centred Discourse on the Web: A Publishing Tool for Students, Tutors and Researchers." In *Proceedings of ED-MEDIA 1998: World Conference on Educational Multimedia, Hypermedia and Telecommunications*, Frieberg, Germany (June 20-25).
- Mole, D., T. Sumner, and Taylor J. 1998. "The interactive course map." In *In Proceedings of ED-MEDIA 1998: World Conference on Educational Multimedia, Hypermedia and Telecommunications*, edited by Thomas Ottmann and Ivan Tomek, Freiberg, Germany, 989-94.
- Sumner, T., J. Domingue, Z. Zdrahal, M. Hatala, A. Millican, J. Murray, K. Hinkelmann, A. Bernardi, S. Wess, and R. Traphöner. 1998. "Enriching representations of work to support organisational learning." In *1st Interdisciplinary Workshop on Building, Maintaining, and Using Organizational Memories (OM-98). In conjunction with the 13th biennial European Conference on Artificial Intelligence (ECAI -98)*, edited by A. Abecker, S. Decker, N. Matta, F. Maurer and U. Reimer, Brighton, UK: Available at: <http://www.aifb.uni-karlsruhe.de/WBS/ECAI98OM>, 109-27.
- Sumner, T., and J. Taylor. 1997. "Coping with virtuality: Steps toward a personal learning manager." In *UNESCO Workshop on Virtual Learning Environments*, edited by Tim O'Shea, The Open University.
- Buckingham Shum, S., T. Sumner, and D. Laurillard. 1996. "On the future of journals: Digital publishing and argumentation." In *Adjunct Proceedings of Human-Computer Interaction (HCI 96)*, London (Aug 20-23).

POPULAR PRESS

TOTAL: 8

- Sumner, T. 2014. "More than Just a Good Idea: Using Education Research to Guide Product Development." Interviewed by Michael Jay for EdTech Table Talk, Sponsored by MCH Strategic Data.
- Maness, J., T. Miaskiewicz, and T. Sumner. 2008. "Using Personas to Understand the Needs and Goals of Institutional Repository Users." In *D-Lib Magazine*, 14:9/10.
- Custard, M., and T. Sumner. 2005. "Using machine learning to support quality judgements." In *D-Lib Magazine*, 11:10.
- Sumner, Tamara. 2005. "Report on the Fifth ACM/IEEE Joint Conference on Digital Libraries - Cyberinfrastructure for Research and Education." In *D-Lib Magazine*, 11:7/8.

- Sumner, T., F. Ahmad, Q. Gu, F. Molina, S. Willard, M. Wright, L. Davis, S. Bhushan, and G. Janee. 2004. "A web service interface for creating concept browsing interfaces." In *D-Lib Magazine*, 10:11.
- Sumner, T., C. Jones, S. Giersch, M. Wright, A. Coleman, and L. Bartolo. 2004. "Developing a Web Analytics Strategy for the National Science Digital Library." In *D-Lib Magazine*, 10:10.
- Wright, M., M. Marlino, and T. Sumner. 2002. "Meta-Design of a Community Digital Library." In *D-Lib Magazine*, 8:5.
- Sumner, T., and S. Buckingham Shum. 1996. "Open peer review & argumentation: Loosening the paper chains on journals." In *Ariadne (Bi-Monthly Magazine of the UK Electronic Libraries Programme)*, 5.

INVITED PRESENTATIONS AND PANELS

TOTAL: 49

- Sumner, T. 2015a. 'Using Machine Intelligence to Enhance Pedagogical Design Capacity', October 14, Invited presentation to the Faculty of Education: Hong Kong University.
- Sumner, T. 2015b. 'Pedagogical Design Capacity in the Age of Peer Production', October 12, Invited presentation to the Faculty of Education: Hong Kong University.
- Sumner, T. 2014. 'In the Age of Collaboration: Using Machine Intelligence to Enhance Pedagogical Designs', Feb 7, Invited presentation at Google: Mountain View, CA.
- Kincaid, P., T. Sumner, and M. Jay. 2012. 'IT & Inquiry: Leading Transformation of Learning', March 6, Panel presentation at the Consortium for School Networking 2012 K-12 Technology Leadership Conference (CoSN 2012): Washington, DC.
- Sumner, T. 2012a. 'When You Reach a Fork in the Road... Change Your Business Model', June 3-6, Panel presentation at Content in Context, Annual Meeting of the Association of Educational Publishers and Association of American Publishers (AAP) School Division: Washington DC.
- Sumner, T. 2012b. 'Inquiry Hub', June 21, Invited presentation to the Seminar Series at the Concord Consortium: Concord, MA.
- Sumner, T. 2012c. 'Inquiry Hub', October 30, Invited presentation to the Info Tech Forum: CU Law School, Boulder, CO.
- Sumner, T., H Devaul, and H. Leary. 2012. 'Curriculum Customization Service', April 3, Invited presentation to delegates from the RAND Corporation: UCAR, Boulder, CO.
- Sumner, T. 2010a. 'Understanding Impact: Preliminary Results from a District-Wide Field Trial of the NSDL Curriculum Customization Service', March 10, Invited presentation to NSF Seminar Series: National Science Foundation, Arlington, VA.
- Sumner, T. 2010b. 'Putting Your Resources in the Path of the User', October 8, Keynote presentation to the GK-12 Rocky Mountain Regional Conference: Denver, CO.
- Sumner, T. 2010c. 'Case Study: The Curriculum Customization Service', December 14, Invited presentation to the Joint NSF/Dept of Education Workshop on Transitioning Research-Developed Learning Technologies to Broad Use: National Science Foundation, Arlington, VA.
- Sumner, T., K. Maull, M. Recker, B. Shelton, and J. Duffin. 2009. 'Recommender Systems, Contextualization and Personalization in NSDL: Current and Future Research Directions', November 17-19, Panel presentation at the National Science Digital Library Annual Meeting: Washington, DC.
- Sumner, T. 2008a. 'Transforming Digital Content into Learning', June 9 - 11, Panel presentation at the Educause Center for Applied Research Summer Symposium Boulder, CO.

- Sumner, T. 2008b. 'From Cyberinfrastructure to Cyberlearning', December 5, Invited presentation to the National Snow and Ice Data Center Colloquium Series: Boulder, CO.
- Sumner, T. 2008c. 'Extending a Curriculum Customization Service to Support Teacher Professional Learning, Diagnostics Remixing and Creative Commons', September 5, Invited presentation to the Open Educational Resources Program: William and Flora Hewlett Foundation.
- Sumner, T. 2008d. 'Agile Technologies for Personalizing Instruction', October 24, Invited presentation to the London Knowledge Lab: University of London, UK.
- Sumner, T., and D. Krafft. 2008. 'NSDL: An extensible, collaborative, community-based digital library for STEM education', February 4-5, Invited presentation to the Cyberinfrastructure for Education Workshop Series: National Science Foundation, Arlington, VA.
- Sumner, T., and M. Marlino. 2008. 'Visualizing Learning Goals and Personalizing Instruction', January 16, Invited presentation to Advanced Distributed Learning: Washington DC.
- Sumner, T. 2007a. 'Transforming Digital Content into Learning: The Potential and Challenges Facing Educational Digital Libraries', April 24, Invited presentation to the Glasscock Center Digital Humanities Lecture Series: Texas A & M, College Station, TX.
- Sumner, T. 2007b. 'From Libraries to Learning', October 3, Invited presentation to the Information Science Colloquium, Cornell University: Ithaca, NY.
- Sumner, T. 2007c. 'Benchmarks and Standards in the NSDL: Current practices and future possibilities', November 5, Invited presentation to Project 2061 at the American Association for the Advancement of Science: Washington, DC.
- Sumner, T. 2005a. 'From Digital Libraries to Educational Cyberinfrastructure', October 10, Invited presentation to the Cultural Communication and Computing Research Institute: Sheffield Hallam University, UK.
- Sumner, T. 2005b. 'From Digital Libraries to Educational Cyberinfrastructure', October 13, Invited presentation to the Knowledge Media Institute: The Open University, UK.
- Sumner, T. 2005c. 'From Digital Libraries to Educational Cyberinfrastructure', October 18, Invited presentation to UKOLN, the United Kingdom Office for Library and Information Networking: University of Bath, UK.
- Sumner, T., R. Heery, J. Hunter, N. Lossau, and M. Wright. 2005. 'Does eScience need Digital Libraries?', Panel presentation at the European Conference on Digital Libraries (ECDL '05), Sept 18-23: Vienna, Austria.
- Sumner, Tamara. 2005d. 'The NSDL Strand Map Service: A Networked Knowledge Organization and Visualization System for K-12 Education', June 10-11, Invited presentation to the 7th Networked Knowledge Organization Systems Workshop: Denver, CO
- Sumner, T. 2004. 'Cyberinfrastructure and Science Education: Issues and Opportunities', March 13, Atlanta, GA: Invited presentation at e-Learn 2004.
- Sumner, T., and M. Marlino. 2004. 'Demonstrating Education Impact: Challenges in the years ahead', June 7-11, Panel presentation at the 4th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2004): Tucson, AZ.
- Sumner, T. 2003a. 'Strand maps as an interactive interface to digital library resources', February 13-18, Panel presentation at the 2003 Annual Meeting of the American Association for the Advancement of Science (AAAS): Denver, CO.

- Sumner, T. 2003b. 'Digital Libraries and Educational Practice: Challenges to learning from, and contributing to, the research base', August 2, Invited presentation to the DLESE Annual Meeting: University of Colorado, Boulder, CO.
- Sumner, T. . 2003c. 'Theoretical foundations of digital libraries', April 21-25, Panel presentation at the 84th Annual Meeting of the American Educational Research Association (AERA): Chicago, IL.
- Sumner, T., and M. Wright. 2003. 'The National Science Digital Library', October 16, Invited presentation to Project 2061 at the American Association for the Advancement of Science: Washington DC.
- Marlino, M., T. Sumner, and D. Fulker. 2002. 'Educational digital libraries: Building community, building libraries. Panel presentation', June 25-28, Panel presentation at ED-MEDIA 2002 World Conference on Educational Multimedia, Hypermedia, and Telecommunications: Denver, CO.
- Sumner, T. 2002a. 'Towards designing scholarly communities', April 12, Invited presentation to the Colloquium Series at the College of Architecture and Planning: University of Colorado, Boulder, CO.
- Sumner, T. 2002b. 'Anatomy of a Breakthrough', October 21, Invited presentation to the NSDL National Visiting Committee: Washington DC.
- Fulker, D., S. Dawes, L. Kalinichenko, T. Sumner, C. Thanos, and A. Ushakov. 2001. 'Digital library collaborations in a world community', June 24-28, Panel presentation at the 1st ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2001): Roanoke, VA.
- Marlino, M, T. Sumner, D. Fulker, C. Manduca, and D. Mogk. 2001. 'The Digital Library for Earth System Education', May 15, Invited presentation at the NSF Brown Bag Series: National Science Foundation, Arlington, VA.
- Sumner, T. 2001a. 'What's holding up the development of geo-referenced digital libraries?', Sept 8-9, Panel presentation at the European Conference on Digital Libraries (ECDL '01): Darmstadt, Germany.
- Sumner, T. 2001b. 'Scaling Up to World Community', June 24 -28, Panel presentation at the ACM/IEEE Joint Conference on Digital Libraries (JCDL '01): Roanoke, VA.
- Sumner, T. 2001c. 'Coming Over The Horizon: Upcoming Technologies of Interest to Education', July 15 - 18, Panel presentation at Project Kaleidoscope Summer Institute: Snowbird, UT.
- Sumner, T. 2001d. 'The Future of Open Source and Open Standards', March 15, Panel presentation at the Forum on Public Values and the Architecture of the Information Age: The Future of Intellectual Property, Privacy, and Open Source: Boulder, CO.
- Sumner, T., J. Fellows, and M. Marlino. 2001. 'The DLESE Program Center: Providing Infrastructure for a Distributed Community Library', December 5, Invited presentation to the Geoscience Directorate: National Science Foundation, Arlington, VA.
- Sumner, T., M. Marlino, C. Manduca, D. Mogk, and D. Fulker. 2001. 'DLESE: A Geoscience Facility', May 15, Invited presentation to the Geoscience Directorate: National Science Foundation, Arlington, VA.
- Sumner, T. 2000a. 'Towards Designing Scholarly Communities ', May 29, Invited presentation at the Regional Cognitive Science Colloquia Series for Southern France: Universite de Provence, France.
- Sumner, T. 2000b. 'The Digital Library for Earth System Education ', July 5, Invited presentation to UKOLN, the United Kingdom Office for Library and Information Networking: University of Bath, UK.

- Sumner, T. 1999a. 'Roundtable: The Next New University', Oct 27-30, Panel presentation at the Conference on New Media in Higher Education and Learning: The Getty Center, Los Angeles, CA.
- Sumner, T. 1999b. 'Tele-education: A Killer Application for the 21st Century?', December 5-9: Invited presentation to IEEE Global Telecommunications Conference, Rio de Janeiro, Brazil
- Sumner, T. 1999c. 'From Documents to Discourse', June 21, Invited keynote presentation to the Symposium on Electronic Publishing, Centre for Instructional Technology Development: University of Toronto at Scarborough, Toronto, Canada.
- Sumner, T. 1999d. 'Our New Publishing Space ', June 20, Invited presentation to the Canadian Library Association Conference: Toronto, Canada.
- Sumner, T. 1998. 'Technology-mediated learning at the OU: Past, Present and Future', July, Invited presentation to the College of Engineering Faculty Summer Workshop: University of Colorado, Boulder CO.
- Sumner, T., and J. Domingue. 1997. 'New Media, New Models of Education', November, Invited presentation to the European Network of Excellence in Computational Logic: Lisbon, Portugal.

SOFTWARE AND OTHER CREATIVE PRODUCTS

Curriculum Customization Service. In collaboration with teachers, science coordinators, and administrators from Denver Public Schools, we created and deployed a software tool: the curriculum customization service. The Service enable science teachers to customize their instruction using digital library resources to better meet the specific needs of diverse learners in their classrooms. The Service is currently being used by 100s of STEM teachers in 6 school districts in Colorado, Utah, and Nevada.

Science Literacy Maps and the Strand Map Service. This web-based tool helps teachers and learners to locate interactive resources that address nationally-recognized STEM learning goals. It was developed in collaboration with Project 2061 of the American Association for the Advancement of Science. Developers can embed strand maps into any web-based interface using an innovative, graphical web service protocol. Educational sites using this web service include UCAR Community Programs and NASA Wavelength, which is operated by NASA's Science Mission Directorate.

National Science Digital Library. Co-principle investigator for the National Science Digital Library technical platform. From 2002-2014, the library was developed and operated with support from the National Science Foundation. It is currently being operated as part of OER Commons.

The Digital Library for Earth System Education (DLESE). Co-principle investigator. DLESE enables K-16 teachers and students to find, evaluate, and use resources that support active, inquiry learning in Earth system science. The library is operated by the National Center for Atmospheric Research.

The Digital Water Education Library (DWEL). DWEL is a thematic collection focusing on the science, economics and policy issues of water. Resources in the collection were selected and rigorously reviewed by a diverse group of K-12 and informal science educators with an emphasis on high quality, exemplary digital resources that facilitate learning about all aspects of water in the Earth system.

The Journal of Interactive Media in Education (JIME). Co-founder and co-editor until 2004. JIME is a freely available electronic journal, published since 1996, targeted at researchers and practitioners interested in educational technology. This award-winning journal offered open interactive peer review and commentary as well as embedded interactive demonstrations and simulations.

The Digital Document Discourse Environment (D3E). Co-designer and developer. D3E is the software environment developed to support the publication of JIME. The D3E toolkit is used to create anchored discussion forums for different types of web-based multimedia documents. The D3E toolkit and its source code were freely distributed. Assisted with the design and launch of several electronic journals in other disciplines based on D3E and our JIME experiences.

Distance Learning Course and Curriculum Development. M206 Computing: An Object-oriented Approach. Member of Course Team, Co-chair of Media Group. This award winning, open-learning course is based on an innovative interactive teaching model that encompasses both traditional media (text and television) and digital media (LearningBooks, web resources, conferencing system). The course served over 5000 students annually at The Open University in the UK.

AWARDS

- 2015 [Visiting Faculty Fellowship](#)
Faculty of Education, Hong Kong University
- 2015 [SemEval 2015 Shared Task: Top Performing Algorithm](#)
Md Arafat Sultan, Steven Bethard, Tamara Sumner. 2015. DLS@CU: Sentence Similarity from Word Alignment and Semantic Vector Composition. In: Proceedings of the 9th International Workshop on Semantic Evaluation (SemEval 2015), Denver, CO, 148-53.
- 2014 [SemEval 2014 Shared Task: Top Performing Algorithm](#)
Md Arafat Sultan, Steven Bethard, Tamara Sumner. 2014. DLS@CU: Sentence Similarity from Word Alignment. In: Proceedings of the 8th International Workshop on Semantic Evaluation (SemEval 2014), Dublin, Ireland, 241-246.
- 2009 [Vannevar Bush Best Paper Award](#)
Bethard, S., P. Wetzler, K. Butcher, J. Martin, and T. Sumner. 2009. "Automatically Characterizing Resource Quality for Educational Digital Libraries." In *Proceedings of the 9th ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2009)*, Austin, TX (June 15-19): Association for Computing Machinery (ACM) Press, 221-230.
- 1998 [British Computer Society IT Award](#)
For the design of M206 Computing: An Object-oriented Approach. The British Computer Society has been recognizing outstanding achievement in IT for over 30 years through its Information Technology Awards. These awards, which are the most prestigious IT award in the UK, acknowledge significant national contributions to economic prosperity, business efficiency, or public services.
- 1996 [Charlesworth Group Awards for Electronic Journals](#)
For the design of the Journal of Interactive Media in Education. These awards recognize significant achievement in the field of learned and professional publishing. The panel found this 'the most innovative entry with the greatest potential'.

FUNDED RESEARCH PROJECTS

[Curriculum Units that Exemplify Three Dimensional Learning and Assessment](#)

Award Number: 1114.12.2969B; Principal Investigator: William Penuel; Co-Principal Investigator: Tamara Sumner; Organization: University of Colorado at Boulder; Moore Foundation; Start Date: 10/01/2015; Award Amount: \$405,202.00

Engineering Experiences: Research on Student Competency, Motivation and Persistence in STEM for Underserved Youth

Award Number: 1510922; Principal Investigator: Tamara Sumner; Co-Principal Investigator: Heather Leary; Organization: University of Colorado at Boulder; NSF Organization: DRL; Start Date: 09/15/2015; Award Amount: \$286,117.00

Pilot Study: Creating a Special Collection of NSF-Funded Learning Resources to Support Core Ideas in High School Biology

Award Number: 1555550; Principal Investigator: Mary Marlino; Co-Principal Investigator: Tamara Sumner; Organization: University Corporation For Atmospheric Research; NSF Organization: DUE; Start Date: 09/01/2015; Award Amount: \$299,862.00;

INDP: Inquiry Hub

Award Number: 1147590; Principal Investigator: Tamara Sumner; Co-Principal Investigator: Janet Carlson, Pamela Van Scotter, William Penuel, Michael Wright, Patricia Kincaid; Organization: University of Colorado at Boulder; NSF Organization: IIS; Start Date: 10/01/2012; Award Amount: \$1,520,531.00

Collaborative Research: Overcoming Obstacles to Scaling-Up with a Cyberlearning Professional Development Model

Award Number: 1118392; Principal Investigator: Tamara Sumner; Co-Principal Investigator: Holly Devaul; Organization: University of Colorado at Boulder; NSF Organization: DRL; Start Date: 09/01/2011; Award Amount: \$849,999.00

From Learning to Research: Developing Future Earth System Scientists and Professionals

Award Number: 0929725; Principal Investigator: Julie Malmberg; Co-Principal Investigator: Tamara Sumner, Christopher Hoadley, Michael Odell; Organization: University Corporation For Atmospheric Research; NSF Organization: DRL; Start Date: 08/15/2010; Award Amount: \$1,199,215.00

Collaborative Project: Understanding Impact: A Scaling and Replication Study of the Curriculum Customization Service

Award Number: 1043638; Principal Investigator: Tamara Sumner; Organization: University of Colorado at Boulder; NSF Organization: DUE; Start Date: 12/01/2010; Award Amount: \$177,990.00

Collaborative Research: Enabling Robust Learning with Conceptual Personalization Technologies

Award Number: 0835393; Principal Investigator: Tamara Sumner; Co-Principal Investigator: James Martin; Organization: University of Colorado at Boulder; NSF Organization: DRL; Start Date: 09/01/2009; Award Amount: \$392,381.00

NSDL Technical Network Services: A Cyberinfrastructure Platform for STEM Education

Award Number: 0840744; Principal Investigator: Carl Lagoze; Co-Principal Investigator: Michael Wright, Tamara Sumner; Organization: Cornell University; NSF Organization: DUE; Start Date: 10/01/2008; Award Amount: \$7,848,312.00

Completing the NSDL Strand Map Service: Content Coverage and NDR Integration

Award Number: 0734889; Principal Investigator: Michael Wright; Co-Principal Investigator: Tamara Sumner; Organization: University Corporation For Atmospheric Research; NSF Organization: DUE; Start Date: 10/01/2007; Award Amount: \$99,748.00

DLESE Program Center 2007 Work Plan

Award Number: 0639539; Principal Investigator: Mary Marlino; Co-Principal Investigator: Michael Wright, Tamara Sumner; Organization: University Corporation For Atmospheric Research; NSF Organization: GEO; Start Date: 11/01/2006; Award Amount: \$997,457.00

Collaborative Project: The NSDL Curriculum Customization Service

Award Number: 0734875; Principal Investigator: Tamara Sumner; Organization: University of Colorado at Boulder; NSF Organization: DUE; Start Date: 01/01/2008; Award Amount: \$111,535.00

SGER: Relevance Models for Digital Repository Management

Award Number: 0741326; Principal Investigator: James Martin; Co-Principal Investigator: Tamara Sumner; Organization: University of Colorado at Boulder; NSF Organization: IIS; Start Date: 09/15/2007; Award Amount: \$138,213.00

The DLESE Program Center: Providing Infrastructure for a Distributed Community Library

Award Number: 0215640; Principal Investigator: Mary Marlino; Co-Principal Investigator: David Fulker, Tamara Sumner; Organization: University Corporation For Atmospheric Research; NSF Organization: GEO; Start Date: 09/15/2002; Award Amount: \$11,390,111.00

Collaborative Project: Core Integration - Leading NSDL toward Long-Term Success

Award Number: 0227656; Principal Investigator: David Fulker; Co-Principal Investigator: Terence Smith, Mary Marlino, Tamara Sumner, Ellen Hoffman; Organization: University Corporation For Atmospheric Research; NSF Organization: DUE; Start Date: 01/01/2003; Award Amount: \$3,002,048.00

Collaborative Project: Core Integration - Leading NSDL Toward Long-Term Success

Award Number: 0424671; Principal Investigator: Kaye Howe; Co-Principal Investigator: Terence Smith, Mary Marlino, Tamara Sumner, Ellen Hoffman; Organization: University Corporation For Atmospheric Research; NSF Organization: DUE; Start Date: 01/01/2004; Award Amount: \$13,311,050.00

Water in the Earth System (WES): An NSDL K-12 Collection Project

Award Number: 0121724; Principal Investigator: Edward Geary; Co-Principal Investigator: Shirley Ireton, Bryan Aivazian, Tamara Sumner; Organization: Colorado State University; NSF Organization: DUE; Start Date: 01/01/2002; Award Amount: \$899,749.00

Supporting Science Understanding through a Customized Learning Service for Concept Knowledge

Award Number: 0537194; Principal Investigator: Tamara Sumner; Co-Principal Investigator: Mary Marlino, James Martin, Kirsten Butcher; Organization: University of Colorado at Boulder; NSF Organization: IIS; Start Date: 09/15/2005; Award Amount: \$504,815.00

Enhancing NSDL.Org with Concept-browsing Interfaces based on AAAS Strand Maps

Award Number: 0632143; Principal Investigator: Tamara Sumner; Organization: University of Colorado at Boulder; NSF Organization: DUE; Start Date: 09/01/2006; Award Amount: \$74,723.00

Strand Maps as an Interactive Interface to NSDL Resources

Award Number: 0226286; Principal Investigator: Tamara Sumner; Co-Principal Investigator: Greg Janee, Mary Marlino, Michael Wright; Organization: University of Colorado at Boulder; NSF Organization: DUE; Start Date: 01/01/2003; Award Amount: \$450,000.00

Collaborative Research: Developing a Computational Model of "Quality" for Educational Digital Libraries

Award Number: 0534581; Principal Investigator: Tamara Sumner; Co-Principal Investigator: James Martin; Organization: University of Colorado at Boulder; NSF Organization: IIS; Start Date: 09/01/2006; Award Amount: \$382,508.00

ENRICH: Enriching Representations of Work to Support Organisational Learning

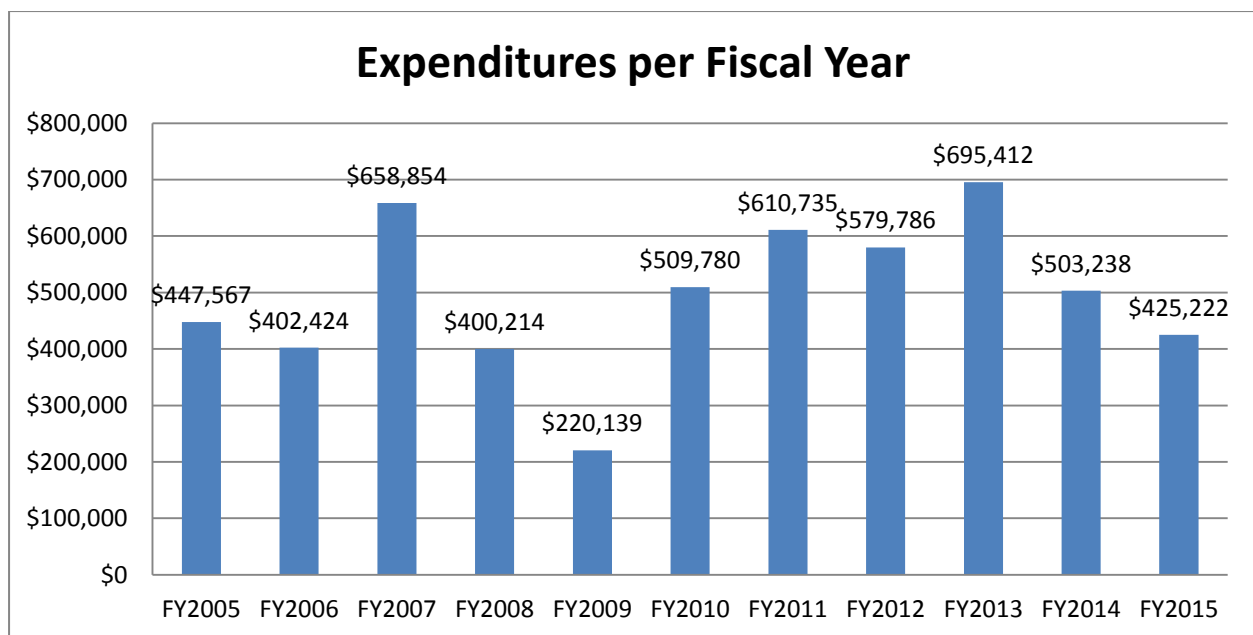
Principal Investigator: Zdenek Zdrahal; Co-Principal Investigator: Tamara Sumner; Organization: The Open University; ESPRIT Thematic Call "IT for Learning and Training in Industry", EU Fourth Framework Programme, Start Date: 1998; Award Amount: ECU 965,214

Towards Designing Scholarly Documents for the World Wide Web

Principal Investigators: Tamara Sumner and Nathalie Bonnardel; Organization: The Open University; Funded by British Council Alliance Programme for Franco-British Joint Research; Start Date: January 1998; Award amount: £6,000

Journal of Computation and Mathematics

Principal Investigator: Tamara Sumner and Simon Buckingham Shum; Organization: The Open University; Funded by the London Mathematical Society. Start Date: February, 1997. Award amount: £25,000.



Expenditures across all funding sources for Sumner, excluding billings to external subcontractors, for each fiscal year (July 1 to June 30). Expenditures for FY 2016 are on track to match or exceed FY 2015.

TEACHING ACTIVITY

Courses Taught

Cognitive Science Research Practicum, CSCI 7412/7422, EDUC 6506/6516, LING 7415/7425, PHIL 7415/7425, PSYC 7415/7425, 2 units, University of Colorado at Boulder

Topics in Cognitive Science, CSCI 7772, EDUC 7775, LING 7775, PHIL 7810, PSYC 7775, and SLSH 7775, 1 unit, University of Colorado at Boulder

Readings and Research in Cognitive Science, CSCI 7762, EDUC 6505, LING 7762, PHIL 7310, and PSYC 7762, 2 units, University of Colorado at Boulder

User Interface Design, CSCI 4838/6838, 3 units, University of Colorado at Boulder

Technology for Community, CSCI 2830/4830, 3 units, University of Colorado at Boulder

Internet Dreams, CSCI 4830/7000, 3 units, University of Colorado at Boulder

Introduction to PhD Research in Computer Science, CSCI 7900, 1 unit, University of Colorado at Boulder

Introduction to Artificial Intelligence, CSCI 3202, 3 units, University of Colorado at Boulder

Computing: An Object-oriented Approach, Introductory Computer Science Course, M206, Served 5000+ undergraduate students annually, The Open University, UK

Faculty Course Questionnaire Results: Scale from 1 (low) to 6 (high)

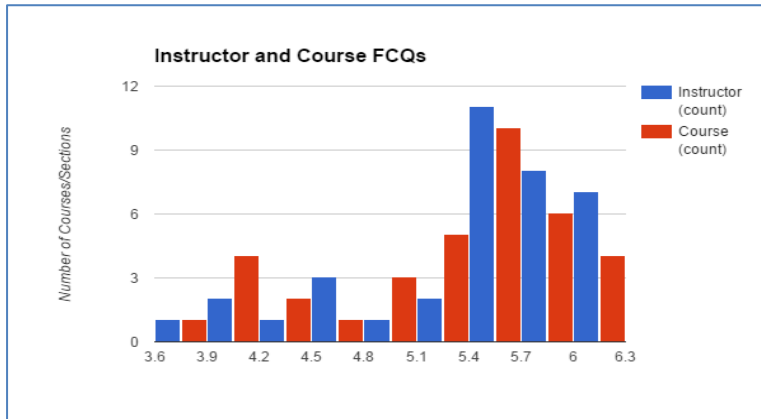


Figure 1: Overall distribution of instructor and course FCQ ratings

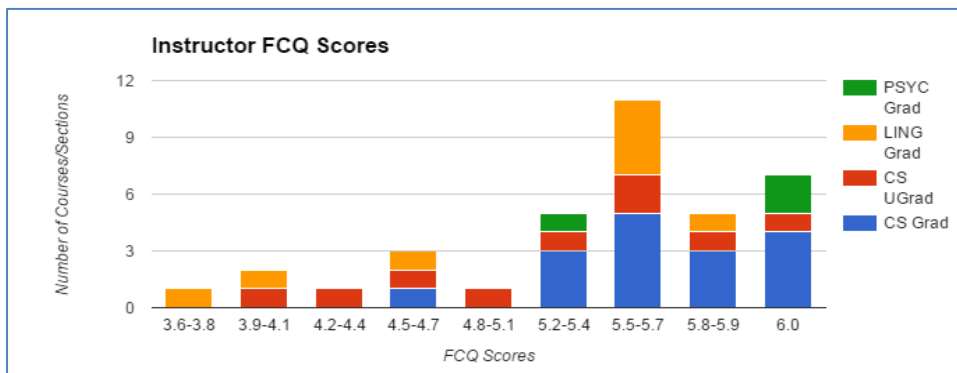


Figure 2: Distribution of instructor ratings across different types of courses. Key: PSYC = Psychology; LING = Linguistics; CS = Computer Science; Grad – Graduate; UGrad = Undergraduate

Independent Studies Supervised

Thibdeau, John (1 unit; Grad Cognitive Science)
 Danesh, Soheil (3 units, Grad Computer Science)
 Vieweg, Sarah (3 units, Grad Computer Science)
 Moore, Kevin (3 units, Grad Computer Science)
 Lebsack, John (3 units, Grad Computer Science)
 Khoo, Michael (3 units, Grad Computer Science)
 Ye, Wenming (3 units, Grad Computer Science)
 De Paula, Rogerio (3 units, Grad Computer Science)
 Komarnitsky, Michael (3 units, Undergrad Computer Science)

Smeltzer, Tanya (2 units, Grad Computer Science)
 Hwang, Jena (2 units, Grad Computer Science)
 Custard, Myra (3 units, Grad Computer Science)
 Nutt-O’Neill, Debbie (1 unit, Grad Computer Science)
 Khoo, Michael (3 units, Grad Computer Science)
 Weingart, Troy (3 units, Grad Computer Science)
 Nguyen, Thuha (3 units, Grad Computer Science)
 Hilberg, Michael (3 units, Grad Computer Science)
 Johnson, Gabe (3 units, Undergrad Computer Science)

Graduate Students – Principal Thesis Advisor

- 2015 – Present *Parker, Richard*. Joint PhD in Computer Science and Cognitive Science.
- 2013 – Present *Quigley, David*. Joint PhD in Computer Science and Cognitive Science.
- 2013 – Present *Schaeffbauer, Chris*. PhD in Computer Science. Dissertation Topic: Using health behavior theory to develop and evaluate a mobile application to promote healthy eating
- 2012 – Present *Severance, Samuel*. Joint PhD in Education and Cognitive Science. Principal Thesis Co-Advisor with William Penuel in School of Education. Dissertation Topic: Organizing for Equitable Co-design
- 2010 – Present *Sultan, Arafat Md*. PhD in Computer Science. Dissertation Topic: Semantic Comparison of Short Text Fragments: Algorithms and Applications
- 2010 – Present *Dibie, Ogheneovo*. PhD in Computer Science. Dissertation Topic: A computational framework for understanding the usage patterns and the effectiveness of an online professional community of educators using a curriculum planning tool
- 2010 – Present *Danesh, Soheil*; PhD in Computer Science; Dissertation Topic: Extracting Keyphrases from Online Reviews
- 2011 – 2012 *Agarwal, Kirun*. MS in Computer Science. Dissertation Title: Visualizing the Flow and Usage of Curricular Components in an Online Curriculum Planning and Teaching Tool
- 2008 – 2013 *Maull, Keith*. PhD in Computer Science. Dissertation Title: Computational Methods for Analyzing and Understanding Online Curriculum Planning Behavior of Teachers
- 2008 – 2015 *Okoye, Ifeyinwa*. Joint PhD in Computer and Cognitive Science. Dissertation Title: Building an Educational Recommender System based on Conceptual Change Learning Theory to Improve Students' Understanding of Science Concepts
- 2008 - 2011 *Saldivar, Manuel*. Joint PhD in Education and Cognitive Science. Principal Thesis Co-Advisor with Ben Kirshner in School of Education and GRA Supervisor. Dissertation Title: Earth Science Educators' Adoption and Integration of a Web-based Instructional Planning System
- 2008 - 2010 *Wetzler, Philipp*. PhD in Computer Science. Principal Thesis Co-Advisor with James Martin. Dissertation Title: Automatically Assessing the Quality of Educational Digital Library Resources
- 2007 – 2010 *Surles, Robert*. Joint PhD, Department of Planning and Design and Institute of Cognitive Science, Principal Thesis Co-Advisor with Willem Van Vliet. Dissertation Title: Cognitive Science as Social Learning in Participatory Design and Planning for Environmental Sustainability in the Lower Ninth Ward, New Orleans, Louisiana
- 2007-2008 *Motta, David*. MS in Computer Science. Principal Thesis Co-Advisor with Barbara Battenfield in Department of Geography. Dissertation Title: General Eyes: A web application enabling geographers to visualize differences between multi-scale generalization algorithms.
- 2005 – 2006 *Le, Phong*. MS in Computer Science. Dissertation Title: Design Patterns for Online Learning Environments: A Structured Approach for Operationalizing and Sharing Theory-Based Design Knowledge
- 2004 – 2008 *Ahmad, Faisal*. PhD in Computer Science. Dissertation Title: Generating Conceptually Personalized Interactions for Educational Digital Libraries Using Concept Maps

- 2004 – 2007 *Eiteljorg, Eric*. Joint PhD in Education and Cognitive Science, Principal Thesis Co-Advisor with Hilda Borko in the School of Education. Dissertation Title: Integrating New Technologies into a Professional Development Program: A Study of the Impact of Video and Online Technologies
- 2003 – 2008 *Khan, Huda*. Joint PhD in Computer Science and Cognitive Science, Principal Thesis Co-Advisor with Hilda Borko in the School of Education. Dissertation Title: The central role of adaptation for curriculum enactment: designing educational software for digital curriculum customization and developing a digital library contextualization service
- 2003 – 2008 *de la Chica, Sebastian*. PhD in Computer Science, Principal Thesis Co-Advisor with Jim Martin. Dissertation Title: Generating Conceptual Knowledge Representations to Support Students Writing Scientific Explanations
- 2003 – 2009 *Gu, Qianyi*. PhD in Computer Science, Dissertation Title: Personalized Information Seeking to Support Intentional Learning
- 2003 – 2006 *Lenell, Elizabeth*. Joint PhD in Education and Cognitive Science, Principal Thesis Co-Advisor with Philip Langer in the School of Education. Dissertation Title: Science teachers' online search strategies for seeking inquiry-based lesson activities
- 2004 – 2005 *Custard, Myra*. MS in Computer Science. Dissertation Title: Computing Quality of Web Pages for Educational Digital Libraries
- 2001 – 2004 *Khoo, Michael*. PhD in Communication, Principal Thesis Co-Advisor with Michelle Jackson in the Dept of Communication. Dissertation Title: On being on the same page: Organizational communication and the user-centred development of a digital library collection.
Highlights: Khoo received one of three Graduate Student Research and Creative Work Awards in 2003-2004 for his dissertation research. The award, which is determined by faculty review, acknowledges outstanding research or creative work by CU-Boulder graduate students across all disciplines.
- 2003 – 2004 *Bhushan, Sonal*. MS in Computer Science. Dissertation Title: Designing Visual Components for Creating Conceptual Browsing Interfaces
- 2002 – 2004 *Ahmad, Faisal*. MS in Computer Science. Dissertation Title: A Strand Map Service for Educational Digital Libraries
- 2003 *Lu, Lian*. ME in Computer Science, Dissertation Title: The Geospatial Discovery Project
- 2000 – 2001 *Weatherley, John*. MS in Computer Science. Dissertation Title: Adapting Education Resources for Collaborative On-Line Peer Review
- 1999 *Caron, John*. ME in Computer Science, Dissertation title: Applying Latent Semantic Analysis to Online Customer Support: A Trial Study

Graduate Students – Member of Thesis Committee

PhD Students

Johnson, Raymond (PhD in Education)	Carrie Allen (PhD in Education)
Ketels, Shaw (Joint PhD in Psychology and Cognitive Science)	Folska, Claudia (Joint PhD in Architecture and Planning and Cognitive Science)
Becker, Lee (Joint PhD in Cognitive and Computer Science)	Young, Michael (Dusty) (Joint PhD in Psychology and Cognitive Science);
Bong, Chih How (PhD in Computer Science)	Miaskiewicz, Tomasz (PhD in Business)

Marbach, Jonathan (PhD in Computer Science)
Hamady, Micah (PhD in Computer Science)
Doerr, Christian (Joint PhD in Computer and Cognitive Science);
Bethard, Steven (Joint PhD in Computer and Cognitive Science)
Sherba, Suzanne (PhD in Computer Science)
Butcher, Kirsten (Joint PhD in Psychology and Cognitive Science)
Ferrara, Lisa (PhD in Educational Psychology, University of Utah)

Lessem, Matthew (Phd in Education)
Dawe, Melissa (PhD in Computer Science)
Nielsen, Rodney (Joint PhD in Computer and Cognitive Science);
Hinsley, Gail (Joint PhD in Psychology and Cognitive Science)
Scharff, Eric (PhD in Computer Science)
Miller, Cathy (PhD in Sociology)

Eriksen, Lars Bo (PhD in Computer Science, Aalborg University)

MS/ME Students

Ryan Kubinski (ME in Computer Science)
LaBumbard, Jason (ME in Computer Science)
Bruckner, Franz (ME in Engineering Management)
Andersen, Aaron (ME in Computer Science)
Benjamin, Rhonda (MS in Interdisciplinary Telecommunications Program)

Braeckel, Aaron; (MS in Computer Science)
Koch, Matthew (MS in Computer Science)
Basava, Shibani (MS in Computer Science)
Bogle, Rian (MS in Applied Mathematics)

Graduate Research Assistants Supervised

David Quigley, Sam Severance, Raymond Johnson, Arafat Sultan, Ogheneovo Dibie, Soheil Danesh, James Foster, Peter Alston, Ifeyinwa Okoye, Manuel Geraldo Salvidar, Philipp Wetzler, Steve Bethard, Faisal Ahmad, Sebastian de la Chica, Qianyi Gu, Huda Khan, Michael Khoo, Sonal Bhushan, Melissa Dawe, Glenn Blauvelt, John Weatherley

Undergraduate Research Assistants Supervised

Cristobal Salazar, Sonal Bhushan, Jackson Fox

Visiting Student Scholars Supervised

Jin Zhao, Dept of Computer Science, National University of Singapore
Aline Chevalier, Dept of Cognitive Psychology, Universite de Provence, France
Frederic Piolat, Dept of Computer Science, Universite de Nice, France
Jean-Christophe Beaud, Dept of Computer Science, Universite de Provence, France

Post-Doctoral Researchers and Research Assistants Supervised

2015 – Present Jennifer Jacobs, Institute of Cognitive Science
2011 – 2015 Heather Leary, Institute of Cognitive Science
2008 – 2013 Steven Bethard, Institute of Cognitive Science

Professional Research Assistants Supervised

2008 - 2013 Keith Maull, Institute of Cognitive Science
2005 – 2008 Sebastian de la Chica, Institute of Cognitive Science
2002 Casey Jones, Dept of Computer Science

Annual PhD Qualifying Examinations Committee

2009 - Present	Natural Language Processing, Dept of Computer Science
2007 - Present	Human-Centered Computing, Dept of Computer Science
2004	Dept of Psychology and the Institute of Cognitive Science
1999 - 2001	Artificial Intelligence Area Exam, Chair in 2000, Dept of Computer Science

UNIVERSITY SERVICE

2015 – Present	Member, Primary Unit Evaluation Committee, Dept of Computer Science
2014 – 2015	Member, Search Committee, Institute of Cognitive Science
2011 – 2013	Member, Dean’s Tenure Review Committee, University Libraries
2011 – 2012	Chair, Academic Program Review, Institute of Cognitive Science
2011 – 2011	Co-Chair, IJCMT Discussion Group with Grunwald & Larson
2010 – 2011	Member, Primary Unit Evaluation Committee, Dept of Computer Science
2008 – 2010	Chair, IGERT Planning Committee, Institute of Cognitive Science
2006 – 2013	New Faculty Mentor, Dept of Computer Science
2006 – 2007	Member, Graduate Committee, Dept of Computer Science
2004 – 2005	Member, Undergraduate Committee, Dept of Computer Science
2004 – 2005	Director of Academic Programs, Institute of Cognitive Science
2003 – 2004	Member, Fundraising Committee, Dept of Computer Science
2001 – 2003	Member, Graduate Committee, Dept of Computer Science
1999 – 2001	Member, Executive Committee, Dept of Computer Science
1999 – 2000	Member, Strategic Futures Council, College of Engineering and Applied Sciences
1999	Member, Discovery Learning Initiative Committee, College of Engineering and Applied Sciences
1996 – 1998	Research Degree Student Coordinator, Knowledge Media Institute, The Open University
1997 – 1998	Member, Collaborative Publishing Subcommittee, The Open University

PROFESSIONAL SERVICE

Editorial Activities

2003 – Present	Editorial Board, International Journal of Digital Libraries, Springer-Verlag Heidelberg
1996 – 2005	Co-founder and Co-editor of The Journal of Interactive Media in Education, The Open University
Special Issue	Co-editor with Traugott Koch, Reagan Moore, and Michael Wright, Special Issue on eScience and Digital Libraries, International Journal of Digital Libraries, Springer-Verlag Heidelberg, 2007
Special Issue	Co-editor with Anita Coleman, Journal of Digital Information (JODI) - Special Issue on Digital Libraries and User Needs (Vol 5, No. 3, 2004), British Computer Society and Oxford University Press

Special Issue	Co-editor with Simon Buckingham Shum, International Journal of Human-Computer Interaction (IJHCS) - Special Issue on World Wide Web Usability, Academic Press
Standards	Reviewer of Next Generation Science Standards. 2012-2013
Book	Editorial Advisory Board Member. E-Infrastructures and Technologies for Lifelong Learning: Next Generation Environments. IGI Global. 2010
Curriculum	Curriculum Review for Colorado Coalition for Gender and IT. 2010
Occasional Reviewer	Journal of the Learning Sciences International Journal of Learning Technology Information, Communication & Society Journal of Digital Information Human Computer Interaction International Journal of Human Computer Studies ACM Transactions on Computer-Human Interaction Journal of Geoscience Education Interacting with Computers Transactions on Systems, Man, and Cybernetics

Program Committee Activities

Member of Program Committee

- ACM/IEEE Joint Conference on Digital Libraries (JCDL). 2004 – Present
- International Conference on Theory and Practice of Digital Libraries (TPDL). 2012 – Present
- Digital Libraries 2014 (Combined JCDL and TPDL). 2014
- International Conference on Asian Digital Libraries (ICADL). 2010, 2015
- European Conference on Digital Libraries (ECDL) (Renamed to TPDL). 2007-2010
- International Conference on the Learning Sciences. 2014
- World Wide Web Conference, User Interfaces and Mobile Web track. 2009
- Interact. 2001-2003
- Software Engineering and Education Track – Int'l Conference on Software Engineering (ICSE) 2000
- Practical Applications of Knowledge Management (PAKeM) 1999-2000
- Asia Pacific Computer Human Interaction Conference (APCHI) 1998)

Member of Organizing Committee

- ACM/IEEE Joint Conference on Digital Libraries (JCDL 2005), Denver, CO
- Conference on Computer-Support for Collaborative Learning (CSCL 2002), Boulder, CO

Chair Positions

- Best Paper Selection Committee Chair, Digital Libraries (DL 2014)
- Workshops and Tutorials Co-Chair. ACM/IEEE Joint Conference on Digital Libraries and International Conference on Asian Digital Libraries. (JCDL/ICADL 2010)
- Publicity Co-Chair, European Conference on Digital Libraries (ECDL 2006)
- Technical Program Co-Chair. ACM/IEEE Joint Conference on Digital Libraries (JCDL 2005)
- Workshops and Tutorials Chair, European Conference on Digital Libraries (ECDL 2004)
- Associate Chair, ACM Conference on Computer-Human Interaction (CHI 2002)
- Workshop Chair, Conference on Computer-Support for Collaborative Learning (CSCL 2002)

Other Conference Program Reviewing

- International Conference on Computer Supported Collaborative Learning. Meta-Reviewer. 2015
- ACM Conference on Computer Supported Collaborative Work (CSCW). 2011
- Grace Hopper Scholarship Review Committee. 2007-2009
- ACM Conference on Human Factors in Computing Systems (CHI). 1999-2003

Advisory Boards, Expert Panels, and Other Committees

- American Association of School Librarians, Member of advisory board for Causality: School Libraries and Student Success II, 2015 – Present
- National Center for Women & Information Technology, Member of advisory board for EngageCS Edu, 2015 – Present
- Concord Consortium, Member of advisory board to Large Scale Research on Engineering Design using Learning Analytics project, 2014 - Present
- American Museum of Natural History, Member of advisory board to Moving Next Generation Science Standards into Practice Program, 2013 – Present
- Project Tomorrow. Member of advisory board to Teachers' Readiness to Adopt and Adapt Content, 2011– 2015
- National Science Foundation/NASA, GLOBE Expert Panel, 2014
- National Science Teachers Association, Member of advisory board to Classroom Opportunities Multiply with Practice and the Application of Science Standards Project, 2012– 2014
- Library of Congress. Steering Committee for Digital Preservation Outreach and Education Initiative, 2010 – 2012
- NSF Broadening Participation in Computing, Member of advisory board to PAIRS project. 2008 – 2010
- Praxis Educational Group. Member of advisory board. 2008 – 2009
- Drexel University, Member of advisory board to Virtual Math Program, 2008 – 2010
- The Open University, Member of International Research Advisory Group to OpenLearn, an open content initiative sponsored by the Hewlett Foundation, 2006 – 2007
- Smithsonian Institution Astrophysical Observatory, Member of advisory board to Harvard-Smithsonian Digital Video Library, 2002 – 2003
- Chair, Educational Impact and Evaluation Standing Committee, National Science Digital Library, 2002 – 2003
- Member, Working Group on Digital Libraries in Education, UNESCO Institute for Information Technologies in Education, 2002 – 2003
- Member of the Strategic Requirements Board, European Community DG XIII/C. 1998 – 1998

K12 EDUCATIONAL OUTREACH

Presentations to School District and State Education Leaders

Sumner, T., and J. Stearns. 2015. 'Software tools supporting Science Teaching and Learning', January 5, Presentation to the STEM Curriculum and Instruction Department of the Metropolitan School District of Warren Township: Indianapolis, IN.

Sumner, T. & Stearns, J. (2014). The Curriculum Customization Service and Inquiry Hub Biology. November 16-18, A series of ten presentations and demonstrations presented at the K-12 Education Congress, Dallas, TX to school district leaders from:

Iredell-Statesville Schools (NC),	Norman Public Schools (OK),
Portland Public Schools (OR),	Papillion-La Vista School District (NE),
Racine USD (WI)	Spokane Public Schools (WA)
Baldwin County School District (AL)	Eden Prairie Schools (MN)
Warren Township School District (IN)	Horry County Schools (SC)

Sumner, T., H. Leary, and D. Caccamise. 2013. 'Software tools supporting instructional planning and differentiation', April 8, Presentation to Science Education staff at the Colorado Department of Education: Denver, CO.

Sumner, T. 2013. 'Online tools for Customizing STEM Curriculum', Feb 4, Sarasota County Schools, Florida.

Sumner, T., and H. Devaul. 2010a. 'Understanding Impact: Preliminary CCS Field Trial Results', March 3, Presentation to STEM Curriculum and Instruction Department in Denver Public Schools: Denver, CO.

———. 2010b. 'Understanding Impact: Preliminary Results from a District-Wide Field Trial of the NSDL Curriculum Customization Service', April 19, Presentation to STEM Curriculum and Instruction Department at Davis School District: Farmington, UT.

———. 2010c. 'Understanding Impact: Preliminary Results from a District-Wide Field Trial of the NSDL Curriculum Customization Service', April 21, Presentation to STEM Curriculum and Instruction Department in Douglas County School District, Castle Rock, CO.

———. 2010d. 'Understanding Impact: Preliminary Results from a District-Wide Field Trial of the NSDL Curriculum Customization Service', April 26, Presentation to Middle and High School Earth science educators in St. Vrain Valley School District: Longmont, CO.

———. 2010e. 'Customizing Science Instruction With Educational Digital Libraries', August 23, Presentation to STEM Curriculum and Instruction Department in Aurora School District, Aurora, CO

Sumner, T. and Melhado, L. 2010. 'Customizing Science Instruction With Educational Digital Libraries', September 30, Presentation to STEM Curriculum and Instruction in Department at Mapleton School District, Denver, CO.

Sumner, T. 2010. 'Customizing Science Instruction With Educational Digital Libraries', November 5, Presentation to STEM Curriculum and Instruction Department in Clark County School District, Las Vegas, NV

Sumner, T. 2009. 'The Strand Map Service: Technologies supporting differentiated instruction', September 22, Presentation to staff from the Indiana Department of Education: Indiana.

Sumner, T., and M. Wright. 2009. 'The Strand Map Service and the Curriculum Customization Service: Technologies supporting differentiated instruction', November 16, Presentation to the CIO and K12 Science Leadership Team for Montgomery County Schools: Rockville, MD.

Sumner, T. 2008. 'Increasing Achievement for all Students through Customized Instruction', April 16, Presentation to Department of Teaching and Learning and the Department of Technical Services: Denver Public Schools, Denver, CO.

Presentations to Educational Publishers and Curriculum Developers

Sumner, T., and J. Stearns. 2015. 'Curriculum Customization Service', Presentation to Senior Managers of Renaissance Learning.

Sumner, T. 2012. 'Inquiry Hub', February 27, Presentation to Math & Science Team: Encyclopedia Britannica.

Sumner, T., H Devaul, and M. Wright. 2012. 'Inquiry Hub', February 29, Presentation to Kendall Hunt Publishing Company Executive Team: Denver Public Schools, Denver CO.

Sumner, T., and M. Wright. 2012. 'Inquiry Hub', August 22, Presentation to Digital Learning Team: Carolina Biological Supply Company.

Sumner, T., and H Devaul. 2010. 'Understanding Impact: Preliminary Results from a District-Wide Field Trial of the NSDL Curriculum Customization Service', February 26, Presentation to Biological Sciences Curriculum Study (BSCS): Colorado Springs, CO

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Presentations at Teacher Practitioner Conferences

Kincaid, P. A., T. Sumner, and J. J. Miller. 2012. 'Customizing Science Instruction with Educational Digital Libraries', March 31, Presentation at the National Science Teachers Association (NSTA) National Conference: Indianapolis, IN.

Kincaid, P and Sumner, T. 2011. Customizing Science Instruction with Educational Digital Libraries, March 13, Presentation at the National Science Teachers Association National Conference, San Francisco.

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Pandya, R., H. Devaul, T. Sumner, and M. Marlino. 2003. 'Learn how to use a digital library to enhance Earth system education. Presentation.', March 27-30, Presentation at the National Science Teachers Association (NSTA) National Conference: Philadelphia, PA.

Geary, E., B. L. Aivazian, T. Sumner, M. Khoo, and S. Ireton. 2002. 'Digital Water Education Library Project', November, Presentation to the National Earth Science Teachers Association; National Science Teachers Association Area Convention: Portland, OR.

Professional Development with K12 STEM Teachers

Devaul, H., and T. Sumner. 2014. 'Enhancing Science Instruction with Next Generation Teaching Tools', September 29, Professional Development offered to Middle and High School Earth Science Teachers in St. Vrain Valley School District: Longmont, CO.

Devaul, H., and T. Sumner. 2009. 'Customizing Instruction with Digital Library Resources', July through August, Professional Development offered to 110 middle and high school science teachers in Denver Public Schools: Denver CO.

Sumner, T., M. R. Marlino, J. Scotchmoor, H. Devaul, L. Davis, M. Weingroff, S. Olds, L. White, H. Khan, and L. Barker. 2004. 'Teaching Boxes Workshop', April 24-25, Professional development offered to Earth System Science Teacher Leaders: University of California Museum of Paleontology, Berkeley, CA.

Davis, L., T. Sumner, M. Weingroff, R. Dearfor, and J. Weatherley. 2001. 'Help guide the future of the DLESE Discovery System', August 2- 4, Teacher professional development session at the DLESE Annual Meeting: Northern Arizona University, Flagstaff, AZ.

Devaul, H, T. Sumner, K. Ginger, L. Davis, and M. Weingroff. 2001. 'Creating Resources for Discovery and Re-use', August 2- 4, Teacher professional development session at the DLESE Annual Meeting: Northern Arizona University, Flagstaff, AZ.

Sumner, T., and M. Marlino. 2000. 'Digital Learning Resources Rubric Evaluation Workshop', May 20-21, Teacher professional development offered to science educators; Sponsored by the Long Beach Unified School District and California State University Long Beach: Long Beach, CA.

Co-Designed STEM Curriculum Products

We are leaders in curriculum co-design whereby innovative STEM curriculum is collaboratively created by teams of teachers, STEM scientists, educational technologists, and cognitive and learning scientists.

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