

**Brian Robert Belland**  
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## **Education**

Ph. D., Educational Technology, Department of Curriculum and Instruction, Purdue University	2008
Dissertation: Supporting Middle School Students' Construction of Evidence-Based Arguments: Impact of and Student Interactions with Computer-Based Argumentation Scaffolds. <i>Dissertation Abstracts International</i> 69/09 Publication No. AAT 3330215.	
M. A., French, Department of French and Italian, The Ohio State University, Columbus, OH	2001
B. A., French, Department of French, The College of Wooster, Wooster, OH	1999
Thesis: La traduction du Lai de l'Ombre de l'ancien français en français moderne [Translation of the Lay of the Shadow from Ancient French to Modern French].	
Study Abroad, Université de Nantes and Institut d'Etudes Européennes, Nantes, France	1997-1998

## **Academic Appointments**

<b>Utah State University</b> , Logan, UT	
<i>Associate Professor</i> , Department of Instructional Technology and Learning Sciences	2014-Present
<i>Assistant Professor</i> , Department of Instructional Technology and Learning Sciences	2008-2014
<b>Purdue University</b> , West Lafayette, IN	
<i>Teaching Assistant</i> , Department of Curriculum and Instruction	2004-2008
<i>Educational Technology Coordinator and Instructor</i> , Secondary Education Transition to Teaching Program	2006-2007
<i>Research Assistant</i> , Department of Curriculum and Instruction, Tech-Know-Build Challenge Grant	2004-2005
<i>Lecturer</i> , French, Department of Foreign Languages and Literatures	2002
<b>The Ohio State University</b> , Columbus, OH	
<i>Teaching Associate</i> , French, Department of French and Italian	1999-2001

## **Business/Industry Experience**

<b>OC Tanner</b> , Salt Lake City, UT	
Instructional design and project management consultant	2017-Present
<b>Imagination Station</b> (A Science Museum for Middle School-aged Children), Lafayette, IN	
<i>Co-advisor</i> , Imagination Station Team, Engineering Projects in Community Service, School of Engineering Education, Purdue University, West Lafayette, IN	2007-2008
<b>Eli Lilly</b> , Lafayette, IN	
<i>Intern</i> , XLC Services (Training Division)	2006

## **K-12 Experience**

<b>Tippecanoe, Lafayette, West Lafayette School Corporations</b> (All in Tippecanoe County, IN)	
<i>Substitute Teacher</i> , Elementary, Middle, and High School	2004

## Research

### *Research Interest*

- Machine learning to inform scaffolding customization
- Scaffolding argumentation during problem-based learning in middle and high school science
- Synthesis of scaffolding research across STEM education and education levels
- Scaffolding in preservice teacher education

### *Research Awards*

Received national awards for 5 research papers, which employed the following approaches

1. Hierarchical linear modeling
2. Ethnomethodology-informed qualitative analyses
3. Mixed methods approach including nested ANOVA and qualitative analysis informed by symbolic interactionism
4. Traditional meta-analysis
5. Conceptual framework

Year	Level	Award
2017	National	Association of Educational Communications and Technology Research and Theory Division Outstanding Journal Article Award
2014	National	Association of Educational Communications and Technology Division of Distance Learning Crystal Award – Quantitative Focused Article
2014	Department	Utah State University Department of Instructional Technology and Learning Sciences Researcher of the Year
2010	National	National Science Foundation CAREER Award
2009	National	American Educational Research Association Instructional Technology Special Interest Group Best Paper Award
2007	National	<i>Educational Technology Research and Development</i> Young Scholar Award, awarded by the <i>Educational Technology Research and Development</i> , Research Section, Editorial Board
2007	National	Lee W. Cochran Intern, Association for Educational Communications and Technology International Convention, Anaheim, CA
2007	National	American Educational Research Association Problem-Based Education Special Interest Group Best Student Paper
2007	Department	Frank B. DeBruicker Graduate Award, Educational Technology Program, Purdue University

### *Impact Summary*

h-index: 19

i10 index: 21

i100 index: 6

**Peer-Reviewed Journal Articles (\* indicates graduate student co-author; \*\* indicates undergraduate student co-author; + indicates invited submission)**

1. \*Kim, N. J., **Belland, B. R.**, & Walker, A. E. (In Press). Effectiveness of computer-based scaffolding among K-12 students engaged in problem-based learning in science: Bayesian meta-analysis. *Educational Psychology Review*. <http://doi.org/10.1007/s10648-017-9419-1> [ISI-indexed journal; 2016 5-year impact factor: 5.031].
2. \*Weiss, D. M., & **Belland, B. R.** (In Press). PBL group autonomy in a high school environmental science class. *Technology, Knowledge, and Learning*. <http://doi.org/10.1007/s10758-016-9297-5> [Scopus-indexed journal; 2016 CiteScore = 1.88 (88th percentile)].
3. **Belland, B. R.**, Walker, A. E., & \*Kim, N. J. (2017). A Bayesian network meta-analysis to synthesize the influence of contexts of scaffolding use on cognitive outcomes in STEM education. *Review of Educational Research*, 87(6), 1042-1081. <http://doi.org/10.3102/0034654317723009> [ISI-indexed journal; 2016 5-year impact factor: 10.071].
4. **Belland, B. R.**, Walker, A. E., \*Kim, N. J., & \*Lefler, M. R. (2017). Synthesizing results from empirical research on computer-based scaffolding in STEM education: A meta-analysis. *Review of Educational Research*, 87(2), 309-344. <http://doi.org/10.3102/0034654316670999> [ISI-indexed journal; 2016 5-year impact factor: 10.071].  
\*\*Winning paper of the 2017 Association of Educational Communications and Technology Research and Theory Division Outstanding Journal Article Award
5. \*Gardner, J., & **Belland, B. R.** (2017). Problem-centered supplemental instruction in biology: Influence on content recall, content understanding, and problem solving ability. *Journal of Science Education and Technology*, 26, 383-393. <http://doi.org/10.1007/s10956-017-9686-0> [ISI-indexed journal; 2016 5-year impact factor: 1.424].
6. Kuo, Y. C., **Belland, B. R.**, & \*Kuo, Y. T. (2017). Learning through blogging: Students' perspectives in collaborative blog-supported learning communities. *Educational Technology and Society*, 20(2), 37-50. [http://www.ifets.info/journals/20\\_2/4.pdf](http://www.ifets.info/journals/20_2/4.pdf) [ISI-indexed journal; 2016 5-year impact factor: 2.034]
7. **Belland, B. R.**, \*Gu, J., \*Kim, N., & \*\*Turner, D. J. (2016). An ethnomethodological perspective on how middle school students addressed a water quality problem. *Educational Technology Research & Development*, 64(6), 1135-1161. <http://doi.org/10.1007/s11423-016-9451-8> [ISI-indexed journal; 2016 5-year impact factor: 1.652; acceptance rate: 8%].
8. Kuo, Y. C., & **Belland, B. R.** (2016). An exploratory study of adult learners' perceptions of online learning: Minority students in continuing education. *Educational Technology Research & Development*, 64(4), 661-680. <http://doi.org/10.1007/s11423-016-9442-9> [ISI-indexed journal; 2016 5-year impact factor: 1.652; acceptance rate: 8%].
9. +**Belland, B. R.** (2016). Developing my perspectives on scaffolding and problem-based learning: A retrospective view. *Interdisciplinary Journal of Problem-based Learning*, 10(2) <http://doi.org/10.7771/1541-5015.1616> [Scopus-indexed journal; 2016 CiteScore: 1.38 (77th percentile); 15% acceptance rate].
10. **Belland, B. R.**, \*Burdo, R., & \*Gu, J. (2015). A blended professional development program to help a teacher learn to provide one-to-one scaffolding. *Journal of Science Teacher Education*, 26(3), 263-289. <http://doi.org/10.1007/s10972-015-9419-2> [Scopus-indexed journal; 2015 CiteScore: 1.04 (67th percentile)].
11. **Belland, B. R.**, \*Gu, J., \*\*Armbrust, S., & \*\*Cook, B. (2015). Scaffolding argumentation about water quality: A mixed method study in a rural middle school. *Educational Technology Research & Development*, 63(3), 325-353. <http://doi.org/10.1007/s11423-015-9373-x> [ISI-indexed journal; 2015 5-year impact factor: 1.643; acceptance rate: 8%].

12. **Belland, B. R.**, Walker, A. E., \*Olsen, M. W., & Leary, H. (2015). A pilot meta-analysis of computer-based scaffolding in STEM education. *Educational Technology and Society*, 18(1), 183-197. [http://www.ifets.info/journals/18\\_1/16.pdf](http://www.ifets.info/journals/18_1/16.pdf) [ISI-indexed journal; 2015 5-year Impact Factor: 1.472].
13. \*Kuo, Y. C., **Belland, B. R.**, Schroeder, K. E. E., & Walker, A. E. (2014). K-12 teachers' perceptions of and their satisfaction with interaction type in blended learning environments. *Distance Education*, 35(3), 360-381. <http://doi.org/10.1080/01587919.2015.955265> [ISI-indexed journal; 2014 5-year Impact Factor: 0.991].
14. \*Kuo, Y. C., Walker, A. E., **Belland, B. R.**, Schroder, K. E. E., & Kuo, Y. T. (2014). A case study of integrating Interwise: Interaction, Internet self-efficacy, and satisfaction in synchronous online learning environments. *The International Review of Research in Open and Distance Learning*, 15(1), 161-181. <http://www.irrodl.org/index.php/irrodl/article/view/1664/2814> [ISI-indexed journal; 2014 5-year Impact Factor: 1.003]
15. \*Kuo, Y. C., Walker, A. E., Schroder, K. E. E., & **Belland, B. R.** (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. *The Internet and Higher Education*, 20, 35-50. <http://doi.org/10.1016/j.iheduc.2013.10.001> [ISI-indexed journal; 2014 5-year Impact Factor: 2.903].  
\*\*Winning paper of the 2014 Association of Educational Communications and Technology Division of Distance Learning Crystal Award – Quantitative Focused Article
16. **Belland, B. R.**, & \*Drake, J. (2013). Toward a framework on how affordances and motives can drive different uses of scaffolds: Theory, evidence, and design implications. *Educational Technology Research & Development*, 61, 903-925. <http://doi.org/10.1007/s11423-013-9313-6> [ISI-indexed journal; 2013 5-year impact factor: 1.535]
17. **Belland, B. R.**, Kim, C., & Hannafin, M. J. (2013). A framework for designing scaffolds that improve motivation and cognition. *Educational Psychologist*, 48(4), 243-270. <http://doi.org/10.1080/00461520.2013.838920> [ISI-indexed journal; 2014 5-year Impact Factor: 5.137; Acceptance rate: 13.6%].
18. \*Kuo, Y., Walker, A. E., **Belland, B. R.** & Schroder, K. E. E. (2013). A predictive study of student satisfaction in online education programs. *The International Review of Research in Open and Distance Learning*, 14(1), 17-39. <http://www.irrodl.org/index.php/irrodl/article/view/1338> [ISI-indexed journal; 2013 Impact Factor: 0.748]
19. \*Gardner, J. L., & **Belland, B. R.** (2012). A conceptual framework for organizing active learning experiences in biology instruction. *Journal of Science Education and Technology*, 21(4), 465-475. <http://doi.org/10.1007/s10956-011-9338-8> [ISI-indexed journal; 2011 Impact factor: 0.865; Acceptance rate: 21-30%].
20. **Belland, B. R.** (2011). Distributed cognition as a lens to understand the effects of scaffolds: The role of transfer of responsibility. *Educational Psychology Review*, 23, 577-600. <http://doi.org/10.1007/s10648-011-9176-5> [ISI-indexed journal; 2011 5-year impact factor: 4.837; Acceptance rate: 11-20%].
21. **Belland, B. R.**, Glazewski, K. D., & Richardson, J. C. (2011). Problem-based learning and argumentation: Testing a scaffolding framework to support middle school students' creation of evidence-based arguments. *Instructional Science*, 39, 667-694. <http://doi.org/10.1007/s11251-010-9148-z> [ISI-indexed journal; 2011 5-year impact factor: 2.044; Acceptance rate: 21-30%]
22. **Belland, B. R.** (2010). Portraits of middle school students constructing evidence-based arguments during problem-based learning: the impact of computer-based scaffolds. *Educational Technology Research and Development*, 58(3), 285-309. <http://doi.org/10.1007/s11423-009-9139-4> [ISI-indexed journal; 2010 5-year impact factor: 1.77; Acceptance rate: 8%].

\*\* Earlier version of this paper was the winning paper of the 2009 American Educational Research Association, Instructional Technology Special Interest Group Best Paper Award

23. **Belland, B. R.** (2009). Using the theory of habitus to move beyond the study of barriers to technology integration. *Computers & Education*, 52, 353-364. <http://doi.org/10.1016/j.compedu.2008.09.004> [ISI-indexed journal; 2009 5-year impact factor: 2.868; Acceptance rate: 20%]
24. **Belland, B. R.**, French, B. F., & Ertmer, P. A. (2009). Validity and problem-based learning research: A review of instruments used to assess intended learning outcomes. *The Interdisciplinary Journal of Problem-Based Learning*, 3(1), 59-89. <http://doi.org/10.7771/1541-5015.1059> [Acceptance Rate: 10%].
25. **Belland, B. R.**, Glazewski, K. D., & Ertmer, P. A. (2009). Inclusion and problem-based learning: Roles of students in a mixed-ability group. *Research in Middle Level Education*, 32(9). [https://www.amle.org/portals/0/pdf/rmle/rmle\\_vol32\\_no9.pdf](https://www.amle.org/portals/0/pdf/rmle/rmle_vol32_no9.pdf) [Acceptance rate: 22%].  
\*\*Earlier version of this paper was the winning paper of the 2007 American Educational Research Association, Problem-based Education Special Interest Group Best Student Paper Award
26. **Belland, B. R.**, Glazewski, K. D., & Richardson, J. C. (2008). A scaffolding framework to support the construction of evidence-based arguments among middle school students. *Educational Technology Research and Development*, 56, 401-422. <http://doi.org/10.1007/s11423-007-9074-1> [ISI-indexed journal; 2008 5-year impact factor: 1.77; Acceptance rate: 8%]  
\*\*Winning paper of the 2007 *Educational Technology Research and Development* Young Scholar Award
27. Ertmer, P. A., Richardson, J. C., **Belland, B.**, Camin, D., Connolly, P., Coulthard, G., et al. (2007). Using peer feedback to enhance the quality of student online postings: An exploratory study. *The Journal of Computer-Mediated Communication*, 12(2), 412-433. <http://doi.org/10.1111/j.1083-6101.2007.00331.x> [ISI-indexed journal; 2007 5-year impact factor: 3.279; Acceptance rate: 20%]
28. **Belland, B. R.**, Ertmer, P. A., & Simons, K. D. (2006). Perceptions of the value of problem-based learning among students with special needs and their teachers. *The Interdisciplinary Journal of Problem-Based Learning*, 1(2), 1-18. <http://doi.org/10.7771/1541-5015.1024> [Acceptance rate: 10%]

### **Books**

**Belland, B. R.** (2017). *Instructional scaffolding in STEM education: Strategies and efficacy evidence*. Cham, Switzerland: Springer. Available open access: <http://doi.org/10.1007/978-3-319-02565-0> [Downloaded by 24708 as of 10/2017]

Fee, S. B., & **Belland, B. R.** (Eds.; 2012). *The role of criticism in understanding problem solving: Honoring the work of John C. Belland*. New York, NY, USA: Springer. Hardcover ISBN: 978-1-4614-1051-5; E-book ISBN: 978-1-4614-3540-2. <http://doi.org/10.1007/978-1-4614-3540-2> [In 395 libraries in 33 countries]

### **Book Chapters (\* indicates graduate student co-author; \*\* indicates undergraduate student co-author)**

1. \*Gu, J., & **Belland, B. R.** (2015). Preparing students with 21st century skills: Integrating scientific knowledge, skills, and epistemic beliefs in middle school science. In X. Ge, D. Ifenthaler, & J. M. Spector (Eds.), *Emerging technologies for STEAM education* (Vol. 2, pp.39-60). New York, NY, USA: Springer. [http://doi.org/10.1007/978-3-319-02573-5\\_3](http://doi.org/10.1007/978-3-319-02573-5_3)

2. **Belland, B. R.** (2015). Technology-enhanced inquiry learning. In J. M. Spector (Ed.), *Encyclopedia of educational technology* (pp. 757-759). Thousand Oaks, CA, USA: SAGE.
3. **Belland, B. R.** (2014). Scaffolding: Definition, current debates, and future directions. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), *Handbook of research on educational communications and technology* (4<sup>th</sup> Ed.; pp. 505-518). New York, NY, USA: Springer. ISBN 978-1-4614-3184-8. [http://doi.org/10.1007/978-1-4614-3185-5\\_39](http://doi.org/10.1007/978-1-4614-3185-5_39).
4. **Belland, B. R.** (2013). Mindtools for argumentation, and their role in promoting ill-structured problem solving. In J. M. Spector, B. B. Lockee, S. E. Smaldino, & M. Herring (Eds.), *Learning, problem solving, and mind tools: Essays in honor of David H. Jonassen* (pp. 229-246). New York, NY, USA: Routledge.
5. **Belland, B. R.** (2012). The role of construct definition in the creation of formative assessments in game-based learning. In D. Ifenthaler, D. Eseryel, & X. Ge (Eds.), *Assessment in game-based learning: Foundations, innovations, and perspectives* (pp. 29-42). New York, NY, USA: Springer. ISBN 978-1-4614-3545-7. [http://doi.org/10.1007/978-1-4614-3546-4\\_3](http://doi.org/10.1007/978-1-4614-3546-4_3)
6. **Belland, B. R.** (2012). Habitus, scaffolding, and problem-based learning: Why teachers' experiences as students matter. In S. B. Fee & B. R. Belland (Eds.), *The role of criticism in understanding problem solving: Honoring the work of John C. Belland* (pp. 87-100). New York, NY, USA: Springer. ISBN 978-1-4614-1051-5. [http://doi.org/10.1007/978-1-4614-3540-2\\_7](http://doi.org/10.1007/978-1-4614-3540-2_7)
7. **Belland, B. R., & Fee, S. B.** (2012). Conclusion: Building on the strengths of interdisciplinarity. In S. B. Fee & B. R. Belland (Eds.), *The role of criticism in understanding problem solving: Honoring the work of John C. Belland* (pp. 245-248). New York, NY, USA: Springer. ISBN 978-1-4614-1051-5. [http://doi.org/10.1007/978-1-4614-3540-2\\_16](http://doi.org/10.1007/978-1-4614-3540-2_16)
8. Fee, S. B., & **Belland, B. R.** (2012). Understanding criticism and problem-based learning: An introduction. In S. B. Fee & B. R. Belland (Eds.), *The role of criticism in understanding problem solving: Honoring the work of John C. Belland* (pp. 1-10). New York, NY, USA: Springer. ISBN 978-1-4614-1051-5. [http://doi.org/10.1007/978-1-4614-3540-2\\_1](http://doi.org/10.1007/978-1-4614-3540-2_1)

***Peer Reviewed Conference Proceedings (\* indicates graduate student co-author; \*\* indicates undergraduate student co-author)***

1. \*Kim, N. J., **Belland, B. R.**, & Kim, Y. (2017). Data mining meta-analysis coding to develop smart learning systems that dynamically customize scaffolding. *Proceedings of the 23rd Americas Conference on Information Systems*. <http://aisel.aisnet.org/cgi/viewcontent.cgi?article=1343&context=amcis2017>
2. **Belland, B. R.**, \*Kim, N. J., \*Weiss, D. M., & \*\*Piland, J. (2017). High school students' collaboration and engagement with scaffolding and information as predictors of argument quality during problem-based learning. *Proceedings of the 2017 Annual Meeting of Computer-supported Collaborative Learning (CSCL)*, 255-262. <https://repository.isls.org/handle/1/239>
3. \*Kim, N. J., **Belland, B. R.**, & Walker, A. E. (2015). Effectiveness of computer-based scaffolding for K-adult students in the context of problem-centered instructional models related to STEM education: Bayesian meta-analysis. *Proceedings of selected research and development presentation at the 2015 Annual Convention of the Association for Educational Communication and Technology* (vol. 1, pp. 109-116). Indianapolis, IN: AECT.
4. **Belland, B. R.**, \*Gu, J., \*\*Armbrust, S., & \*\*Cook, B. (2013). Using generic and context-specific scaffolding to support authentic science inquiry. In D. G. Sampson, J. M. Spector, D. Ifenthaler, & P. Isais (Eds.), *IADIS international conference on cognition and exploratory learning in the digital age (CELDA 2013)* (pp. 185-192). Fort Worth, TX, USA: IADIS.
5. **Belland, B. R.**, \*Gu, J., & \*Burdo, R. (2012). Computer-based scaffolding's role in developing middle school students' ability to argue about socioscientific issues. *Proceedings of selected research and development presentations at the 2012 Annual Convention of the Association for*

- Educational Communications and Technology* (vol. 1, pp. 88-94). Louisville, KY, USA: AECT.
6. \*Gu, J., & **Belland, B. R.** (2012). A scaffolding framework to promote the transfer of argumentation ability. *Proceedings of selected research and development presentations at the 2012 Annual Convention of the Association for Educational Communications and Technology* (vol. 2, pp. 273-279). Louisville, KY, USA: AECT.
  7. **Belland, B. R.**, \*Drake, J., & \*Liu, Z. (2011). The role of affordances and motives in explaining how and why students use computer-based scaffolds. *Proceedings of the 11<sup>th</sup> Annual International Conference on Advanced Learning Technologies*, 529-531. Athens, GA, USA: IEEE. <http://doi.org/10.1109/ICALT.2011.162>
  8. Pritchard, D. E., Barrantes, A., & **Belland, B. R.** (2009). What else (besides the syllabus) should students learn in introductory physics? *American Institute of Physics Proceedings, 1179* (2009 Physics Education Research Conference), 43-46. <http://doi.org/10.1063/1.3266749>
  9. **Belland, B. R.**, White, W., Glazewski, K. D., & Richardson, J. C. (2008). The Connection Log: A computer-based scaffolding system to help students build evidence-based arguments. *Proceedings of selected research and development presentations at the 2007 Annual Convention of the Association for Educational Communications and Technology* (pp. 25-35). Anaheim, CA, USA: AECT.
  10. **Belland, B. R.**, Vaithinathan, V., Garcia, B., & Huang W. (2008). Collaborative and sustainable instructional design model for Service Learning. *Proceedings of selected research and development presentations at the 2007 Annual Convention of the Association for Educational Communications and Technology* (pp. 35-41). Anaheim, CA, USA: AECT.
  11. Ertmer, P. A., Richardson, J. C., **Belland, B.**, Camin, D., Connolly, P., Coulthard, G., Lei, K., & Mong, C. (2006). Impact and perceived value of peer feedback in online learning environments. *Proceedings of selected research and development presentations at the 2005 Annual Convention of the Association for Educational Communications and Technology* (pp. 150-159), Orlando, FL, USA: AECT.
  12. Park, S. H., Lee, E. H., Blackman, J., Ertmer, P., Simons, K., & **Belland, B.** (2006). Examining the barriers encountered when planning and implementing technology-enhanced PBL in the middle school classroom. In C. Crawford (Ed.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2005* (pp. 2039-2043). Norfolk, VA, USA: Association for the Advancement of Computing in Education.
  13. Simons, K. D., Ertmer, P., **Belland, B.**, Blackman, J., Lee, M., Ottenbreit, A., & Park, S. H. (2005). Middle school students in technology-enhanced problem based learning: Experiences of high and low self-directed students. In C. Crawford (Ed.), *Society for Information Technology and Teacher Education International Conference 2005* (pp. 1029-1032). Norfolk, VA, USA: Association for the Advancement of Computing in Education.

#### ***Practitioner-oriented Journal Articles (\* indicates graduate student co-author)***

1. \*Weiss, D. M., & **Belland, B. R.** (2016). Book Review of "Transforming schools using project-based learning, performance assessment, and Common Core Standards." *Interdisciplinary Journal of Problem-based Learning, 10*(2), Article 4. <http://doi.org/10.7771/1541-5015.1663>
2. **Belland, B. R.** (2013). Our students deserve the very best! *TechTrends, 57*(5), 6-7.
3. **Belland, B. R.** (2010). A gray day for science standards. *TechTrends, 54*(5), 18-19.
4. **USU Instructional Technology and Learning Sciences Faculty.** (2009). An identity shift at Utah State University: What's in a name? *Educational Technology, 49*(4), 38-41.
5. **Belland, B. R.**, & Belland, J. C. (2008). A case study gone awry. *TechTrends, 52*(1), 15.
6. **Belland, B. R.** (2008). Understanding and applying the professional code of ethics. *TechTrends, 52*(1), 43-45.

***Major Revisions Submitted (\* indicates graduate student co-author; \*\* indicates undergraduate student co-author)***

**Belland, B. R.** (Under review). Technology applications to support the design and facilitation of, and participation in PBL. Manuscript submitted for publication to the *Wiley handbook of problem-based learning*.

**Belland, B. R., \*Weiss, D. M., \*Kim, N. J., \*\*Piland, J., & \*Gu, J.** (Under review). An examination of credit recovery students' use of computer-based scaffolding in a problem-based, scientific inquiry unit. Manuscript submitted for publication to the *International Journal of Science and Mathematics Education*.

***Major Revisions Requested (\* indicates graduate student co-author; \*\* indicates undergraduate student co-author)***

\*Kim, N. J., & **Belland, B. R.** Achieving optimal challenge in problem-based learning in K-12 settings. Manuscript submitted for publication to *Interdisciplinary Journal of Problem-based Learning*.

***Manuscripts Under First Review (\* indicates graduate student co-author; \*\* indicates undergraduate student co-author)***

**Belland, B. R., \*Kim, N., \*Gu, J., \*Weiss, D. M., & \*\*Piland, J.** (Under review). Examining relationships among argumentation scaffolding version, situational interest, epistemic beliefs, epistemic aims, and problem solving process during problem-based learning in middle school science. Manuscript submitted for publication to *Contemporary Educational Psychology*.

**Belland, B. R., & \*Thayne, J.** (Under review). Building distributed scaffolding systems with generic and context-specific scaffolding. Manuscript submitted for publication to *Technology, Knowledge, and Learning*.

\*Kim, N. J., & **Belland, B. R.** (Under review). Enhancing high school students' information literacy and argumentation skills through computer-based scaffolding in problem-based learning for science learning. Manuscript submitted for publication to *Computers & Education*.

\*Kuo, Y. C., Schroder, K. E. E., **Belland, B. R.**, & Walker, A. E. (Under review). Blended learning: Student perceptions of interactions and course satisfaction. Manuscript submitted for publication to *Learning, Media, and Technology*.

***Manuscripts In Progress (\* indicates graduate student co-author; \*\* indicates undergraduate student co-author)***

**Belland, B. R., \*\*Andreassen, L., \*Kim, N. J., & Walker, A. E.** Meta-analysis comparison of effectiveness of computer-based scaffolding in complex problem solving: Individual vs. group delivery.

**Belland, B. R., \*Gu, J., \*Kim, N. J., \*\*Turner, D. J., & \*Weiss, D. M.** The relationship between problem-based learning, epistemic beliefs, and argumentation in middle school science: An exploratory, mixed method study.

**Belland, B. R., \*Kim, N. J., & Kim, Y.** Data mining a scaffolding meta-analysis dataset to generate parameters for customizing scaffolding

**Belland, B. R., \*Kim, N. J., \*Weiss, D. M., Gu, J., & \*\*Piland, J.** Impact of using a generic argumentation scaffold in two successive PBL units on different topics

**Belland, B. R., \*Kim, N. J., \*Weiss, D. M., & \*\*Piland, J.** High school students' collaboration and engagement with scaffolding and information as predictors of argumentation skill during problem-



based learning

- \*Gu, J., & **Belland, B. R.** Prompting adolescents' epistemic beliefs in a field-based science program: An exploratory, mixed method study.
- \*Kim, N. J. & **Belland, B. R.** Bayesian meta-analysis as a possible answer to the limitations of small sample size and publication bias in traditional meta-analysis techniques.
- \*Kim, N. J., **Belland, B. R.**, Walker, A. E., & \*\*Piland, J. C. Computer-based scaffolding in the context of problem-centered instructional models for STEM education across countries and U.S. states: Meta-analysis and cluster analysis.
- \*Kim, N. J., \*\*Piland, J., **Belland, B. R.**, & Walker, A. E. Effects of computer-based scaffolding in problem-centered approaches for engineering education: A meta-analysis.
- \*Lefler, M. R., **Belland, B. R.**, Walker, A. E., & \*Kim, N. From the ground up: A comprehensive theoretical framework for computer-based scaffolding.
- Walker, A. E., **Belland, B. R.**, & \*Kim, N. J. Bayesian network meta-analysis to determine the influence of scaffolding features and risk of bias on within-subjects, cognitive outcomes in STEM education.
- Walker, A. E., **Belland, B. R.**, \*Kim, N. J., & \*\*Piland, J. Examining computer based scaffolding research quality through a risk of bias lens.
- \*Weiss, D. M. & **Belland, B. R.** Co-designing professional learning in support of a problem-based higher education engineering class: A qualitative study.
- \*Weiss, D. M. & **Belland, B. R.** Future time perspective, problem-based learning, and engineering education: A mixed method multi-case study.
- \*Weiss, D. M. & **Belland, B. R.** Professional development supporting in-situ educational research.

## **Grants**

### ***Funded External Grants (N = 7)***

1. **Belland, B. R. (PI).** *Collaborative research: Scaffolding preservice early childhood teachers to debug during block-based programming.* National Science Foundation, IUSE (Improving Undergraduate STEM Education) program. \$136,725. 8/1/2017-7/31/2020, Award # 1712155.
2. **Belland, B. R. (PI),** & Walker, A. E. (Co-PI). *Research Experiences for Undergraduates Supplement for Impact of Scaffolding Characteristics and Study Quality on Learner Outcomes in STEM Education.* National Science Foundation REU (Research Experiences for Undergraduates) Supplement. \$12,375. 11/21/2014-8/31/2017.
3. **Belland, B. R. (PI).** *Research Experiences for Undergraduates Supplement for CAREER: Supporting Middle School Students' Construction of Evidence-based Arguments.* National Science Foundation REU (Research Experiences for Undergraduates) Supplement. \$10,070, 8/1/2014-7/31/2017.
4. **Belland, B. R. (PI),** & Walker, A. E. (Co-PI). *Impact of scaffolding characteristics and study quality on learner outcomes in STEM education: A meta-analysis.* National Science Foundation, REESE (Research and Evaluation on Education in Science and Engineering), \$297,434, 9/15/2013-8/31/2018, Award # 1251782
5. **Belland, B. R. (PI).** *Research Experiences for Undergraduates Supplement for CAREER: Supporting Middle School Students' Construction of Evidence-based Arguments.* National Science Foundation REU (Research Experiences for Undergraduates) Supplement. \$10,070, 8/1/2013-7/31/2014.
6. **Belland, B. R. (PI).** *Research Experiences for Undergraduates Supplement for CAREER: Supporting Middle School Students' Construction of Evidence-based Arguments.* National Science Foundation, REU (Research Experiences for Undergraduates) Supplement, \$14,750, 8/1/2012-7/31/2013.

7. **Belland, B. R. (PI).** *CAREER: Supporting Middle School Students' Construction of Evidence-based Arguments*. National Science Foundation, CAREER (Faculty Early Career Development Program), DRK-12, \$555,443, 8/15/2010-7/31/2017, Award # 0953046.

***Funded Internal Grants (N = 4; + Indicates led to funded external grant proposal)***

- Belland, B. R. (PI), & Kim, Y. (Co-PI).** *Computer-based individualized and customized supports for K-12 students: The development of machine learning systems*. Utah State University SPARC seed grant program, \$34,507, 1/1/2017-12/31/2017.
- +**Belland, B. R. (PI), Walker, A. E. (Co-PI).** *Research Catalyst: Laying the Foundation for a Scaffolding Meta-Analysis*. Utah State University Vice President of Research Office, Research Catalyst, \$20,000, 1/1/2011-12/31/2011.
- +**Belland, B. R. (PI).** *Supporting Middle School Students' Construction of Evidence-based Arguments: A GEM Application to Support the Development of an NSF CAREER Application*. Utah State University Vice President of Research Office, Grant Enhancement Mentoring Program, \$5000, 1/1/2009-12/31/2009
- Belland, B. R. (PI).** *Summer Research Grant*. Purdue Research Foundation, Summer Dissertation Support, \$2500 plus summer tuition and fees, 5/15/2007-7/31/2007.

***Grants under Review***

- Belland, B. R. (PI) & Kim, Y. (Co-PI).** Optimizing parameters for dynamic customization of scaffolding through machine learning with streaming student data. Proposal submitted to National Science Foundation, EHR Core Research Program. Proposed budget: \$499,944. Proposed grant period: 7/1/2018-6/31/2021.

***Refereed Presentations since 2008 (\* indicates graduate student co-author; \*\* indicates undergraduate student co-author)***

***National/International***

- \*Kim, N. J., **Belland, B. R.**, & Kim, Y. S. (Accepted). Clustering the relationship between scaffolding and students' characteristics through data mining. Poster accepted for presentation at the 2018 Annual Meeting of the American Educational Research Association, New York, NY, USA.
- \*Weiss, D. M. & **Belland, B. R.** (Accepted). Identifying and applying participant learning preferences in professional learning supporting in-situ educational research. Paper accepted for presentation at the 2018 Annual Meeting of the American Educational Research Association, New York, NY, USA.
- \*Weiss, D. M. & **Belland, B. R.** (Accepted). The effect of subverting a key ground rule of PBL by providing information first. Poster accepted for presentation at the 2018 Annual Meeting of the American Educational Research Association, New York, NY, USA.
- Kim, Y. S., **Belland, B. R.**, & \*Kim, N. J. (Accepted). Profiling meta-analysis student clusters with scaffolding characteristics. Paper accepted for presentation at the 9th Annual Post-ICIS [International Conference on Information Systems] KrAIS [Korean Chapter of the Association for Information Systems] Research Workshop, Seoul, South Korea.
- \*Kim, N. J., **Belland, B. R.**, & Kim, Y. (2017, August). Data mining meta-analysis coding to develop smart learning systems that dynamically customize scaffolding. Paper presented at the Americas Conference on Information Systems, Boston, MA, USA.
- Belland, B. R.**, \*Kim, N. J., \*Weiss, D. M., & \*\*Piland, J. (2017, June). High school students' collaboration and engagement with scaffolding and information as predictors of argument quality during problem-based learning. Paper presented at the 2017 Annual Meeting of Computer-supported Collaborative Learning (CSCL), Philadelphia, PA, USA.

- Belland, B. R.**, \*Kim, N. J., \*Weiss, D. M., & \*\*Piland, J. (2017, May). Impact of using a generic argumentation scaffold in two successive PBL units on different topics. Paper presented at the 2017 Annual Meeting of the American Educational Research Association, San Antonio, TX, USA.
- \*Kim, N. J., **Belland, B. R.**, Walker, A. E., & \*\*Piland, J. (2017, April). Computer-based scaffolding in STEM education across countries and U.S. states: Meta-analysis and cluster analysis. Paper accepted for presentation at the 2017 Annual Meeting of the American Educational Research Association, San Antonio, TX, USA.
- \*\*Piland, J., \*Kim, N. J., **Belland, B. R.**, & Walker, A. E. (2017, April). Effects of computer-based scaffolding in problem-centered approaches for engineering education: A meta-analysis. Paper presented at the 2017 Annual Meeting of the American Educational Research Association, San Antonio, TX, USA.
- Walker, A. E., **Belland, B. R.**, \*Kim, N. J., & \*\*Piland, J. (2017, April). Examining computer based scaffolding research quality through a risk of bias lens. Paper presented at the 2017 Annual Meeting of the American Educational Research Association, San Antonio, TX, USA.
- Belland, B. R.**, Walker, A. E., \*Kim, N. J., & \*\*Piland, J. (2016, December). New directions for development of and research on computer-based scaffolding emanating from meta-analyses of scaffolding. Paper presented at the 2016 Asia History, Philosophy, and Science Teaching Group (HPST) Conference, Busan, South Korea.
- \*Kim, N., & **Belland, B. R.** (2016, October). *Suggestion of machine learning systems for computer-based scaffolding*. Paper presented at the 2016 AECT International Convention, Las Vegas, NV, USA.
- Ford, M. J., **Belland, B. R.**, Berland, L., Russ, R., Sandoval, W., Enyedy, N., & Chen, S. (2016, August). *Argumentation in science classrooms: Theoretical and practical perspectives*. Symposium presented at the 2016 European Association of Research on Learning and Instruction (EARLI) Argumentation SIG (SIG 26) meeting, Ghent, Belgium.
- \*\*Andreassen, L., \*Kim, N. J., \*Lefler, M. R., **Belland, B. R.**, & Walker, A. E. (2016, April). *Meta-analysis comparison of effectiveness of computer-based scaffolding in complex problem solving: Individual vs. group delivery*. Paper presented at the 2016 Annual Meeting of the American Educational Research Association, Washington, DC, USA.
- Belland, B. R.**, \*Gu, J., \*Weiss, D. M., & \*Kim, N. J. (2016, April). *An examination of credit recovery students' use of computer-based scaffolding in a problem-based, scientific inquiry unit*. Paper presented at the 2016 Annual Meeting of the American Educational Research Association, Washington, DC, USA.
- \*Kim, N. J., & **Belland, B. R.** (2016, April). *Enhancing high school students' information literacy through computer-based scaffolding in problem-based learning for science learning*. Paper presented at the 2016 Annual Meeting of the American Educational Research Association, Washington, DC, USA.
- Walker, A. E., **Belland, B. R.**, \*Kim, N. J., \*Lefler, M. R., \*\*Whitney, B., & \*\*Andreassen, L. (2016, April). *Using Bayesian network meta-analysis to synthesize research on computer-based scaffolding in STEM education*. Paper presented at the 2016 Annual Meeting of the American Educational Research Association, Washington, DC, USA.
- \*Kim, N., **Belland, B. R.**, & Walker, A. E. (2015, November). *Effectiveness of computer-based scaffolding in problem-centered instructional models for STEM education: Bayesian meta-analysis*. Paper presented at the 2015 AECT International Convention, Indianapolis, IN, USA.
- \*Weiss, D. M. & **Belland, B. R.** (2015, November). *Promoting group process autonomy in a high school problem-based learning unit*. Paper presented at the 2015 AECT International Convention, Indianapolis, IN, USA.
- Belland, B. R.**, \*Kim, N., \*Lefler, M., & Walker, A. E. (2015, April). *Synthesizing results from empirical*

*research on computer-based scaffolding in STEM education: A meta-analysis.* Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL, USA.

- Belland, B. R.,** \*Gu, J., \*Kim, N., \*\*Turner, D. J., & \*Weiss, D. M. (2015, April). *The relationship between problem-based learning, epistemic beliefs, and argumentation in middle school science.* Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL, USA.
- \*Gu, J., **Belland, B. R.,** \*Weiss, D. M., \*Kim, N., & \*\*Piland, J. (2015, April). *Middle school students' science interest and epistemic beliefs in a technology-enhanced, problem-based, scientific inquiry unit.* Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL, USA.
- \*Gu, J., & **Belland, B. R.** (2015, April). *Prompting adolescents' epistemic beliefs in a field-based science program: An exploratory, mixed methods study.* Paper presented at the Annual Meeting of the National Association of Research on Science Teaching, Chicago, IL, USA.
- \*Kim, N. & **Belland, B. R.** (2014, November). *Optimal challenge in problem-based learning.* Paper presented at the 2014 Association for Educational Communications and Technology International Convention, Jacksonville, FL, USA.
- \*Lefler, M. R., **Belland, B. R.,** Walker, A. E., & \*Kim, N. (2014, November). *From the ground up: A comprehensive theoretical framework for computer-based scaffolding.* Paper presented at the 2014 Association for Educational Communications and Technology International Convention, Jacksonville, FL, USA.
- \*Weiss, D. M. & **Belland, B. R.** (2014, November). *Professional development for novice PBL instructors.* Paper presented at the 2014 Association for Educational Communications and Technology International Convention, Jacksonville, FL, USA.
- Belland, B. R.,** Walker, A. E., \*Kim, N. J., & \*Lefler, M. R. (2014, July). *A preliminary meta-analysis on the influence of scaffolding characteristics and study and assessment quality on cognitive outcomes in STEM education.* Poster presented at the 2014 Annual Meeting of the Cognitive Science Society, Québec City, Québec, Canada.
- Belland, B. R.,** \*Gu, J., \*Kim, N. J., \*\*Turner, D. J., & \*Weiss, D. M. (2014, April). *How middle school students investigated water quality, evaluated evidence, and constructed arguments: An ethnomethodological study.* Paper presented at the 2014 American Educational Research Association Annual Meeting, Philadelphia, PA, USA.
- Belland, B. R.** (2013, November). *Becoming researchers to integrate technology: The role of learning research methodology in learning how to integrate technology.* Paper presented at the 2013 Association for Educational Communications and Technology International Convention, Anaheim, CA, USA.
- Belland, B. R.,** \*Gu, J., \*\*Armbrust, S., & \*\*Cook, B. (2013, October). *Using generic and context-specific scaffolding to support authentic science inquiry.* Paper presented at Cognition and Exploratory Learning in the Digital Age (CELDA), Fort Worth, TX, USA.
- Belland, B. R.,** \*Gu, J., \*\*Armbrust, S., & \*\*Cook, B. (2013, April). *Scaffolding middle school students' arguments about water quality: A mixed method study.* Paper presented at the 2013 American Educational Research Association Annual Meeting, San Francisco, CA, USA.
- \*Gu, J., & **Belland, B. R.** (2013, April). *The role of epistemic beliefs in argumentation and science inquiry: A conceptual framework.* Poster presented at the 2013 American Educational Research Association Annual Meeting, San Francisco, CA, USA.
- Belland, B. R.,** \*Gu, J., & \*Burdo, R. (2012, November). *Computer-based scaffolding's role in developing middle school students' ability to argue about socioscientific issues.* Paper presented at

the 2012 Association for Educational Communications and Technology International Convention, Louisville, KY, USA.

- \*Gu, J., & **Belland, B. R.** (2012, November). *A scaffolding framework to promote the transfer of argumentation ability*. Paper presented at the 2012 Association for Educational Communications and Technology International Convention, Louisville, KY, USA.
- Belland, B. R.** (2012, October). *Scaffolding: Definition, current debates, and future directions*. Paper presented at the 2012 Association for Educational Communications and Technology International Convention, Louisville, KY, USA.
- Belland, B. R.**, \*Burdo, R., & \*Gu, J. (2012, April). *Supporting teacher professional development in PBL via distance learning technologies*. Paper presented at the 2012 American Educational Research Association Annual Meeting, Vancouver, Canada.
- Belland, B. R.**, Walker, A., \*Olsen, W., & Leary, H. (2012, April). *Impact of scaffolding characteristics and study quality on learner outcomes in STEM education: A meta-analysis*. Paper presented at the 2012 American Educational Research Association Annual Meeting, Vancouver, Canada.
- \*Drake, J., & **Belland, B. R.** (2012, April). *Enculturating middle school students into the scientific community using scaffolds to promote dialectical argumentation*. Paper presented at the 2012 American Educational Research Association Annual Meeting, Vancouver, Canada.
- Belland, B. R.**, \*Drake, J., \*Liu, Z., \*Gu, J., & \*Burdo, R. (2011, November). *Design and evaluation of scaffolds to support middle school students' construction of evidence-based arguments*. Paper presented at the 2011 Association for Educational Communications and Technology International Convention, Jacksonville, FL, USA.
- Belland, B. R.**, \*Drake, J., & \*Liu, Z. (2011, July). *The role of affordances and motives in explaining how and why students use computer-based scaffolds*. Paper presented at the 2011 IEEE International Conference on Advanced Learning Technologies, Athens, GA, USA.
- \*Thomas, J. M., & **Belland, B. R.** (2011, April). *Challenges for elderly populations learning to use information and communications technologies*. Poster presented at the 2011 American Educational Research Association Annual Meeting, New Orleans, LA, USA.
- \*Kuo, Y., Walker, A., Eastmond, N., **Belland, B. R.**, & Schroeder, K. (2011, April). *Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in distance education courses*. Paper presented at the 2011 American Educational Research Association Annual Meeting, New Orleans, LA, USA.
- Napper, V., **Belland, B. R.**, McBride, R. H., & \*Gronseth, S. (2010, October). *How the AECT code of ethics guides instructional design for cyber learning environments*. Paper presented at the 2010 Association for Educational Communications and Technology International Convention, Anaheim, CA, USA.
- Napper, V., \*Gronseth, S., & **Belland, B. R.** (2010, October). *Exploring the code of ethics: Cases and discussion*. Paper presented at the 2010 Association for Educational Communications and Technology International Convention, Anaheim, CA, USA.
- \*Gardner, J., **Belland, B. R.**, \*Jeon, T., \*Clark, R., & Podgorski, G. (2010, October). *Testing the effectiveness of teaching microevolution using first principles of instruction*. Paper presented at the 2010 Association for Educational Communications and Technology International Convention, Anaheim, CA, USA.
- Belland, B. R.**, Walker, A., \*Leary, H., \*Kuo, Y., & Can, G. (2010, May). *A meta-analysis of problem-based learning corrected for attenuation and accounting for internal threats*. Paper presented at the 2010 American Educational Research Association Annual Meeting, Denver, CO, USA.
- Belland, B. R.**, Kim, C., & Hannafin, M. (2010, May). *A conceptual framework for increasing middle*

*school students' science motivation*. Paper presented at the 2010 American Educational Research Association Annual Meeting, Denver, CO, USA.

**Belland, B. R.** (2009, October). *A transfer framework for scaffolded problem solving approaches*. Paper presented at the 2009 Association for Educational Communications and Technology Annual Conference, Louisville, KY, USA.

Pritchard, D. E., Barrantes, A., & **Belland, B. R.** (2009, July). *What else (Besides the syllabus) should students learn in introductory physics?* Poster presented at the 2009 Physics Education Research Conference, Ann Arbor, MI, USA.

**Belland, B. R.** (2009, April). *A follow-up study on scaffolding middle school students' creation of evidence-based arguments*. Paper presented at the 2009 American Educational Research Association Annual Meeting, San Diego, CA, USA.

\*\* Winning paper of the 2009 AERA Instructional Technology Special Interest Group Best Paper Award

**Belland, B. R.**, Glazewski, K. D., & Richardson, J. C. (2008, November). *A scaffolding framework to support the creation of evidence-based arguments among middle school students*. Paper presented at the *Educational Technology Research and Development* editorial board meeting at the 2008 Association for Educational Communications and Technology International Convention, Orlando, FL, USA.

### ***Invited Presentations (\* indicates graduate student co-author)***

**Belland, B. R.** (2016, December). *Making problem-centered approaches work: The role of scaffolding in educating future learning designers*. Invited lecture presented at Pusan National University, Busan, South Korea, December 9, 2016.

**Belland, B. R.** (Spring 2015; Spring 2013, Spring 2012, Spring 2011, Spring 2010). *Synthesizing the literature*. Presented to a doctoral level seminar on literature reviews at the University of Georgia - EDIT 9630.

**Belland, B. R.** (2014, August). *Year 4 of CAREER: Supporting middle school students' construction of evidence-based arguments*. Poster presented at the 2014 National Science Foundation DR-K12 Principal Investigator Meeting, Washington, DC, USA.

**Belland, B. R.** (2012, November). *Grant writing*. Paper presented at the 2012 Association for Educational Communications and Technology International Convention, Louisville, KY, USA.

Brush, T., Glazewski, K., **Belland, B. R.**, \*Burdo, R. A., \*Gu, J., Ottenbreit-Leftwich, A., & Leary, H. (2012, October). *Problem-based learning and teacher education*. Paper presented at the 2012 Association for Educational Communications and Technology International Convention, Louisville, KY, USA.

**Belland, B. R.** (2012, June). *Year 2 of CAREER: Supporting middle school students' construction of evidence-based arguments*. Poster presented at the 2012 National Science Foundation DR-K12 Principal Investigator Meeting, Crystal City, VA, USA.

West, R., Inan, F., & **Belland, B. R.** (2011, November). *Building up your CV: From Ph. D. student to tenure track faculty*. Paper presented at the 2011 Association for Educational Communications and Technology International Convention, Jacksonville, FL, USA.

**Belland, B. R.** (Fall 2011). *The role of argumentation and scaffolding in thinking critically about authentic problems*. Paper presented to the Department of Instructional Psychology and Technology, Brigham Young University, Provo, UT.

**Belland, B. R.** (2010, December). *Year 1 of CAREER: Supporting middle school students' construction of evidence-based arguments*. Poster presented at the 2010 National Science Foundation DR-K12

Principal Investigator Meeting, Washington, DC, USA

**Belland, B. R.** (Fall 2010). *How to integrate research and education in NSF CAREER proposals*. Presented to untenured faculty in the Utah State University College of Engineering.

**Belland, B. R.** (2010, May). *Being successful with an academic job search in instructional technology*. Paper presented at the 2010 American Educational Research Association Annual Meeting, Denver, CO, USA.

**Belland, B. R.** (Fall 2010). *Job Search*. Presented about how to organize oneself for an academic job search to a doctoral level seminar at Purdue University.

## Teaching

### *Teaching Awards*

Year	Level	Award
2014	Department	Utah State University Department of Instructional Technology and Learning Sciences Teacher of the Year
2011	University	Utah State University Regional Campuses and Distance Education Exemplary Online Course Award for INST 6505 - Foundations of Instructional Technology and Learning Sciences
2011	University	Utah State University Regional Campuses and Distance Education Exemplary Online Course Award for INST 6310 - Foundations of Educational Technology
2007	University	2007 Purdue University Graduate Student Award for Outstanding Teaching
2007	College	2007 Purdue University College of Education Outstanding Graduate Instructor Award
2006	Department	Purdue University Department of Curriculum and Instruction Outstanding Graduate Teaching Assistant Award

### *Courses Taught*

#### *Utah State University, Logan, UT*

Emma Eccles Jones College of Education and Human Services 2013-present

EDUC 6550 - Research for Teachers (MEd programs in College; Format: Online; Semester: Spring 2013; Spring 2014); Topics include literature review, quantitative, qualitative, and mixed method approaches, formative and summative evaluation, and research proposals.

Department of Instructional Technology and Learning Sciences 2008-Present

ITLS 4010 - Instructional Technology for Elementary Teachers (Format: Face-to-face; Semesters: Spring 2009; Spring 2010); Topics include pedagogical approaches like webquests, distance education and technology integration, and technology topics such as blogs, wikis, podcasts, and Microsoft Office products.

ITLS 4015 - Instructional Technology for Secondary Teachers (Format: Online; Semesters: Spring 2011); Topics included pedagogical approaches like webquests, distance education and technology integration, and technology topics such as blogs, wikis, podcasts, and Google Docs/spreadsheets.

ITLS 5195/5290/6195/6290/6960 (Format: Online; Semester: Spring 2016; Summer

2016); This is a capstone course in which multimedia minor (undergraduate), MEd, and MLTID students develop, evaluate, and iteratively improve their projects through formative evaluation, peer review, and instructor feedback.

ITLS 6310 - Foundations of Educational Technology (MEd Program; Format: Online; Semesters: Fall 2010; Fall 2011; Fall 2012 – online course design is used as an example by the LMS Instructure Canvas); Topics included history, definitions, theoretical background, and professions of instructional technology and learning sciences.

ITLS 6310 - Foundations of Instructional Technology and Learning Sciences  
\* Course number applied to this new course for the joint Master's core (MS/MLTID/MEd Program; Format: Online and Face-to-Face; Semesters: Fall 2013, Fall 2015, Fall 2016; Fall 2017) Topics include history, definitions, theoretical background, and professions of instructional technology and learning sciences.

ITLS 6325 - Communication, Instruction, and the Learning Process (MEd program; Format: Online; Semesters: Summer 2009; Fall 2009); Topics include instructional implications of learning theories.

ITLS 6505 - Foundations of Instructional Technology (MS Program; Format: Online and Face-to-Face; Semesters: Fall 2008; Fall 2009, Fall 2010; Fall 2011; Fall 2012); Topics include history, definitions, theoretical background, and professions of instructional technology and learning sciences.

ITLS 6730 – Technology and its Role in the Transformation of Education (MEd program; Format: Online; Semesters: Summer 2011, Summer 2012; Summer 2013); Topics include the role of technology in the transformation of K-12 education.

ITLS 7000 - Proseminar (PhD program; Format: Face-to-face; Semesters: Every Fall semester); Each faculty member teaches it for three weeks focusing on their research interests. I teach mine on scaffolding.

ITLS 6870, 7870 - Instructional Scaffolding Seminar (Master's and PhD programs; Format: Face-to-face/online; Semesters: Spring 2011; Spring 2016); Topics include theoretical bases, trends, definitions, types of scaffolding, and current controversies.

### ***Research Supervision (unless otherwise noted, Department of ITLS, Utah State University)***

#### ***Chair, PhD Dissertations Completed (N = 5)***

David Mark Weiss (PhD, 2017). Dissertation title: *In-situ educational research from concept to classroom implementation: A multiple paper dissertation*. [Note: Dissertation successfully defended but needs to make minor final edits and deposit]

Nam Ju Kim (PhD, 2017). Dissertation title: *Enhancing students' higher-order thinking skills through computer-based scaffolding in problem-centered instruction*. UMI number 10257538. Awards: 2017 Outstanding Doctoral Researcher, Department of Instructional Technology and Learning Sciences, Utah State University; Current position: Assistant Professor, Applied Learning Sciences, University of Miami

Jon Thomas (PhD, 2017). Dissertation title: *E-portfolio adoption's mediating influence on faculty perspectives: An activity theory view*. UMI number 10280227. Current position: Director of Teaching and Learning Technologies, University of Utah

Jiangyue Gu (PhD, 2016). *Epistemic beliefs of middle and high school students in a problem-based, scientific inquiry unit: An exploratory, mixed methods study*. (Doctoral Dissertation, Utah State University, 2016). UMI number 10019693. Awards: 2016 Outstanding PhD Graduate, Department of Instructional Technology and Learning Sciences, Utah State University; Current position: Instructional Designer, University Learning Store, University of Wisconsin-Extension

Joel L. Gardner. (PhD, 2011). *Testing the Efficacy of Merrill's First Principles of Instruction in Improving Student Performance in Introductory Biology Courses*. (Doctoral Dissertation, Utah State University, 2011). UMI Number 3449481. Awards: 2012 Emma Eccles Jones College of Education and Human Services (Utah State University) Outstanding Recent Graduate Award; 2010 Association for Educational Communications and Technology Intern; 2009 AECT Crystal Award; 2009



Pacificorps Design and Development Competition Finalist; Current Position: Chair, Department of Instructional Design and Assessment; Executive Director of Design and Assessment; Franklin University, Columbus, OH

**Committee Member, PhD Graduates/Dissertations Completed (N = 6)**

Jennifer Boyer-Thurgood (PhD, Mathematics Education, 2017). *The Anatomy of Virtual Manipulative Apps: Using Grounded Theory to Conceptualize and Evaluate Educational Mathematics Apps*. (Doctoral Dissertation, Utah State University, 2017). Current Position: Director, Elementary Mathematics Teacher Academy, Utah State University

Stephen Tucker (PhD, Mathematics Education, 2015). *An Exploratory Study of Attributes, Affordances, Abilities, and Distance in Children's Use of Mathematics Virtual Manipulative iPad apps*. (Doctoral Dissertation, Utah State University, 2015). UMI number 3723089. Current Position: Assistant Professor, Department of Early Childhood and Elementary Education, University of Louisville.

Matthew W. Barclay (PhD, 2011). *The Impact of Team-based Learning's Readiness Assurance Process on Virtually Isolated Adults*. (Doctoral Dissertation, Utah State University, 2011). UMI Number 3473359. Current Position: Instructional Design Faculty, Franklin University

Young-Ah Ko (PhD, 2010). *The Effects of Pedagogical Agents on Listening Anxiety and Listening Comprehension in an English as a Foreign Language Context*. (Doctoral Dissertation, Utah State University, 2010). UMI Number 3433403.

Yu-Chun Kuo (PhD, 2010). *Interaction, Internet Self-Efficacy, and Self-Regulated Learning as Predictors of Student Satisfaction in Distance Education Courses*. (Doctoral Dissertation, Utah State University, 2010). UMI Number 3419203. Current Position: Assistant Professor, Instructional Technology, Rowan University

Eleazar Vasquez (PhD, Special Education and Rehabilitation, 2008). *The Evaluation of Synchronous Online Tutoring for Students at Risk of Reading Failure*. (Doctoral Dissertation, Utah State University, 2008). UMI Number 3352451. Current Position: Associate Professor, Department of Child, Family, and Consumer Sciences, University of Central Florida

**Chair, PhD Supervisory Committees (N = 1)**

Darrell Robinson (2013-Present); Current Stage: Comprehensive exams

**Committee Member, PhD Supervisory Committees (N = 5)**

Megan Hamilton (2017-Present); Current Stage: Coursework

Mason Lefler (2014-Present); Current Stage: Comprehensive exams

Fred Poole (2017-Present); Current Stage: Comprehensive exams

Jared Roller (2017-Present); Current Stage: Coursework

Lucas Vasconcelos (2016-Present); Learning, Design, and Technology, University of Georgia, Current Stage: Dissertation Proposal

**Committee Member, EdD Supervisory Committees (N = 1)**

Dustin Whitlock (2016-Present); School of Education, Johns Hopkins University, Current Stage: Dissertation Proposal

**Supervisor, Completed MS Projects (N = 3)**

*Note*: ITLS moved to a model in which students complete their creative projects as part of a common class, rather than under the supervision of an individual professor, in Fall 2014

Anne Considine-Olsen (MS, 2014). *Instructional technology internship: Salt Lake Community College Distance Education Department*.

Robert Magleby (MS, 2013). *A student exploration of social enterprise*. Current position: Academic tutor, BEACON After School Program, Moab, UT

Ann Yandell (MS, 2012). *Instructional technology internship: Lockheed Martin Space Systems Company*. Current position: Senior Learning Solutions Specialist, Rockwell Collins

**Supervisor, Completed MEd Projects (N = 5)**

*Note*: ITLS moved to a model in which students complete their creative projects as part of a common

class, rather than under the supervision of an individual professor, in Fall 2014  
 Jonathan Allred (MEd, 2013). *Videocasting to promote software and drafting competencies in a college AutoCAD course*. Current position: Adjunct Instructor, Drafting, Utah Valley University; Engineer, EDSA Howard, Provo, UT  
 Hank Heriford (MEd, 2013). *Using Google Sites to create supplemental material for Spanish students*. Current Position: Spanish Teacher, Mountain View High School, Orem, UT  
 Nannette Petersen (MEd, 2013). *The effect of pullout science instruction using trained volunteers in large elementary classrooms*. Awards: 2013 Outstanding MEd Graduate, Department of Instructional Technology and Learning Sciences (Utah State University). Current position: Science Teacher, Willamette High School, Eugene, OR  
 Landon Smith (MEd, 2013). *Using technology to teach performance skills in the music classroom*. Current position: Music Teacher, Mount Jordan Middle School, Canyons School District, UT  
 Zachary Peterson (MEd, 2012). *Health class website*. Current position: Health Teacher, Manti High, South Sanpete School District, UT

***Committee Member, Completed MSLT Project (N = 1)***

Mark Grammer (MSLT, Languages, Philosophy, and Communication Studies, 2009)

***Committee Member, Completed MS Thesis (N = 2)***

Clarence Ames, 2013-2015

April Litchford, Department of Nutrition, Dietetics, and Food Sciences, 2013-2015

***Faculty Mentor, National Conference on Undergraduate Research***

\*\*Carver, T., & \*\*Piland, J. (2015, April). Middle school students' science interest and epistemic beliefs in a technology-enhanced, problem-based, scientific inquiry unit. Paper presented at the National Conference on Undergraduate Research, Spokane, WA, USA.

\*\*Turner, J. D. (2014, April). *A case study of middle school students' science learning*. Poster presented at the National Conference on Undergraduate Research, Lexington, KY, USA.

\*\*Cook, B., & \*\*Armbrust, S. (2013, April). *Computer-based scaffolding and middle school students' science learning*. Poster presented at the National Conference on Undergraduate Research, La Crosse, WI, USA.

***Supervisor, Graduate Research Assistants***

**Utah State University: SPARC: Computer-based individualized and customized supports for K-12 students: The development of machine learning systems**

Ritisha Chelawat (2017-2017); Mohammed Seifeddine Fnayou (2017-2017); Nam Ju Kim (2017-2017)

**National Science Foundation: Impact of Scaffolding Characteristics and Study Quality of Learner Outcomes in STEM Education: A Meta-analysis**

NamJu Kim (2013-2017); Mason Lefler (2013-2016)

**National Science Foundation: CAREER: Supporting Middle School Students' Construction of Evidence-based Arguments**

Ryan Burdo (2011-2012); Joel Drake (2010-2011); Jiangyue Gu (2011-Present); Nam Ju Kim (2013-Present); Zhiying Liu (2011-2011); Jiwoong Shin (2010-2010); Mark Weiss (2013-Present);

**Utah State University: Research Catalyst: Laying the foundation for a scaffolding meta-analysis**

Whitney Olsen (2011-2011)

**Utah State University: Start-up funds**

Katherine Christensen (2008-2009)

### ***Supervisor, Undergraduate Research Assistants***

#### **Utah State University: SPARC: Computer-based individualized and customized supports for K-12 students: The development of machine learning systems**

Jacob Piland (Majors: Computer Science and Biological Engineering; 2016-Present);

#### **National Science Foundation: Research Experiences for Undergraduates Supplement for CAREER: Supporting Middle School Students' Construction of Evidence-based Arguments**

Sara Armbrust (Major: Elementary Education and Early Childhood Education; 2012-2013); Lori Caldwell (Major: Biological Engineering; 2014-2014); Tessa Carver (Major: Psychology; 2014-2015); Brant Cook (Major: Agricultural Education; 2012-2013); Aubree Hansen (Major: Biological Engineering; 2013-2014); Jacob Piland (Majors: Computer Science and Biological Engineering; 2014-2017); Jaden Turner (Major: Mechanical Engineering; 2013-2014)

#### **National Science Foundation: Research Experiences for Undergraduates Supplement for Impact of Scaffolding Characteristics and Study Quality of Learner Outcomes in STEM Education: A Meta-analysis**

Lindi Andreasen (Major: Elementary Education; 2014-2016); Jacob Piland (Majors: Computer Science and Biological Engineering; 2016-2017); Brett Whitney (Major: Mathematics and Statistics; 2014-2016)

## **Service**

### ***Service Honors***

Year	Level	Award
2012	Department	Byron R. Burnham Leadership Award, Department of Instructional Technology and Learning Sciences, Utah State University
2010	National	<i>Educational Technology Research and Development</i> , Outstanding Research Reviewer
2006	National	<i>Interdisciplinary Journal of Problem-based Learning</i> Graduate Student Reviewer of the Year

### ***International***

#### ***Advisory Panels***

**Advisory panel member**, Synthesis project led by J. Van de Pol, H. W. Steenbeek, and H. J. M. Pennings (Utrecht University [the Netherlands]) 2015-Present

#### ***Grant Reviewing***

**Reviewer**, Research project proposal, Fonds Wetenschappelijk Onderzoek (FWO; the Belgian equivalent of the National Science Foundation), Belgium 2016

**Reviewer**, Internal Grant, KU-Leuven, Belgium 2014

**Reviewer**, Postdoctoral application, Fonds Wetenschappelijk Onderzoek (FWO; the Belgian equivalent of the National Science Foundation), Belgium 2013

### ***National***

### ***Professional Organization Leadership since 2008***

<b>Chair</b> , Professional Ethics Committee, Association for Educational Communications and Technology	2014-2017
<b>Chair</b> , Instructional Technology Special Interest Group, American Educational Research Association (Past-chair in 2012-2013; chair in 2011-2012; chair-elect in 2010-2011)	2010-2013
<b>Program Co-Chair</b> , Division C, Section 3b (Technology-based learning environments) American Educational Research Association	2016-Present
<b>Program Chair</b> , Problem-based Education Special Interest Group, American Educational Research Association	2013-2016
<b>Co-Chair</b> , Professional Ethics Committee, Association for Educational Communications and Technology	2013-2014
<b>Member</b> , Professional Ethics Committee, Association for Educational Communications and Technology	2007-2013
<b>Treasurer/secretary</b> , Instructional Technology Special Interest Group, American Educational Research Association	2008-2010
<b><i>External Review for Promotion and Tenure, Various Universities</i></b>	2015-Present

### ***Charter School Advisory Boards***

<b>Member, Expert Advisory Panel</b> , Provided Guidance for formation of Sierra Foothills Charter School, Cathey's Valley, CA	2011
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### ***Journal Editorial Responsibilities***

<b>Editorial Board</b> , <i>Contemporary Educational Psychology</i>	2017-Present
<b>Editorial Board</b> , <i>Educational Technology Research &amp; Development</i> , Development Section	2014-2016
<b>Editorial Board</b> , <i>Interdisciplinary Journal of Problem-based Learning</i>	2013-2016
<b>Regular Reviewer</b> , <i>Computers &amp; Education</i> (2009-Present), <i>Educational Technology Research and Development</i> (2007-Present), <i>Educational Technology and Society</i> (2014-2016), <i>Instructional Science</i> (2014-Present), <i>Interdisciplinary Journal of Problem-based Learning</i> (2006-Present), <i>Journal of Educational Psychology</i> (2014-Present), <i>Journal of the Learning Sciences</i> (2012-Present), <i>Middle Grades Research Journal</i> (2008-2011), <i>Research in Science Education</i> (2013-Present), <i>Science Education</i> (2014-Present)	
<b>Ad-hoc Reviewer</b> , <i>Educational Psychology</i> (2012), <i>Handbook of research on educational communications and technology</i> (2011, 2017), <i>Interacting with Computers</i> (2013), <i>Journal for Research in Mathematics Education</i> (2010), <i>Journal of Educational Computing Research</i> (2008), <i>Journal of Science Education and Technology</i> (2014), <i>Learning and Individual Differences</i> (2011), <i>Technology, Knowledge and Learning</i> (2015)	

### ***Grant Reviewing***

<b>Panelist</b> , National Science Foundation, Division of Research on Learning	2011, 2014, 2015, 2017
<b>Ad-hoc Reviewer</b> , National Science Foundation, Division of Behavioral and Cognitive Sciences	2017

***Book Reviewing***

**Book manuscript reviewer** (2) for Pearson, Columbus, OH, USA (2013), Book manuscript reviewer for John Wiley and Sons, San Francisco, CA, USA (2010-2011)

**Book proposal reviewer** for Cambridge Press, Cambridge, UK (2015), Book proposal reviewer for Wiley-Blackwell, Boston, MA, USA (2015)

***Conference Reviewing***

American Educational Research Association Annual Meeting (2006-Present), Association for Educational Communications and Technology International Convention (2008-Present), Cognitive Science Society (2014-Present), Computer-supported Collaborative Learning (CSCL) (2012-Present), Ed-Media Annual Conference (2005-2006), International Conference on Advanced Learning Technologies (2010-2012), International Conference of the Learning Sciences (2011-Present), National Association of Research on Science Teaching (NARST) (2014-Present), Teaching and Learning with Technology Conference (Purdue University) (2005)

***Conference Discussant/Chair***

Session Chair, 2011 Annual Meeting of the Association for Educational Communications and Technology International Convention, Orlando, FL, USA; Session Chair 2011 International Conference on Advanced Learning Technologies, Athens, GA, USA; Session Chair, 2011 Annual Meeting of the American Educational Research Association Annual Meeting, New Orleans, LA, USA; Discussant, 2010 Annual Meeting of the American Educational Research Association Annual, Denver, CO, USA; Session Chair, 2010 Annual Meeting of the American Educational Research Association Annual, Denver, CO, USA; Session Chair, 2008 Annual Meeting of the Association for Educational Communications and Technology, Orlando, FL, USA

***Utah State University***

<b>Faculty Senate Alternate</b>	2015-Present
<b>Chair</b> , Promotion and Tenure Advisory Committee for Jody Clarke-Midura, Department of Instructional Technology and Learning Sciences	2015-Present
<b>Member</b> , Promotion and Tenure Advisory Committee for Brennan Thompson, Department of Health, Physical Education, and Recreation	2015-Present
<b>Member</b> , Promotion and Tenure Advisory Committee for Jody Clarke-Midura, Department of Instructional Technology and Learning Sciences	2014-2015
<b>Member</b> , Promotion and Tenure Advisory Committee for Megan Smith, Department of Psychology	2014-2015
<b>Member</b> , Review Panel for Grant Enhancement Mentoring (GEM) Grant Vice President for Research Office, Utah State University	2009-2009

***Department of Instructional Technology and Learning Sciences (USU)***

<b>Chair</b> , New Academic Program Committee (Conduct needs assessment and development work for a new undergraduate program in ITLS)	2017-Present
<b>Chair</b> , Awards Committee	2015-Present
<b>Member</b> , Marketing Committee	2015-Present
<b>Chair</b> , Awards Committee	2012-2014

<b>Chair</b> , Master of Science Admissions/Awards Committee	2010-2012
<b>Member</b> , Faculty Search Committee	2013-2014
<b>Member</b> , Faculty/Teaching/Evaluation/Accreditation Committee	2008-2012
<b>Member</b> , Curriculum Committee	2011-2012
<b>Member</b> , Faculty Search Committee	2011-2012
<b>Participant</b> , Graduate Student Recruitment Fair	2008-2014

## Other

### *Honors (Other than Research, Teaching, and Service)*

Math and Science Scholarship, The College of Wooster, Wooster, OH	1995–1999
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### *Professional Memberships and Leadership Roles*

American Educational Research Association	2004–Present
<ul style="list-style-type: none"> <li>• Chair, Instructional Technology Special Interest Group (2010-2013; chair-elect in 2010-2011; chair in 2011-2012; past chair in 2012-2013)</li> <li>• Program Chair, Problem-based Education Special Interest Group (2013-2016)</li> <li>• Program co-chair, Division C, Section 3b (technology-based learning environments; 2016-Present)</li> <li>• <i>SIG memberships</i>: Problem-based Education, Instructional Technology</li> <li>• <i>Division membership</i>: C (Learning and Instruction)</li> <li>• Treasurer, Instructional Technology Special Interest Group (2008-2010)</li> </ul>	
Association for Educational Communications and Technology	2005–Present
<ul style="list-style-type: none"> <li>• Chair, Professional Ethics Committee (2014-2017)</li> <li>• Co-chair, Professional Ethics Committee (2013-2014)</li> <li>• Member, Professional Ethics Committee (2007-Present)</li> <li>• Member, Organizing committee for Graduate Student Forum Sessions at the 2006 AECT Annual Conference, Dallas, TX</li> </ul>	
Association for Information Systems	2017-Present
American Psychological Association, Educational Psychology Division	2013-2014
Cognitive Science Society	2013-2014
European Association of Research on Learning and Instruction (Earli)	2015-Present
International Association for the Development of the Information Society (IADIS)	2013–2014
International Society of the Learning Sciences	2017-Present

### *Language Skills*

*English*: native speaker

*French*: near native fluency

*Italian*: very high proficiency