

DAPHNE DUNCAN WILES

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Professional Appointments

Clinical Assistant Professor <i>Department of Teaching and Learning Clemson University</i>	July 2018 - Present
Master of Education Program Coordinator <i>Department of Teaching and Learning Clemson University</i>	July 2018 – May 2019
Instructor <i>Gifted, Creative, and Talented Studies Purdue University</i>	January 2017 – May 2018
Executive Director <i>Montessori School of Greater Lafayette</i>	November 2015 – May 2016
Course Mentor (Faculty) <i>Teacher Education Western Governors University</i>	June 2013 – November 2015

Academic Degrees

Doctor of Philosophy in Educational Psychology Major concentration: Gifted, Talented, and Creative Studies Minor concentration: Engineering Education Purdue University, West Lafayette, Indiana Dissertation: <i>Students' Awareness and Perceptions of Learning Engineering (STAPLE): Content and Construct Validation of an Instrument</i> Committee: Dr. Marcia Gentry (chair), Dr. Qui Wang, Dr. Matthew Ohland, Dr. Rebecca Mann	May 2012
Master of Education in Curriculum and Instruction North Carolina State University, Raleigh, North Carolina	May 2006
Master of Science in Human Resources Management Troy State University, Troy, Alabama	May 2001
Bachelor of Science in Elementary Education Florida State University, Tallahassee, Florida	May 1998

Other Professional Experience

Curriculum Extensions Coordinator and Engineering Teacher <i>Lower School</i> <i>Park Tudor School</i> <i>Indianapolis, Indiana</i>	2010 - 2013
Graduate Research Assistant <i>The Institute for P-12 Engineering Research and Learning</i> <i>School of Engineering Education</i> <i>Purdue University</i>	2006 - 2012
Graduate Teaching Assistant <i>Gifted Education Resource Institute</i> <i>College of Education</i> <i>Purdue University</i>	Spring, Summer 2009
Graduate Research Assistant <i>College of Education</i> <i>North Carolina State University</i>	2004 - 2006
Clinical Coordinator <i>Office of Clinical Experiences</i> <i>College of Education</i> <i>East Carolina University</i>	2003 - 2004
Third Grade Teacher <i>Seaford Elementary School</i> <i>Yorktown, Virginia</i>	1998 - 2003

Research

Publications

National/International Refereed Articles

Purzer, S., **Duncan-Wiles, D.**, & Strobel, J. (2013). Teaching fourth and fifth graders about engineering optimization and trade-offs. *Science and Children*, 50, 5, 34-39.

Mann, E. L., Mann, R. L., Strutz, M. L., **Duncan, D.**, & Yoon, S. Y. (2011). Integrating engineering into K-6 curriculum: Developing talent in the STEM disciplines. *Journal of Advanced Academics*, 22, 4, 639-658.

Duncan, D., Diefes-Dux, H. A., & Gentry, M. (2011). Professional development through engineering academies: An examination of elementary teacher recognition and understanding of engineering. *Journal of Engineering Education*, 100, 3, 520-539

Weber, N., **Duncan, D.**, Dyehouse, M., Strobel, J., and Diefes-Dux, H. A. (2011). The Development of a Systematic Coding System for Elementary Students' Drawings of Engineers, *Journal of Pre-College Engineering Education Research*, 1, 1, 49-62.

Presentations

Referred National/International Conference Papers

Smart, J., **Wiles, D.**, Morrison, A., & Bennett, L. (2021). Development, validation, and implementation of the Online Teaching Motivation Survey (OTMS): Examining motivational constructs in online teaching. Paper submitted for presentation at the annual meeting of the American Educational Research Association, San Diego, CA.

Smart, J., Bennett., **Wiles, D.**, & Morrison, A. (2021). Examining factors related to teacher efficacy for online teaching and learning. Paper submitted for presentation at the annual meeting of the American Educational Research Association, San Diego, CA.

Douglas, K. A., **Duncan-Wiles, D.**, Yoon, S.Y., & Diefes-Dux, H. (2013). *Elementary teachers' two-year implementation of engineering: A case of success*. Paper presented at the ASEE National Conference, San Francisco, California.

Duncan-Wiles, D., Jones, T., Brophy, S., & Diefes-Dux, H. A. (2012). *Changes in elementary teachers' noticing of engineering pre/post professional development with engineering*. Paper presented at the 42nd ASEE/IEEE Frontiers in Education Conference, Seattle, Washington.

Purzer, S., Myers, W. P., **Duncan-Wiles, D.**, & Strobel, J. (2012). *Assessing engineering design creativity in K-12 student designs: Exploring an egg packaging and drop activity*. Paper presented at the 2nd P-12 Engineering and Design Education Research Summit, Washington, D.C.

Duncan, D., Dyehouse, M., & Strobel, J. (2011). *Engineering in an elementary setting: An analysis of context maps*. Paper presented at the Research in Engineering Education Symposium (REES). Madrid, Spain.

Dyehouse, M., Weber, N., Kharchenko, O., **Duncan, D.**, Strobel, S., & Diefes-Dux, H. (2011). *Measuring pupils' perceptions of engineers: Validation of the Draw an Engineer (DAET) coding system with interview triangulation*. Paper presented at the Research in Engineering Education Symposium (REES). Madrid, Spain.

Duncan, D., Weber, N., Dyehouse, M., Diefes-Dux, H. A., & Strobel, J. (2010). *The Development of a Systematic Coding Scheme for Elementary Students' Drawings of Engineers*. Paper presented at the P-12 Engineering and Design Education Research Summit, Seaside, Oregon.

Diefes-Dux, H. A. & **Duncan, D.** (2007). *Adapting Engineering is Elementary professional development to encourage open-ended mathematical modeling*. Paper presented at the Committee on K-12 Engineering Education, National Academy of Engineering, National Research Council, Workshop and Third Meeting, Oct. 22, 2007, Keck Center of the National Academies, Engineering Education in Grades K-5.

Lambert, M. Diefes-Dux, H., Beck, M., **Duncan, D.**, Oware, E., & Nemeth, R. (2007). *What is engineering? – An exploration of P-6 grade teachers' perspectives*. In proceedings of the 37th ASEE/IEEE Frontiers in Education Conference. Milwaukee, Wisconsin.

Duncan, D., Oware, E., Cox, M.F., & Diefes-Dux, H. A. (2007). *Program and curriculum assessment for the institute for P-12 engineering research and learning (INSPIRE) summer academies for P-6 teachers*. Paper presented at the ASEE National Conference, Honolulu, Hawaii.

Presentations

Refereed National/International Conference Presentations, Workshops, and Posters

Wiles, D., Morrison, A., Smart, J., & Bennett, L. (2022, March, submitted). Providing administrative support for online teaching and learning. The Association for Supervision and Curriculum Development (ASCD). Chicago, Illinois.

Wiles, D. (2020, April). *Thoughtful design through cause and effect*. The National Science Teaching Association (NSTA) Elementary Extravaganza. Boston, Massachusetts. (Cancelled due to COVID-19).

Duncan-Wiles, D., McCrum, P., Brophy, S., Jones, T., & Diefes-Dux, H. (2013, April). *Elementary teacher's noticing of engineering through a photo prompting assessment*. National Association for Research in Science Teaching (NARST). (part of a poster set). Puerto Rico.

Purzer, S., Wang, J., **Duncan-Wiles, D.**, & Strobel, J. (2013, April). *Elementary students' abilities in engineering design optimization and trade-off methods*. National Association for Research in Science Teaching (part of a poster set). Puerto Rico.

Duncan-Wiles, D., Carmody, H., Mann, E., & Dominguez, D. (2012, November). *STEM in the Trenches*. National Association for Gifted Children (NAGC) National Conference. Denver, Colorado.

Duncan-Wiles, D., Chamberlin, S., & Carr, R. (2012, November). *Mathematical Modeling for Elementary and Middle School Students*. National Association for Gifted Children (NAGC) National Conference. Denver, Colorado.

- Carr, R. & **Duncan-Wiles, D.** (2012, November). *Designing an Airplane: Engineering for Elementary Students*. National Association for Gifted Children (NAGC) National Conference. Denver, Colorado.
- Duncan, D.** (2011, November). *Engineering Design for Elementary Students*. National Association for Gifted Children (NAGC) National Conference. New Orleans, Louisiana.
- Duncan, D.** (2011, November). *Mathematical Modeling in the Elementary and Middle Grades*. National Association for Gifted Children (NAGC) National Conference. New Orleans, Louisiana.
- Duncan, D.**, Chamberlin, S., & Mann, E. (2010, November). *Model Eliciting Activities: A Challenging and Effective Mathematical Tool*. National Association for Gifted Children (NAGC) National Conference. Atlanta, Georgia
- Carr, R., Mann, E., & **Duncan, D.** (2010, November). *Engineering Design Challenges in the Elementary Classroom*. National Association for Gifted Children (NAGC) National Conference. Atlanta, Georgia.
- Duncan, D.**, Carr, R., & Pollock, M. (2010, June). *Model Eliciting Activities: Thinking Outside the Mathematics Textbook*. 7th Annual American Society for Engineering Education (ASEE) Workshop on K-12 Engineering Education: Discovering Engineering in the Classroom, Louisville, Kentucky.
- Duncan, D.** (2009, November). *Assessing Students' Perceptions of Engineering: The Development of a Quantitative Instrument*. Poster presented at the National Association for Gifted Children (NAGC) Graduate Student Research Gala, St. Louis, Missouri.
- Duncan, D.** & Mann, E. L. (2009, August). *The Institute for P-12 Engineering Research and Learning (INSPIRE): Promoting Engineering Through Summer Academies*. Paper presented at the 18th World Conference on Gifted and Talented Children, Vancouver, Canada.
- Duncan, D.** (2008, October). *Meeting Diverse Needs: A Mathematics Modeling Activity*. Presented at National Association for Gifted Children (NAGC) National Conference, St. Tampa, Florida.
- Beck, M. & **Duncan, D.** (2008, June). *Mathematical Modeling in the Elementary Classroom: A Windmill Problem*. Presented at the American Society for Engineering Education (ASEE) Workshop of K-12 Engineering Education, Pittsburgh, Pennsylvania.

Duncan, D., Oware, E., Cox, M. F., & Diefes-Dux, H. A. (2007, June). *Program and Curriculum Assessment for the Institute for P-12 Engineering Research and Learning (INSPIRE) Summer Academies for P-6 Teachers*. Presented at the American Society for Engineering Education (ASEE) National Conference, Honolulu, Hawaii.

Presentations

Invited Sessions

Duncan-Wiles, D. (2013, February). *Engineering Design Challenges for Elementary and Middle School Students*. Winter Edufest, Coeur d'Alene, Idaho.

Duncan-Wiles, D., (2013, February). *Mathematical Modeling for Elementary and Middle School Students*. Winter Edufest, Coeur d'Alene, Idaho.

Duncan-Wiles, D. (2012, November). Engineering Design for Elementary and Middle School Students. In L. J. Sheffield (Chair), *Invest in America's Future: Maximize the Challenge for STEM Students*. Board Institute conducted at the National Association for Gifted Children (NAGC) STEM Network at the NAGC 59th Annual Convention.

Duncan, D. (2011, November). Integrating Engineering in the Elementary Classroom. In L. J. Sheffield (Chair), *Invest in America's Future: Maximize the Challenge for STEM Students*. Board Institute conducted at the National Association for Gifted Children (NAGC) STEM Network at the NAGC 58th Annual Convention.

Mann, E. & **Duncan, D.** (2010, November). Integrating the STEM Disciplines in Middle and High School. In L. J. Sheffield (Chair), *Invest in America's Future: Maximize the Challenge for STEM Students*. Board Institute conducted at the National Association for Gifted Children (NAGC) Math/Science SIG at the NAGC 57th Annual Convention.

Mann, E. & **Duncan, D.** (2010, November). Innovations in Engineering Education. In L. J. Sheffield (Chair), *Invest in America's Future: Maximize the Challenge for STEM Students*. Board Institute conducted at the National Association for Gifted Children (NAGC) Math/Science SIG at the NAGC 57th Annual Convention.

Mann, E. L. & **Duncan, D.**, (2009, November). Engineering Design Activities. In L.J. Sheffield (Chair), *Science, Technology, Engineering, and Mathematics (STEM) Oh My!* Board Institute conducted at the meeting for the National Association for Gifted Children (NAGC) Math/Science Task Force at the NAGC 56th Annual Convention.

Presentations

Regional and State Conferences and Professional Development

Bellue, J., Harriman, A., & **Wiles, D.** (2019, September). *The Incidence of Perfectionism in Clemson Honors College Students*. EUREKA! Research Poster Forum, Clemson, South Carolina.

Carver, P., **Wiles, D.**, Douglas, D., & Betts, S. (2015, February). *Challenging Courses: MZCI Fundamentals of Educational Psychology Best Practices*. WGU Winter Academic Meetings, Anaheim, California.

Wiles, D., Affleck, A., Betts, S., Bunting, T., Cohen, K., Douglas, D., McCarver, P., & Pack, M. (2014, July). *Creative Course Mentoring: Building a Toolbox of Strategies*. WGU Summer Academic Meetings, Salt Lake City, Utah.

Betts, S., Douglas, D., McCarver, P., & **Wiles, D.** (2014, July). *Empowering Students to Self-Directed Learning through the Triangle Model of Responsibility*. WGU Summer Academic Meetings, Salt Lake City, Utah.

Duncan, D. (2009, June). *Engineering in the Elementary Classroom*. Discover Conference, West Lafayette, Indiana.

Duncan, D. (2009, April). *Engineering and the Sciences*. Presented at the High Ability Middle School Conference, Indianapolis, Indiana.

Duncan, D. (2009, April). *Using Model Eliciting Activities*. Presented at the High Ability Middle School Conference, Indianapolis, Indiana.

English, L., Oware, E., & **Duncan, D.** (2007, July). *Modeling in Primary Schools*. Presented at the 13th International Conference on Teaching Modeling and Applications, Bloomington, Indiana.

Grantsmanship

Grant Projects

Externally Funded (Federal, National, State)

Institute of Sciences: Education Research Program CFDA Number 84.305A-2.

Improving Math and Science Achievement of Elementary and Middle School Students with Modeling and Design as an Integrative Context (2013-2017). PI: Johannes Strobel; Co-PI: **Daphne Wiles**, Anna Douglas, Luciana De Oliveira, Heidi Diefes-Dux. \$1,500,000. (not funded)

National Science Foundation, #00041870. SEALS: South Carolina Engineering Accelerate Longitudinal Study. (2013-2018). PI: Johannes Strobel; Co-PI: **Daphne Wiles**, Anna Douglas. \$390,642 (not funded)

National Science Foundation: Pre-College Assessment Quality (PEAQ): Capacity Building and Research & Development. (2013-2017). PI: Johannes Strobel; Co-PI: Luciana De Oliveira, Yukiko Maeda, Heidi Diefes-Dux, Senay Purzer; Key Personnel: **Daphne Wiles**, Anna Douglas, So Yoon Yoon. \$2,799,004. (not funded)

Grant Projects

Internally Funded

ADR Seed Grant: Clemson University. Transdisciplinary STEAM Teaching as a Pathway to Academic Motivation and Engagement in Elementary Students (2018). PI: **Daphne Wiles**; Co-PI: Cynthia Deaton. \$27,797. (not funded)

Honors and Awards

Course Mentor Quality Call Competition Winner Western Governors University	2015
Best Paper American Society for Engineering Education National Conference	2013
Purdue Summer Undergraduate Research Fellowship Graduate Student Mentor of the Summer	2012
Nominated for Best Paper American Society for Engineering Education National Conference	2007

Teaching and Advising

Courses Taught (Clemson University)

ED 8600	Classroom-Based Research	<i>Online, Face-to-Face</i>
ED 8990	Capstone Research Project	<i>Online</i>
ED 8700	STEAM Instructional Design	<i>Online</i>
ED 8710	STEAM Transdisciplinary Teaching	<i>Online</i>
ED 8730	STEAM Assessment	<i>Online</i>
ED 8720	STEAM Enacted and Evaluated	<i>Online</i>
EDEL 4510	Elementary Science Methods	<i>Face-to-Face</i>
ED 8650	Curriculum Theory	<i>Online, Face-to-Face</i>
ED 3990	Departmental Honors Research Seminar	<i>Online</i>
ED 4990	Educational Honors Capstone Project and Dissemination	<i>Online, Face-to-Face</i>

Courses Taught (Purdue University)

EDPS 695	Practicum in Gifted Education	<i>Face-to-Face</i>
EDPS 590	Discover Capstone Course	<i>Face-to-Face</i>
EDPS 430	Creating and Managing Learning Environments	<i>Face-to-Face</i>

Courses Taught (Western Governors University)

MZC1	Foundations of Educational Psychology	<i>Online</i>
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FHT4	Human Development and Learning	<i>Online</i>
SRA1	Research Writing	<i>Online</i>
STA1	Educational Theory and Analysis: Educational Thought Seminar	<i>Online</i>
SSA1	Synthesis of Educational Research	<i>Online</i>
SCA1	Theoretical Reasoning and Problem Solving	<i>Online</i>
SDA1	Synthesis of Educational Theory	<i>Online</i>

Advising

Eugene T. Moore School of Education, Clemson University 2018 - 2019
 Department of Teaching and Learning
 Master of Education (201 students)

Service

Service to the Field of Scholarship

Manuscript Reviewer

- Journal of STEM Education 2012 – Present
- Journal of Engineering Education 2012 – Present

Book Chapter Reviewer

2020 - Present

- Science and Children

Conference Proposal Reviewer

2010 – 2013

- National Association for Gifted Children STEM Network

Service to the Profession

Course Development

2021

- ED 3990 (Departmental Honors Research Seminar).
 Developed for the Department of Teaching and Learning, Clemson University

STEM Educator of the Year (SC) Reviewer

2020

Service to the University

Clemson University

Guest Lecture Series Facilitator for Teaching Fellows

2021 - Present

Curriculum Committee

2021 - Present

College of Education Research Committee Member

2021 - Present

Teaching Fellows Advisory Committee Member

2020 - Present

M.Ed. Award Committee

2019 - Present

Center of Excellence for Innovation in Mathematics and Science Faculty Affiliate

2019 - Present

M.Ed. Merit Pay Ad-Hoc Committee

2019 - 2020

M.Ed. Program Coordinator	2018 - 2019
College By-Laws Ad-Hoc Committee	2018 - 2019
Teacher Effectiveness M.Ed. Specialization/CERRA Partnership Ad-Hoc Committee	2018 - 2019
Invited Speaker: Clemson Online First Fridays	November 2018

Service to the University

Purdue University

Faculty Fellow	2011 - 2013
Undergraduate Mentor for P-12 Intern Researchers in STEM, Particularly Engineering (UMPIRE)	2011 - 2012
Graduate Students in Education Council	2010
Board Member	
Graduate Organization for Educational Studies	2010
Board Member	

Professional Organizations (Past and Current)

American Psychological Association (APA)
Division 5: Quantitative and Qualitative Methods
Division 15: Education Psychology

National Association for Gifted Children (NAGC)
Research and Evaluation Network
*STEM Network (*Board Member)*

American Educational Research Association (AERA)
Teacher and Teacher Education (Division K)
Motivation in Education (SIG)
Research on Giftedness and Talent (SIG)

American Society of Engineering Education
K-12 and Pre-College Engineering Division