

Shane Brown

Ph.D., P.E. (CA)

Associate Professor
School of Civil and Construction Engineering
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RESEARCH EXPERIENCE - SUMMARY

- National Science Foundation CAREER Award Winner, 2011. Understand how practicing engineers utilize fundamental engineering concepts in their practice and how they view knowledge and learning.
- External grants totaling - PI \$3,500,000 (\$88,445 Matching), Co-PI \$7,000,000 (I controlled \$721,900).
- Twenty six peer-reviewed journal articles, one invited peer-reviewed book chapter, and forty-seven peer-reviewed conference proceedings.
- Invited speaker at the Clemson University-Virginia Tech Engineering Education Invited Lecture Series, Oregon Transportation Research and Education Consortium (OTREC) Invited Lecture Series, American Society for Engineering Education (ASEE) Pacific Northwest Section Annual Conference 2007, and the Transportation Research Board (TRB) 2010 and 2014 Annual Meetings.
- Four Ph.D. and twenty M.S. students graduated. Currently advising two Ph.D. and four M.S. students.
- Primary research interests are conceptual change, situated cognition, social capital and the adoption process of curricular materials and teaching practices.
- Received the ASEE Apprentice Faculty Grant funded by the National Academy of Engineering Center for the Advancement of Scholarship in Engineering Education; Frontiers in Education (FIE) New Faculty Fellow Award; Honorable Mention Benjamin Dasher Best Paper Award 2007 FIE National Conference; and Best Paper Award 2004, 2008, and 2010 ASEE Pacific Northwest Regional Conference.

TEACHING EXPERIENCE - SUMMARY

- Primary teaching interests are theories of teaching and learning, senior design, water resources, transportation engineering, and engineering mechanics.
- Published Ranking Tasks for Mechanics of Materials workbook with Prentice Hall.
- Received one university and one school award for outstanding teaching at OSU, one department award for outstanding teaching at Washington State University (WSU), one university award for advising excellence at WSU, two department awards for outstanding advising at WSU, one regional award for outstanding teaching from the ASEE, one university outstanding teaching assistant award at Oregon State University, and one national award for outstanding teaching from the American Society of Civil Engineers (ASCE).
- Taught seven different engineering courses at WSU, statics at Oregon State University, and eleven different engineering and physics courses at Central Oregon Community College.

SERVICE - SUMMARY

- Chair of National Cooperative Highway Research Program (NCHRP) Panel 20-104 and 20-93
- Member of NCHRP Panel 20-68A: Domestic Scan Program, 2010-present
- Member of TRB Taskforce on Knowledge Management AB010T, 2012-2013
- Director, ASEE Education Educational Research and Methods Division, 2010-2012
- Program Chair, ASEE Educational Research and Methods Division, 2013-2015

EDUCATION

Ph.D., Civil Engineering, Oregon State University, June 2005. Minor in Science Education. Thesis: Social Capital in Engineering Education.
M.S., Environmental Engineering, University of California, Davis, March 1998.
B.S., Civil Engineering, Oregon State University, 1995.

PROFESSIONAL REGISTRATION

Professional Civil Engineer, California, License 60356.

EMPLOYMENT HISTORY - RESEARCH AND TEACHING

Associate School Head, School of Civil and Construction Engineering, Oregon State University, 2013-Present
Associate Professor, School of Civil and Construction Engineering, Oregon State University, 2013-Present
Assistant Professor, Civil and Environmental Engineering Department, Washington State University. 2008-2013.
Clinical Assistant Professor, Civil and Environmental Engineering Department, Washington State University. 2005-2008.
Instructor, Science Department, Central Oregon Community College. 2004-2005, 2001-2002.
Graduate Research and Teaching Assistant, Civil Engineering Department, Oregon State University. 2002-2005.

EMPLOYMENT HISTORY - ENGINEERING CONSULTING

Project Engineer, W&H Pacific, Bend, Oregon. Summer 2002.
Project Manager, Eco:Logic Engineering, Rocklin, California. 1998-2001.
Staff Engineer, Dames & Moore, Sacramento, California. 1997-1998.

HONORS AND AWARDS

Teaching and Advising

OSU Faculty Teaching Excellence Award, 2015
OSU ASCE Civil Engineering Outstanding Teaching Award, Fall 2014
WSU Graduate and Professional Student Association Advising Excellence Award, Fall 2010
Outstanding Faculty Advisor, 2007 and 2010, WSU Department of Civil and Environmental Engineering (CEE)
Leon Luck Faculty Award for Most Effective Professor, 2010, WSU Department of Civil and Environmental Engineering
ASCE ExCEED National New Faculty Excellence in Teaching Award, 2008
Outstanding Teaching Award, 2007, PNW Section of ASEE
Outstanding Teaching Award, 2006, WSU CEE
Oregon State University Herbert Frolander Outstanding Teaching Assistant Award, 2005

Research

National Science Foundation CAREER Award. Fall 2011
Best Paper Award, 2010, 2008, and 2004, ASEE PNW Section Annual Meeting
Best Paper Award, 2009, ASEE Zone 8
National Academy of Engineering Frontiers of Engineering Education National Symposium Selected Participant, 2010, Irvine, CA
Honorable Mention, Benjamin Dasher Outstanding Paper Award, 2007 FIE National Conference
National Academy of Engineering Center for Advancement of Scholarship in Engineering Education Faculty Award, 2007, FIE National Conference

REFEREED JOURNAL ARTICLES AND BOOK CHAPTERS

(* indicates a student advised by S. Brown)

1. **Brown, S.**, K. Beddoes, D. Montfort, and A. Baghdanov*. Engineering Students' Fluid Mechanics Misconceptions: A Description and Theoretical Explanation. *International Journal of Engineering Education*. Accepted
2. Ha, O., **S. Brown**, and N. Pitterson. An Exploratory Factor Analysis of Statics Concept Inventory Data from practicing Civil Engineers. *International Journal of Engineering Education*. Accepted.
3. **Brown, S.** and A. Lemer. Knowledge Teams, People, and Transportation Agencies: Building a Successful, Productive Workplace Culture. *Transportation Research News*. October 2016
4. Ghodrat, M. Hurwitz, D. & **S. Brown**. Holistic and Iterative Development and Dissemination of Conceptual Traffic Signal Question. *ASCE Journal of Professional Issues in Engineering Education and Practice*. April 2016.
5. Peters, A., K. Beddoes, **S. Brown**, and K. Chang. Transportation Engineering Instructors' Decision Making Processed for Course Changes. *ASCE Journal of Professional Issues in Engineering Education and Practice*. Vol. 142 (3). 2016.
6. Montfort, D., Herman, G., Matusovich, H. M., Streveler, R. A., and O. Adesope. Patterns of Student Conceptual Understanding across Engineering Content Areas, *International Journal of Engineering Education*. Vol. 31 (6). 2015.
7. Martin, J. P., S. Brown, M. K. Miller and S. K. Stefl. Characterizing Engineering Student Social Capital in Relation to Demographics, *International Journal of Engineering Education*. Vol. 31 (4). 2015.
8. **Brown, S.**, F. Bornasal*, S. Brooks, and J.P. Martin. Civil Engineering Faculty Incorporation of Sustainability in Classrooms and Relation to Beliefs about Sustainability. *ASCE Journal of Professional Issues in Engineering Education and Practice*. Vol. 141 (2). 2015.
9. Hurwitz, D., **S. Brown**, M. Islam, K. Daratha*, and M. Kyte. Traffic Signal System Misconceptions Across Three Cohorts: Novice Students, Expert Students, and Practicing Engineers. *Transportation Research Record*. *Journal of the Transportation Research Board*. (2414). 2014.
10. Brooks, S.* , **S. Brown**, D. Davis, and J. Lebeau. Adoption of Technological Innovations: A Case Study of the ASSESS Website. *Advances in Engineering Education*. Vol. 4 (1). 2014.
11. Hurwitz, D., J. Swake, **S. Brown**, R.K. Young, K. Heaslip, K. Sanford, and R. Turochy. Influence of Collaborative Curriculum Design on Educational Beliefs, Communities of Practitioners, and Classroom Practice in Transportation Engineering Education. *ASCE Journal of Professional Issues in Engineering Education and Practice*. Vol. 140 (3). 2014.
12. **Brown, S.**, D. Street*, and J.P. Martin. Engineering Student Social Capital in an Interactive Learning Environment. *International Journal of Engineering Education*. Vol. 30 (4). 2014.
13. Easley, A.* , S. Brown, D. Montfort, J. Adam, B. VanWie, A. Olusola, C. Poor, C. Tobin, and A. Flatt. The Effectiveness of an Interactive Learning Environment Utilizing a Physical Model, *ASCE Journal of Professional Issues in Engineering Education and Practice*. Vol. 140 (3). 2014.
14. Montfort, D., **S. Brown**, and V. Writenouer. Secondary Students' Conceptual Understanding of Engineering as a Field, *Journal of Pre-college Engineering Education Research*. Vol. 3 (2). 2013.
15. Montfort, D., **S. Brown**, and D. Shinew. The Personal Epistemologies of Civil Engineering Faculty, *Journal of Engineering Education*. Vol. 3 (3). 2014.
16. *Nicholas, C., **S. Brown**, and M. Kyte. Evaluating the Effectiveness of Dynamic Traffic Simulations: A Case Study in Transportation Engineering Education, *ASCE Journal of Professional Issues in Engineering Education and Practice*. Vol. 139 (3). 2013.

17. *Howard, K. E., **S. Brown**, S. Chung, T. Jobson, and T. VanReken. College Students' Understanding of Atmospheric Ozone Formation, *Chemistry Education Research and Practice*. Vol.14 (1). 2013.
18. Poor, C. and **S. Brown**. Increasing Retention of Women in Engineering at WSU: A Model for a Women's Mentoring Program, *College Student Journal*. Vol. 47 (3). 2013.
19. *Davis, S., **S. Brown**, R. Borden, and D. Montfort. Embedded Knowledge in Transportation Engineering: Comparisons Between Engineers and Instructors, *ASCE Journal of Professional Issues in Engineering Education and Practice*. Vol. 139 (1). 2013.
20. *Montfort, D., **S. Brown**, and J. Pegg. The Adoption of a Capstone Assessment Instrument, *Journal of Engineering Education*. Vol. 101 (4). 2012.
21. *Montfort, D. and **S. Brown**. What Do We Mean by Cyberlearning: Characterizing a Socially Constructed Definition with Experts and Practitioners, *Journal of Science Education and Technology*. Vol. 22 (1). 2012.
22. **Brown, S.**, *D. Street, and *F. Barker. Motivational Factors Influencing In-Class Peer Tutors in Engineering: A Functional Approach, *International Journal of Engineering Education*. Vol. 29 (1). 2013.
23. **Brown, S.** and *J. Burnham. Engineering Students Mathematics Self-Efficacy Development in a Freshmen Engineering Mathematics Course, *International Journal of Engineering Education*. Vol. 28 (1). 2012.
24. Wolcott, M., **S. Brown**, *M. King, D. Ascher-Barnstone, T. Beyreuther, and K. Olsen. A Model for Faculty, Student, and Practitioner Development in Sustainability Engineering through an Integrated Design Experience, *ASCE Journal of Professional Issues in Engineering Education and Practice*. Vol. 137 (2). 2011.
25. *Andrews, B., **S. Brown**, *D. Montfort. and M. Dixon. Student Understanding of Sight Distance in Geometric Design: Beginning Line of Inquiry to Characterize Student Understanding of Transportation Engineering, *Journal of the Transportation Research Board*. Vol. 2199. 2010.
26. Kyte, M., M. Dixon, and **S. Brown**. A Process for Improving the Design of Transportation Curriculum Materials with Examples, *Journal of the Transportation Research Board*. Vol. 2199. 2010.
27. **Brown, S.** and C. Poor. In-Class Peer Tutoring: A Model for Engineering Instruction, *International Journal of Engineering Education*. Vol. 26 (5). 2010.
28. *Montfort, D., **S. Brown**. An Investigation of Students' Conceptual Understanding in Related Sophomore to Graduate-Level Engineering and Mechanics Courses, *Journal of Engineering Education*. Vol. 98 (2). 2009.
29. **Brown, S.** and L. Flick. The Role and Development of Social Capital in an Electrical Engineering Lab, *Journal of Engineering Education*. Vol. 98 (1). 2009.
30. **Brown, S.** and *Hildreth, K. An investigation of student understanding of shear and bending moment diagrams. In W. Aung, J. Mecsi, J. Moscinski, I. Rouse and P. Willmot (Eds.), *Innovations 2008: World Innovations in Engineering Education and Research*. Begell House Publishing: 81-101.

BOOK CHAPTERS

1. Beddoes, K., D. Montfort, and **S. Brown**. Squaring Philosophy of Engineering Through Personal Epistemologies Research, *Philosophy and Engineering: Exploring Boundaries, Expanding Connections*. Springer. 2016.
2. Streveler, R., **S. Brown**, D. Montfort, and G. Hermann. Conceptual Change and Misconceptions in Engineering Education. *Cambridge Handbook of Engineering Education Research*. Cambridge University Press. 2014.

BOOKS

1. **Brown, S.** and C. Poor, *Ranking Tasks for Mechanics of Materials*, Prentice Hall, 2010.

REFEREED CONFERENCE PROCEEDINGS

(* indicates a student advised by S. Brown)

1. Pitterson, N., **S. Brown**, K. A. Villanueva*, and A. Sitomer. Investigating current approaches to teaching evaluation in engineering departments. FIE Annual Conference, Erie, PA. 2016
2. Barner, M. and **S. Brown**. Providing meaningful change in the engineering Classroom. FIE Annual Conference, Erie, PA. 2016
3. Ha, O. and **S. Brown**. A factor analysis of Statics Concept Inventory data from practicing civil engineers. FIE Annual Conference, Erie, PA. 2016
4. Pitterson, N. S. Brown, K. Quardokus-Fisher, and J. Pascoe. Measuring cognitive engagement through interactive, constructive and passive learning activities. FIE Annual Conference, Erie, PA. 2016
5. Panther, G., D. Montfort, S. Brown. Instructors Playing the Role of Developer and Implementer: Impacts on Material Development. 123rd ASEE Annual Conference & Exposition, New Orleans, LA. 2016.
6. Bornasal, F. B. & S. Brown. Engineering Concepts in Engineering Performances and Social Interactions. 6th Research in Engineering Education Symposium. Dublin, Ireland. 2015.
7. Montfort, D., Beddoes, K. & S. Brown. Engineers and Their Knowledge: A Longitudinal Study of Practicing Engineers' Personal Epistemologies. 6th Research in Engineering Education Symposium. Dublin, Ireland. 2015.
8. Beddoes, K., Montfort, D. & **S. Brown**. Epistemological Foundations of Global Competencies: A New Theory to Advance Research on Global Competencies. 122nd ASEE Annual Conference & Exposition, Seattle, WA. 2015.
9. Koretsky, M., Bouwma-Gearhart, J., **Brown, S.**, Dick, T., Brubaker-Cole, S. J., Sitomer, A. Enhancing STEM Education at Oregon State University – Year 1. 122nd ASEE Annual Conference & Exposition, Seattle, WA. 2015.
10. Urlacher, M., **Brown, S.**, Steif, P. and F. B. Bornasal. Practicing Civil Engineers' Understanding of Statics Concept Inventory Questions. 122nd ASEE Annual Conference & Exposition, Seattle, WA. 2015.
11. Wallace, L. Bornasal, F. B., & **S. Brown**. Concepts in roundabout resources: A comparison between academic and practical text using content analysis. 122nd ASEE Annual Conference & Exposition, Seattle, WA. 2015.
12. Panther, G., Montfort, D., & **S. Brown**. Instructor Concerns and Use of Resources in the Development of Course Materials. 122nd ASEE Annual Conference & Exposition, Seattle, WA. 2015.
13. Peters, A. S., **Brown, S.**, Chang, K., Thornton, K., Shinohara, K., & K. Beddoes. Refinement and Dissemination of a Digital Platform for Sharing Transportation Education Materials. 122nd ASEE Annual Conference & Exposition, Seattle, WA. 2015.
14. Montfort, D., **Brown, S.**, Riley, C. E., Barroso, L. R., Pollock, D. G., Light, J. L., & A. Lenz. Lessons Learned from Collaborative Development of Research-Based Course Materials. 122nd ASEE Annual Conference & Exposition, Seattle, WA. 2015.
15. Arbogast, C. A., Montfort, D., & **S. Brown**. Examining Interruptions in a Student's Solution Generating Process for Indicators of Conceptual Knowledge. 122nd ASEE Annual Conference & Exposition, Seattle, WA. 2015.
16. Little, D. L., Quardokus-Fisher, K., **Brown, S.**, Koretsky, M. & J. Bouwma-Gearhart.. Measuring Student Perceptions of Engineering Classroom Activities and the Use of Such Measures by STEM Faculty: The Development of the Student Class Activity and Engagement Instrument. 122nd ASEE Annual Conference & Exposition, Seattle, WA. 2015.
17. Bornasal, F.B.*, Lester, J.N., & **S. Brown**. Recollecting experience in interviews: the structure and organization of engineering 'interview talk'. 121st ASEE Annual Conference & Exposition, Indianapolis, IN. 2014.

18. Bornasal, F.B.* & **S. Brown**. Prevalence of inscriptions in transportation engineering text: Clues to context. 121st ASEE Annual Conference & Exposition, Indianapolis, IN. 2014.
19. Bernhardt, K., D. S. Hurwitz, R. K. Young. R. E. Turochy, **S. A. Brown**, J. Swake, A. R. Bill, K. Heaslip, and M. Kyte. A Model for Collaborative Curriculum Design in Transportation Engineering Education. American Society for Engineering Education Annual Conference, Atlanta, GA. 2013.
20. Frye, N.L., D. Montfort, and **S. Brown**. Personal Epistemology and Sophomore Engineering Students. American Society for Engineering Education Annual Conference, Atlanta, GA. 2013.
21. Montfort, D. G. L. Herman, **S. Brown**, H. Matusovich, and R. A. Streveler. Novice-Led paired thematic analysis: A method for conceptual change in engineering. American Society for Engineering Education Annual Conference, Atlanta, GA. 2013.
22. **Brown, S.**, Conceptual Change in Mechanics of Materials. American Society for Engineering Education Annual Conference, Atlanta, GA. 2013.
23. Burgher, J., D. Finkel, B. J. VanWie, O. Adesope, **S. Brown** and J. W. Atkinson. New Hands on Fluid Mechanics Cartridges and Pedagogical Assessment. American Society for Engineering Education Annual Conference, Atlanta, GA. 2013.
24. Arasteh, A., C. M. Clark, B. J. VanWie, N. Abu-lail. O. Adesope, and **S. Brown**. Work in progress: Development of Hands-on Desktop Learning Modules for Bioengineering Courses. American Society for Engineering Education Annual Conference, Atlanta, GA. 2013.
25. *Martinkus, N., A. Kulkarni, N. Lovrich, P. Smith, W. Shi, J. Pierce, M. Wolcott, and **S. Brown**. An Innovative Approach to Identify Regional Bioenergy Infrastructure Sites. 55th International Convention of Society of Wood Science and Technology, Beijing, China. August 2012.
26. *Easley, A., **S. Brown**, J. Adam, D. Montfort, and B. Vanwie. Open Channel Flow Misconceptions and Ontological Categories. Frontiers in Education Annual Conference, Seattle, WA. 2012.
27. Herman, G., R. Streveler, D. Montfort, and **S. Brown**. Work in Progress: Do students need to learn to speak “Engineerin-ese?” Conceptual change as language acquisition in engineering. Frontiers in Education Annual Conference, Seattle, WA. 2012.
28. Montfort, D., G. Herman, R. Streveler, and **S. Brown**. Assessing the application of three theories of conceptual change to interdisciplinary data sets. Frontiers in Education Annual Conference, Seattle, WA. 2012.
29. Montfort, D., **S. Brown**, and N. Frye. Work in Progress: Theoretical Approach to Characterizing Changes in Students’ and Engineers’ Conceptual Understanding and Personal Epistemologies. Frontiers in Education Annual Conference, Seattle, WA. 2012.
30. LeBeau, J., D. Davis, M. Trevisan, B. French, **S. Brown**, H. Davis, B. Dorgan, and S. Brooks. Work in Progress: Help in Finding Evaluation Instruments for Engineering Education Innovations. Frontiers in Education Annual Conference, Seattle, WA. 2012.
31. Frye, N., D. Montfort, **S. Brown**, and O. Adesope. I’m absolutely certain that’s probably true: Exploring epistemologies of sophomore engineering students. Frontiers in Education Annual Conference, Seattle, WA. 2012.
32. **Brown, S.**, *S. Davis, and *C. Nicholas. Practicing Engineers Conceptions of Sight Distance and Stopping Sight Distance within the Context of Highway Design. American Society for Engineering Education Annual Conference, Vancouver, BC. 2011.
33. *Gerlick, R., D. Davis, and **S. Brown**. Establishing Inter-rater Agreement for TIDEE's Teamwork and Professional Development Assessments. American Society for Engineering Education Annual Conference, Vancouver, BC. 2011.
34. Klingbeil, N., S. Molitor, B. Randolph, **S. Brown**, R. Olsen, and R. Cassady. The Wright State Model for Engineering Mathematics Education: Highlights from a CCLI Phase 3 Initiative, Volume 2. American Society for Engineering Education Annual Conference, Vancouver, BC. 2011.
35. **Brown, S.**, *D. Lewis, *D. Montfort, and *R.L. Borden. The Importance of Context in Students’ Understanding of Normal and Shear Stress in Beams. American Society for Engineering Education Annual Conference, Vancouver, BC. 2011.

36. **Brown, S.**, *N. Frye, *D. Montfort, and P.M. Smith. Understanding Faculty and Practitioner Involvement in a Capstone Interdisciplinary Design Experience. American Society for Engineering Education Annual Conference, Vancouver, BC. 2011.
37. Montfort, D. and **S. Brown**. Building Fundamental Engineering Knowledge: Identification and Classification of Engineering Students' Preconceptions in Mechanics of Materials. Annual Meeting of the American Educational Research Association, New Orleans, LA. 2011.
38. Moore, T.L., Z. Azizova, D. Shinew, **S. Brown**, and M. Wang. Connecting Faculty Epistemology and Graduate Education in the Engineering Disciplines. Annual Meeting of the American Educational Research Association, Denver, CO. 2010.
39. *Montfort, D. and **S. Brown**. Conceptual Change and Understanding in Engineering Education. American Society for Engineering Education Pacific Northwest Annual Conference, Reno, NV. 2010.
40. *Montfort, D. and **S. Brown**. Secondary Students' Conceptions of Engineers and Engineering: A Case Study Approach. American Society for Engineering Education Annual Conference, Louisville, KY. 2010.
41. *Gerlick, R., D. Davis, **S. Brown**, and M. Trevisan. Reflective Practices of Engineering Capstone Design Teams. American Society for Engineering Education Annual Conference, Louisville, KY. 2010.
42. *Schramm, C., **S. Brown**, and *D. Street. Peer Tutors Perceptions of the In-Class Peer Tutoring Program in Mechanics of Materials. Proceedings of 2009 Frontiers in Education Conference, San Antonio, TX.
43. *Street, D., **S. Brown**, *C. Schramm, and K. Gillespie. The Impact of an In-Class Peer Tutoring Program on Student Social Capital. Proceedings of 2009 Frontiers in Education Conference, San Antonio, TX.
44. *Montfort, D., **S. Brown**, and J. Pegg. An Investigation of the Adoption of an Assessment Instrument for Capstone Design Courses. Proceedings of 2009 Frontiers in Education Conference, San Antonio, TX.
45. *Andrews, B. and **S. Brown**. An Investigation of Student Conceptual Understanding of Geometric Design, Proceedings of 2009 Frontiers in Education Conference, San Antonio, TX.
46. **Brown, S.** and *D. Montfort. Development, Implementation, and Assessment of a Bending Stress Tutorial, Proceedings of 2007 Frontiers in Education Conference, Milwaukee, WI.
47. **Brown, S.** and *D. Montfort. Using Interviews to Identify Student Misconceptions in Dynamics, Proceedings of 2007 Frontiers in Education Conference, Milwaukee, WI.
48. **Brown, S.**, *D. Montfort, and K. Findley. Student Understanding of States of Stress in Mechanics of Materials, Proceedings of 2007 Annual Conference of the American Society of Engineering Education, Honolulu, HI.
49. **Brown, S.** and *K. Hildreth. A Comparison of Student Social Networks Between Students Living In and Out of Living Learning Communities, Proceedings of 2007 Annual Conference of the American Society of Engineering Education, Honolulu, HI.
50. **Brown, S.**, L. Flick, and K. Williamson. Social Capital in Engineering Education, Proceedings of 2005 Frontiers in Education Conference, Indianapolis, IN.
51. **Brown, S.**, and K. Williamson. Student Social Capital and Retention in the College of Engineering. Proceedings of 2005 Annual Conference of the American Society of Engineering Education. Portland, OR.
52. Thompson, T., D. Heer, **S. Brown**, R. Traylor, and T. Fiez. Educational Design, Evaluation, & Development of Platforms for Learning. Proceedings of 2004 Frontiers in Education Conference, Nashville, TN.

TECHNICAL REPORTS

Organizational Network Analysis for Two Networks in the Washington State Department of Transportation. Research Project T4120, Task 14. February 2010.

INVITED SPEAKER/FORUM PARTICIPANT

Case Examples of Knowing, Learning, and Transfer, Annual Meeting of the TRB, January 2015.
Clemson University-Virginia Tech Engineering Education Invited Lecture Series, Conceptual Change and Situated Cognition in Engineering Education. September 2013
OTREC Invited Lecture Series, Conceptual and Embedded Transportation Engineering Knowledge: Student, Faculty, and Engineers' Understandings of Sight Distance and Stopping Sight Distance, Oregon State University and Portland State University, October 2011.
National Academy of Engineering & NSF Forum on Impact and Diffusion of Transformative Engineering Education Innovations, New Orleans, LA, February 2011.
Engineering Learning and Conceptual Change, Summer Meeting of the Transportation Signals and Systems Committee of the TRB, July 2010.
Learning How to Train Employees for the Workforce, Annual Meeting of the TRB, January 2010.
The Future of Engineering Education, ASEE PNW Section Annual Conference, April 2007.

WORKSHOPS AND SEMINARS

Active Learning in Mechanics of Materials Classrooms, Portland, OR. 2012-2016
Ranking Tasks Exercises for Mechanics of Materials, ASEE PNW Meeting, Spring 2010.

OTHER CONFERENCE PROCEEDINGS

1. *Frye, N.L., **S. Brown**, M.P. Wolcott, and P.M. Smith. Exploratory Research into Sustainability Education Using Diffusion of Innovation Theory and Concerns Based Adoption Model. Presented at the Forest Products Society 65th International Convention, Portland, OR. 2011.
2. *Howard, K., T. VanReken, T. Jobson, and **S. Brown**. Conceptual Challenges in Learning Ozone Formation for Collegiate Students. American Geophysical Union Fall Meeting, San Francisco, CA. 2010.
3. Chung, S., *K. Howard, T. Jobson, **S. Brown** and T. VanReken. Student-Accessible Modeling Tools for Inquiry-Based Learning in the Atmospheric Sciences. American Association for Aerosol Research Annual Meeting, Portland, OR. 2010
4. **Brown, S.** In-Class Peer Mentoring as a Model for Engineering Instruction. Pacific Northwest Section of the American Society for Engineering Education Annual Meeting, Cheney, WA. 2008.
5. Thompson, M. and **Brown, S.** An Investigation of the Benefits of a Living Learning Community to Freshmen Engineering Students. Pacific Northwest Section of the American Society for Engineering Education Annual Meeting, Cheney, WA. 2008
6. **Brown, S.** and M. Millar. Social Capital & Engineering Undergraduates: An Analysis of the Effect of Living-Learning Communities on Student Achievement & Retention. Pacific Sociological Association Annual Conference, Portland, OR. 2008.
7. **Brown, S.** and *D. Montfort. Using Interviews to Identify Student Misconceptions. Pacific Northwest Section of the American Society for Engineering Education Annual Meeting, Pullman, WA. 2006.
8. **Brown, S.** and *K. Hildreth. Student Social Networks and Living Learning Communities. Pacific Northwest Section of the American Society for Engineering Education Annual Meeting, Pullman, WA. 2006.
9. **Brown, S.** Social Capital and Retention in Engineering Students. Pacific Northwest Section of the American Society for Engineering Education Annual Meeting, Seattle, WA. 2006

RESEARCH GRANTS/CONTRACTS

External Grants PI - \$3,689,668 (\$88,445 Internal Matching)

Title	Agency	Duration	Amount
Collaborative Resesarch: Tools of Engagement	National Science	1/16-12/18	\$800,000

Curriculum vitae for Shane Brown, Ph.D., P.E.

Measurement to Propel Academic Success of Students	Foundation Division of Graduate Education Program Evaluation		
Safety Data Management and Analysis: Addressing the Continuing Education Needs for the Pacific Northwest	Pacific Northwest Transportation Consortium (PacTrans)	5/14-9/16	\$65,000
Collaboratively Developing Research-Based Curricular Materials to Improve Conceptual Understanding in Engineering Education	NSF)Transforming Undergraduate Education in Science, Technology, Engineering, and Mathematics (TUES)	9/12-9/15	\$599,798
Digital Dissemination Platform of Transportation Engineering Educational Materials Founded in Adoption Research	PacTrans	5/12-5/13	\$200,000
Collaborative Research: Mental Models of Students and Practitioners in the Development of an Authentic Assessment Instrument for Traffic Signal Engineering (Collaboration with David Hurwitz from Oregon State University)	NSF TUES	6/12-6/14	\$91,992
Collaborative Research: Building Theories That Inform Practice: Exploring Engineering Epistemologies Through Cross-Disciplinary Data Analysis (Collaboration with Ruth Streveler, Purdue and Holly Matusovich, Virginia Tech)	NSF Engineering Education and Centers (EEC)	8/11-8/14	\$276,369
CAREER: Characterization of Cognitive Models of Conceptual Understanding in Practicing Civil Engineers and Development of Situated Curricular Materials	NSF EEC	8/11-8/16	\$400,624
An Investigation of Transportation Professionals Understanding of Geometric Design (Collaboration with Mike Dixon, University of Idaho)	National Institute for Advanced Transportation Technology (NIATT)	1/10-12/10	\$77,841
What is Engineering Knowledge: A Longitudinal Study of Conceptual Change and Epistemology in Engineering Students and Practitioners	NSF EEC	8/10-8/13	\$398,353
Curricular Materials and Methods for Conceptual Understanding in Mechanics of Materials	NSF Course, Curriculum and Laboratory Improvement (CCLI)	8/09-8/11	\$149,639
An Investigation of Student Understanding of Geometric Design (Collaboration with Michael Kyte, University of Idaho)	NIATT	1/09-12/09	\$35,613
In-Class Peer Tutoring: A Model for Engineering Education (Collaboration with Larry Flick, Oregon State University)	NSF EEC	1/09-12/10	\$94,646
A National Model for Engineering Mathematics Education	NSF CCLI	8/08-8/11	\$99,521

Curriculum vitae for Shane Brown, Ph.D., P.E.

(Collaboration with Wright State University)			(\$88,445 CEA Match)
Organizational Network Analysis for the Washington State Department of Transportation (WSDOT) Climate Change and Tribal Networks	WSDOT	6/08-3/09	\$32,438
Sustainable Roadway Design and Construction: An Online Course (Co-PI's – Shihui Shen, Michael Wolcott, Steve Muench – UW)	TransNOW	6/08-7/09	\$23,833
Development and Implementation of Online Learning Modules in Geometric Design (Co-PI's - Shihui Shen, Ming Lee, UAF)	UAF Transportation Center	8/08-12/09	\$28,000
Development, Deployment and Assessment of a New Paradigm (Based on Active, Problem-Based Learning) for Transportation Professionals and University Students: A Collaboration of the Region X Transportation Consortium (Collaboration with Michael Kyte, UI)	FHWA	8/08-8/12	\$144,289
Development of Learning Modules for Introductory Transportation Courses (Collaboration with Michael Kyte, UI)	NIATT	1/08-12/08	\$16,312

External Grants Co-PI - \$7,003,046 (Portion I controlled - \$721,900)

Title	Agency	Duration	Amount (Amount I controlled)
Investigation of Context Across Engineering Domains: Bridging the Eye-Mind Divide	NSF IUSE	Recommended	\$300,000 (\$100,000)
Enhancing STEM Education at Oregon State University (ESTEME@OSU)	NSF WIDER	1/14- 12/16	\$2,000,000 (\$245,000)
REU Site: Regional Atmospheric Chemistry: State-of-the-art Measurement and Modeling in the Pacific Northwest (PI – Shelley Pressley)	NSF Research Experience for Undergraduates (REU)	5/12-5/15	\$309,324 (\$75,000)
Appraisal System for Superior Engineering Education Evaluation-instrument Sharing and Scholarship (PI – Denny Davis)	NSF TUES	12/11- 1/14	\$599,946 (\$121,500)
Expanding and Improving the Women in Engineering Mentoring Program to Increase Retention at Washington State University (PI – Cara Poor)	Engineering Information Foundation	8/10-8/11	\$17,689 (3,500)
IGERT: Nitrogen Systems: Policy Oriented Integrated Research and Education (PI – Brian Lamb)	NSF IGERT	8/09-8/14	\$3,034,300 (\$60,000)
A Model for Faculty, Student, and Practitioner Development in Sustainable Engineering through an Integrated Design Experience (PI – Mike Wolcott)	NSF EEC	8/09-8/11	\$149,742 (\$45,500)
Inquiry Based Learning Modules for Atmospheric Science Using Student-Accessible Modeling Tools (PI – Timothy Van Reken)	NSF CCLI	1/09/12/1 0	\$149,774 (\$28,000)
REU Site: Regional Atmospheric Chemistry: State-of-the-art Measurement and Modeling in the Pacific Northwest (PI – Brian Lamb)	NSF REU	5/08-8/11	\$242,599 (\$78,200)
Capstone Engineering Design Assessment: Development, Testing, and Adoption Research, (PI - Denny Davis; Co-PI - Michael Trevisan)	NSF CCLI	8/07-8/10	\$499,672 (\$65,200)

Internal Grants - \$94,830

Title	Agency	Duration	Amount
Engineering Faculty Teaching Evaluation Practices	LL Stewart Grant	10/14-10/15	\$4,400
Introduction of Sustainable Engineering to Freshman Engineering Students	Smith Teaching and Learning Endowment	6/08-6/09	\$12,000
Development, Implementation, and Assessment of In-Class Peer Tutoring and Learning Modules in Sophomore Engineering Courses	WSU Office of Undergraduate Education (OUE)	6/07-6/08	\$26,465
Implementation and Evaluation of a Program Designed to Develop Social Capital in Freshman Engineering Students	WSU OUE	6/07-6/08	\$21,465
Implementation and Evaluation of the Science, Engineering, and Mathematics Living Learning Community	WSU OUE	6/06-6/07	\$20,000
Assessment of Outcomes in Core Engineering Courses, Co-Principal Investigator (Co-PI's - Lisa Morris, Bill Cofer, Dave Stock)	WSU OUE	6/06-6/07	\$14,900

STUDENT ADVISING

Undergraduate Honors Students

1. Lauren Wallace, Fall 2013-present
2. Samuel Heck, Fall 2014 – Spring 2015

Undergraduate Students

3. Lauren Wallace, Fall 2013-present
4. Moises Valiente, Fall 2013-2015
5. Advisor to seven undergraduate students at WSU (Matthew Barner, Kyle Morse, Kristen Kopyczynski, Andrew Kracht, Ross Woods, Liam Corcoran and Caitlin Owsley).

Graduate Students - Major Professor - Current

1. Allyson Ironside, M.S./Ph.D. 9/2016 to present
2. Sean Gestson, M.S./Ph.D. 9/2016 to present
3. Matthew Barner, M.S./Ph.D. 1/2015 to present
4. Jason Pascoe, M.S. 6/2015 to present
5. Justine Bird, M.S. 9/2016 to present

Graduate Students - Major Professor - Completed (4 Ph.D. and 20 M.S.)

1. Edgar Castro, M.S. 9/2016. Safety Data in Transportation Engineering
2. Keisha Villanueva, M.S. 9/2016. Teaching Evaluation Practices in Engineering Programs
3. Jorge Miranda, M.S. 6/2016. Engineering Expertise and the Student to Professional Transition
4. Floraliza Bornasal, Ph.D. 6/2015. Practicing Engineers Situated Understanding of Civil Engineering Concepts. Assistant Professor at St. Martin's University, August 2015 to present.
5. Howard Cooley, Ph.D. 5/2015. (Co-Advised with Ahmed Abdul-Rahim at University of Idaho) Conceptual Change in Transportation Engineering.
6. Amber Berger, M.S. 6/2015. Conceptual Change in Mechanics of Materials: Using the Framework Theory. Instructor in the College of Engineering at Oregon State University June 2015 start date.
7. Allie Peters, M.S. 5/2015. Transportation Faculty Adoption of Curriculum Materials and a Dissemination Website. Engineer at Kennedy Engineers.
8. Mark Urlacher, M.S. 5/2015. Civil Engineering Students and Practitioner's Understanding of Statics and Fluid Mechanics Concepts. Current PhD student.

9. Lee, Quincy, M.S. (project option) Conceptual Understanding in Mechanics of Materials.
10. Brooks, Sarah, M.S. 5/2013. Adoption of Technological Innovations: A Case Study of the ASSESS Website. *Advances in Engineering Education*. Published one peer-reviewed journal article.
11. Daratha, Kelvin, M.S. 5/2013. Traffic Signal System Misconceptions Across Three Cohorts: Novice Students, Expert Students, and Practicing Engineers. Published one peer-reviewed conference proceeding and one peer-reviewed journal article.
12. Key, Eleanor M.S. 5/2013. Creating Community Action: A Sustainable Approach to Humanitarian Engineering. One peer-reviewed journal article in review.
13. Easley, Andrew, M.S., 2012. The Effectiveness of a Physical Model Demonstrating Open Channel Flow Concepts. Engineer at KPFF in Seattle, WA. Published one peer-reviewed conference proceeding and one peer-reviewed journal article.
14. Davis, Shannon, M.S., 2011. Embedded Knowledge in Transportation Engineering: Comparisons Between Engineers and Instructors. Engineer in San Diego, CA. Published one peer-reviewed journal article and one peer-reviewed conference proceeding.
15. Nicholas, Chelsea, M.S., 2011. Evaluating the Effectiveness of Dynamic Traffic Simulations: A Case Study in Engineering Education. Engineer at Boeing in Seattle, WA. One peer-reviewed journal article revised and resubmitted.
16. Montfort, Devlin, Ph.D., 2011. Conceptual and Epistemological Change in Civil Engineering Students. Published three journal articles and four refereed conference proceedings. Won the WSU College of Engineering and Architecture outstanding teaching assistant award, one regional best paper award, and runner up for a national best paper award.
17. Howard, Kristen, M.S., 2011. Student Conceptual Difficulties in Ozone Formation. One peer-reviewed journal article accepted.
18. Burnham, Jacob, M.S., 2011. Engineering Students Mathematics Self-Efficacy Development in a Freshmen Engineering Mathematics Course. Engineer at Casper Phillips and Associates Group in Seattle, WA. Published one peer-reviewed journal article.
19. Lewis, Dean Tyler, M.S., 2010. Student Conceptual Understanding of Stress in Beams and Axially Loaded Members. Engineer at DCI Engineers. Published one peer-reviewed conference proceeding and collected data that will contribute to at least two journal articles.
20. Gerlick, Robert, Ph.D., Co-Advisor with Denny Davis, 2010. Assessment of Student Learning in Capstone Design Courses. WSU Engineering Science. Assistant Professor at Pittsburgh State University. Published two peer-reviewed conference proceedings and one journal article is in preparation.
21. Barker, Fred, M.S., 2010. The Impacts of an Engineering –Mathematics Course on Freshmen Students' Mathematics Self-Efficacy. Engineer at Coffman Engineers. Published one peer-reviewed journal article.
22. Street, David, M.S., 2010. Engineering Student Social Capital Within an In-Class Peer Tutoring Program: Sources and Preferences. Engineer at Berger Abam. Published one peer-reviewed journal article and two peer-reviewed conference proceedings.
23. Andrews, Brock, M.S., 2009. Student Understanding of Sight Distance and Stopping Sight Distance. Engineer and Inspector at Kiewit Construction. Published one peer-reviewed journal article and two peer-reviewed conference proceedings.
24. Hammer, Kristina, M.S., 2009. Organizational Network Analysis for the Washington State Department of Transportation. Working for engineering firm in Pullman, WA. Published a technical report for WSDOT.
25. Schramm, Carrie, M.S., 2009. Impact of In-Class Peer Tutoring on Engineering Student Mechanics Self Efficacy. Engineer at RH2 Engineering, Kennewick, WA. Published two peer reviewed conference proceedings.
26. Laughlin, Kelsey, M.S., 2007. Design of a Green Roof System for Industrial Development. Civil Engineer, Browne Engineering Inc., Bainbridge Island, WA.

Curriculum vitae for Shane Brown, Ph.D., P.E.

27. Montfort, Devlin, M.S., 2007. An Investigation of Students' Conceptual Understanding in Related Sophomore to Graduate-Level Engineering and Mechanics Courses. Published one journal article and two peer-reviewed conference proceedings.

Graduate Students - Committee Member

1. Brian Hartman, Ph.D. 1/2014 to present. College of Education, Oregon State University
2. White, Robin, Ph.D., 8/2011 to Present. Department of Animal Sciences. Washington State University
3. Morrison, Briana Marie, Ph.D., 8/2010 to 8/2013. Educational Leadership and Counseling Psychology. Washington State University

Postdoctoral Trainees

1. Natasha Perova, 2016 to present
2. Oai Ha, 2016-present
3. Nicole Pitterson, 2016-present
4. Kathy Quardokus Fisher, 2014-2016
5. Kacey Beddoes, 2014-2015
6. David Little, 2014-2015
7. Devlin Montfort, 2011-2013

PROFESSIONAL SERVICE ACTIVITIES

Chair NAE-TRB-NCHRP Panel 20-104 – Knowledge Capture of Consultants, 2014-Present

Program Chair ASEE Educational Research and Methods Division, 2014-2015

Director, Educational Research and Methods (ERM) Division of ASEE, 2010-2012

Member – Transportation Research Board Task Force on Knowledge Management, AB010T, 2011-2014

Chair NAE-TRB-NCHRP Panel 20-93 - Development of a Guide for Transportation Technology Transfer, 2011-2013

Member NAE-TRB-NCHRP Panel 20-68A U.S. Domestic Scan Program, 2009-2015 (The Domestic Scan Program is focused on the dissemination of best practices in the transportation industry through travel to locations of best practices. I am part of the eight person panel that oversees this panel, including making funding decisions)

Reviewer, 2011 ERM Best Paper Award, ASEE National Conference

Chair, Frontiers in Education Helen Plants Best Special Session Committee, 2008-2010

Technical Session Moderator, Frontiers in Education Annual Conference, 2008, Saratoga Springs, NY

Review Panel Member, ASEE Educational Research and Methods Apprentice Faculty Grant, February 2008, 2011, 2012

Research Review Panel Member, National Science Foundation, Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM), January 2008.

Technical Session Moderator, Frontiers in Education Annual Conference, 2005, 2007

EDITORIAL ACTIVITIES

Senior Associate Editor for the Journal of Engineering Education, 2016-present

Associate Editor for the Journal of Engineering Education

Peer Reviewer for the ASCE Journal of Professional Issues in Engineering Education and Practice

Peer Reviewer for the Journal of Engineering Education

Curriculum vitae for Shane Brown, Ph.D., P.E.

Peer Reviewer for Advances in Engineering Education

Peer Reviewer for IEEE Engineering Education Conference 2010 – The Future of Global Learning in Engineering Education

Peer Reviewer for the International Network for Engineering Education 2008 and 2009 Special Publication

Peer Reviewer of the 2004, 2006, 2007, 2008, 2009, and 2010 American Society for Engineering Education National Annual Conference Proceedings

Peer Reviewer of the 2006, 2007, 2008, and 2009 Frontiers in Education National Annual Conference Proceedings

Reviewer for Kavanaugh, Surveying, 5th Ed., Pearson Prentice Hall

PROFESSIONAL SOCIETIES

American Society for Engineering Education

American Society of Civil Engineers

National Association for Research in Science Teaching

American Educational Research Association

Tau Beta Pi

Phi Kappa Phi

UNIVERSITY SERVICE ACTIVITIES

OSU School Head of Civil & Construction Engineering Search Committee, Member, AY 14/15

OSU Interim School Head of Civil & Construction Engineering Search Committee, Member, AY 13/14

Co-Director, Engineering Education Research Center, 2011 to present

Co-Director, STEM Education Partnership, 2012 to present

American Society of Civil Engineers, Assistant Faculty Advisor 2005-2006, Lead Faculty Advisor, 2006-2010

Undergraduate Curriculum Committee, WSU Department of Civil and Environmental Engineering, 2005-present

Scholarship Committee, WSU Department of Civil and Environmental Engineering, 2005-2011

TEACHING EXPERIENCE

Engineering Teaching and Learning, Introduction to Engineering, Integrated Capstone Design, Hydraulics Engineering Laboratory, Water Resources Engineering, Surveying, Mechanics of Materials, Ethics and Professionalism, Innovation in Design, Statics, Dynamics, Electrical Fundamentals, Calculus and Algebra-Based Physics

CURRICULUM DEVELOPMENT

Revised WSU civil engineering capstone design course to actively involve engineering practitioners in the mentoring and review process. All projects are developed and mentored by practicing engineers.

Revised WSU surveying course to reflect current practice and focus on use of surveying data by engineers and construction managers. Developed 15 new laboratory assignments for surveying and 15 new laboratory assignments for AutoCAD.

Revised WSU mechanics of materials course to reflect expert novice learning theories. Rearranged curriculum to assist students in learning mechanics fundamentals. Developed new learning modules and ranking tasks to assist students in developing conceptual understanding.

STUDENT EVALUATIONS OF TEACHING

Course No.	Term	Enrollment	# Responding	Student Evaluation (#1/#2)	College Averages* (#1/#2)	Δ	Required /Elective
Washington State University Courses (mean value of course and instructor ratings, rated on a five point scale)							
CE 301	Fall 2005	92		4.41 out of 5.0	Unavailable	NA	Required
CE 351	Fall 2005	35		4.6	Unavailable	NA	Required
CE 215	Fall 2005	87		4.40	Unavailable	NA	Required
CE 351	Spring 2006	43		4.63	4.20	+0.43	Required
CE 215	Spring 2006	60		4.38	4.20	+0.18	Required
CE 465	Spring 2006	38		3.83	4.20	-0.37	Required
CE 301	Fall 2006	120		4.48	4.21	+0.27	Required
CE 465	Fall 2006	38		4.72	4.21	+0.51	Required
CE 215	Fall 2006	57		4.67	4.21	+0.46	Required
Engr 120	Spring 2007	38		4.59	4.25	+0.34	Required
CE 416	Spring 2007	15		4.83	4.25	+0.58	Elective
CE 480	Fall 2007	48		4.36	4.22	+0.14	Required
Engr 120	Fall 2007	43		4.51	4.22	+0.29	Required
CE 465	Fall 2007	34		4.56	4.22	+0.34	Required
CE 465	Spring 2008	54		4.51	4.27	+0.24	Required
CE 465	Fall 2008	48		4.70	4.28	+0.42	Required
CE 301	Fall 2008	127		4.76	4.28	+0.48	Required
CE 302	Fall 2009	128		4.43	4.14	+0.29	Required
CE 600	Spring 2010	15		4.68	4.14	+0.54	Required
CE 580	Spring 2010	15		4.46	4.14	+0.32	Required
CE 537	Spring 2010	8		4.43	4.14	+0.29	Elective
CE 465	Spring 2011	55		4.65	4.14	+0.41	Required
CE 537	Spring 2012	9		4.86	4.01	+0.85	Elective
CE 465	Spring 2013	60		N/A			
Oregon State University Courses*							
Engr 111	Fall 2013	212	106	4.20/4.30	4.26/4.47	-0.06/-0.17	Required
Engr 111 INTO	Fall 2013	68	28	5.30/5.40	4.26/4.47	+1.04/+0.93	Required
CE 418	Winter 2014	105	90	4.60/4.90	4.62/4.74	-0.02/+0.16	Required
CE 419	Spring 2014	105	85	5.00/5.40	4.76/4.84	+0.24/+0.56	Required
ENGR 111	Fall 2014	223	152	4.80/5.10	4.26/4.47**	+0.54/+0.63	Required
ENGR 111 INTO	Fall 2014	56	31	5.60/5.60	4.26/4.47**	+1.44/+1.13	Required

- *College averages are shown separately for each level (e.g., 400, 500) taught.
- ** Values are from fall 2013