

# Anna M. Payne

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## Research Interests

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Instruction: Teacher professional development in the 21st century

Learning: Twice exceptional student experiences

Curricula: Acceleration options for mathematically gifted students

Curricula: Mathematical modeling in the classroom

## Education and Certifications

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Ph.D. Educational Psychology: GT, Quantitative Methods, Baylor University 2018 – Present

*Dissertation: "Applying an Integrated Behavioral Model to Examine Mathematics Teachers'*

*Likelihood of Recommending Acceleration for Gifted Students"*

M.A. Curriculum: Mathematics Education, University of Iowa 2018

Cognates in: Gifted Education, STEM Education

B.A. Mathematics, University of Northern Iowa 2004

Iowa Teaching license folder number 363160

-5-12 Mathematics

-5-8 Middle School Generalist

-PK-12 Talented and Gifted

## Academic, Teaching, and Research Employment

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**Belin-Blank Center, University of Iowa**

Iowa City, IA

Adjunct Lecturer

2018-Present

-Full autonomy to create and teach courses on gifted education

-Designed and taught 1 general education course on creativity, 3 classes on Gifted education

-Created four-year schedule of classes

-Performed year-end data analytics for all Belin-Blank students

**Hanover Research**

Arlington, VA

Senior Research Analyst

2021-2022

-Analyse complex research requests to provide actionable recommendations and key findings

-Collect and analyse research data from surveys and other primary sources

-Inform and advise various levels of management and stakeholders

## Publications

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### Published Articles

Chamberlin, S., **Payne, A.M.** & Kozlowski, J. S. (2022). The five legs of creativity. *12th International Conference on Mathematical Creativity and Giftedness (MCG 12), University of Las Vegas, United States of America.*

Chamberlin, S., **Payne, A.M.**, & Kettler, T. (2020). Mathematical modeling: A positive learning approach to facilitate student sense making in mathematics. *International Journal of Mathematical Education in Science and Technology*. 53(4) DOI: 10.1080/0020739X.2020.1788185.

Kettler, T. & **Payne, A.M.**. (2020). Gifted students with ADHD: What do we know and what should we do? *The Gifted Education Review*.

### Book Chapters

Chamberlin, S.A. & **Payne, A.M.**. (2022). Mathematical creativity and society. In S. Chamberlin, P. Liljedahl, & M. Savic (eds.), *Mathematical creativity: A developmental perspective*. Springer.

### In Press/Under Review

Meiners, A. & **Payne, A. M.** (2023). Preservice teachers' mindset and persistence in College Algebra and Statistics units. *[Manuscript in review]*

Kettler, T., Ruiz, B.N., Jiang, S. & **Payne, A. M.** (2023). Predictors of creativity biases among educators: The influence of fixed creative mindset and creative self-efficacy. *[Manuscript in review]*

**Payne, A.M.** (2022). The pedagogy of thinking mathematically using math modeling in the classroom. *[Manuscript in review]*

Sodergren, C.D.C., Kettler, T., Sulak, T., & **Payne, A.M.** (2021) . Teacher self-efficacy, innovativeness, and preparation to teach cross-curricular skills. *[Manuscript in review]*

### Manuscripts in Preparation

**Payne, A. M.** (2022). Acceleration of mathematically gifted and mathematically creative students: A review of the literature. *[Manuscript in preparation]*

**Payne, A. M.**, Kettler, T., Tipton, R., (2022). Experiences of intellectually gifted students with ADHD in post-secondary education: An application of Psychological Compensation Theory. *[Manuscript in preparation]*

Croft, L., & **Payne, A.M.**, (2021). Teachers who make a difference: What gifted students say. *[Manuscript in preparation]*

Kettler, T. & **Payne, A. M.** (2021). Cognitive characteristics of gifted students: Theoretical foundations of talent development and differentiated learning provisions. *[Manuscript in preparation]*

## Selected Presentations

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### Invited Presentations

Croft, L. & **Payne, A.M.** (2018, May). Gifted students perceptions of effective teaching [Conference session]. Henry B. & Jocelyn Wallace National Research & Policy Symposium on Talent Development, Johns Hopkins University. Baltimore, MD.

### National & International Presentations

**Payne, A.M.** & Kettler, T. (2023, April). Experiences of intellectually gifted students with ADHD: An application of psychological compensation theory [Paper presentation]. American Educational Research Association (AERA) Conference, Chicago, IL.

Croft, L. & **Payne, A.M.** (2022, November). Acceleration: Insights into environmental constraints to an effective practice. [Poster session]. National Association for Gifted Children (NAGC) National Conference, Indianapolis, IN.

- Chamberlin, S., **Payne, A.M.**, & Kozlowski, J. (2022, September). The Five Legs of Creativity [Conference session]. International Mathematical Creativity and Giftedness Conference (MCG), Las Vegas, NV.
- Hebda, M. & **Payne, A.M.** (2021, November). STEM competitions as high-quality authentic curriculum [Conference session]. National Association for Gifted Children (NAGC) National Conference, Aurora, CO.
- Chamberlin, S. & **Payne, A.M.** (2021, November). The relationship between creativity and affect in mathematics [Conference session]. National Association for Gifted Children (NAGC) National Conference, Aurora, CO.
- Croft, L. & **Payne, A.M.** (2021, November). What gifted students say about teachers who make a difference [Poster presentation]. National Association for Gifted Children (NAGC) National Conference, Aurora, CO.
- Payne, A.M.** & Meiners, A. (2021, September). University pre-service teachers' mindset and persistence in multiple learning environments [Conference session]. National Council of Teachers of Mathematics (NCTM) Annual Conference, Atlanta, GA.
- Payne, A.M.** & Fortenbaugh, S. (2021, July). Moving gifted math students beyond problem solving: Using problem posing to foster creativity [Conference session]. World Council for Gifted and Talented Children (WCGTC) Conference, Online.
- Croft, L. & **Payne, A.M.** (2021, July). Gifted and Talented International: A resource for professional development [Conference session]. World Council for Gifted and Talented Children (WCGTC) Conference, Online.
- Croft, L. & **Payne, A.M.** (2021, July). Teacher student relationships that inspire gifted student engagement [Conference session]. World Council for Gifted and Talented Children (WCGTC) Conference, Online.
- Payne, A.M.** & Chamberlin, S. (2020, November). Mathematical modeling your way past the Phantom Tollbooth [Conference session]. National Association for Gifted Children (NAGC) National Conference, Lake Buena Vista, FL.
- Payne, A.M.** & Sodergren, C. (2020, November). Middle school: The worst years of my life [Poster presentation]. National Association for Gifted Children (NAGC) National Conference, Lake Buena Vista, FL.
- Kettler, T., Jiang, S. & **Payne, A.M.** (2020, April). Creativity belief bias among educators: The influence of fixed creative mindset and creative self-efficacy [Paper presentation]. American Educational Research Association (AERA) Conference, San Francisco, CA.
- Meiners, A. & **Payne, A.M.** (2020, April). Opening your students' conceptual engagement using Open Middle resources [Conference session]. National Council of Teachers of Mathematics (NCTM) Centennial Conference, Chicago, IL.
- Payne, A.M.** & Lynch, S.G. (2019, November). Identifying giftedness among ELL populations [Poster presentation]. National Association for Gifted Children (NAGC) National Conference, Albuquerque, NM.
- Payne, A.M.** & Tipton, R.J. & Kettler, T. (2019, December). Experiences of intellectually gifted students with ADHD in higher education, a case study [Poster presentation]. National Association for Gifted Children (NAGC) National Conference, Albuquerque, NM.
- Payne, A.M.** (2019, November). Measuring self-efficacy for mathematical creativity: Developing a tool to identify mathematical talent [Poster presentation]. Graduate Student Research Gala, National Association for Gifted Children (NAGC) National Conference, Albuquerque, NM.

**Payne, A.M.** & Croft, L. (2019, July). Teachers who make a difference: What gifted students say [Conference session]. World Council for Gifted and Talented Children (WCGTC) Conference, Nashville, TN.

Croft, L. & **Payne, A.M.** (2017, November). Developing leaders in gifted education through professional learning [Poster presentation]. National Association for Gifted Children (NAGC) National Conference. Charlotte, NC.

**Payne, A.M.** (2017, July). Professional training: Developing leaders in gifted education [Conference session]. World Council for Gifted and Talented Children (WCGTC) Conference, Sydney, AUS.

**Payne, A.M.** (2017, July). Professional development and acceleration: Changing attitudes and practices [Poster presentation]. World Council for Gifted and Talented Children (WCGTC) Conference, Sydney, AUS.

Hong, D.S., Choi, K.M., Hwang, J., Runnalls, C., **Payne, A.M.** & Meiners, A. (2016, November). How well-aligned are Common Core textbooks to learning trajectories in Geometry? [Paper presentation]. 38th Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA 2016), Tucson, AZ.

### **State & Regional Presentations**

Meiners, A., **Payne, A.M.** & Ball, N. (2022, February). Pre-service teacher's mindset and persistence in College Algebra and Statistics units [Paper presentation]. Southwest Educational Research Association (SERA) Conference, New Orleans, LA.

**Payne, A.M.** & Jiang, S. (2022, February). Reciprocal relationship between math self-efficacy and academic achievement during high school [Paper presentation]. Southwest Educational Research Association (SERA) Conference, New Orleans, LA.

**Payne, A.M.**, Kettler, T. & Sculley, M. (2021, December). Complex and engaging problem solving using mathematical modeling [Conference session]. 2021 GiftED Conference, Dallas, TX.

Meiners, A. & **Payne, A.M.** (2021, April). Using Open-Middle resources to engage student's mindset and persistence [Conference session]. National Council of Teachers of Mathematics (NCTM) Annual Virtual Conference, Online.

**Payne, A.M.**, Hebda, M.R, Kettler, T. & Coleman, R. (2021, February). Experiences of intellectually gifted students with ADHD in higher education: A case study [Paper presentation]. Southwest Educational Research Association (SERA) Conference, Online.

Sodergren, C.D.C., **Payne, A.M.**, Kettler, T., & Sulak, T. (2021, February). Teacher self-efficacy, innovativeness, and preparation to teach cross-curricular skills [Paper presentation]. Southwest Educational Research Association (SERA) Conference, Online.

**Payne, A.M.** (2020, February). Measuring self-efficacy for mathematical creativity: Developing a tool to identify mathematical talent [Paper presentation]. Southwest Educational Research Association (SERA) Conference, Arlington, TX.

**Payne, A.M.** (2019, December). Using multiple measures in gifted identification [Conference session]. 2019 GiftED Conference, San Antonio, TX.

**Payne, A.M.** (2019, December). Measuring self-efficacy for mathematical creativity: Developing a tool to identify mathematical talent [Conference session]. 2019 GiftED Conference, San Antonio, TX.

**Payne, A.M.** (2019, December). Identifying giftedness among ELL populations [Conference session]. 2019 GiftED Conference, San Antonio, TX.

**Payne, A.M.** & Tholen, A. (2019, December). 21st century mathematics [Conference session]. 2019 GiftED Conference, San Antonio, TX.

Renbarger, R., **Payne, A.M.**, Collins, C. & Sulak, T.N. (2019, February). Teachers' professional development needs and barriers: A latent class analysis approach [Paper presentation]. Southwest Educational Research Association (SERA) Conference, San Antonio, TX.

**Payne, A.M.** (2019, February). Teachers who make a difference: What gifted students say [Paper presentation]. Southwest Educational Research Association (SERA) Conference, San Antonio, TX.

Runnalls, C. & **Payne, A.M.** (2017, October). Modifying questions for ELLs: When, where, and how? [Conference session]. Iowa Council of Teachers of Mathematics (ICTM) State Conference, Des Moines, IA.

**Payne, A.M.** & Croft, L. (2017, February). Developing math talent [Conference session]. Nebraska Association for the Gifted Conference, Omaha, NE.

## Research Experience

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**Baylor University** Waco, Tx

*Mentor:* Dr. Todd Kettler

Graduate Research Assistant 2018 – Present

- Interviewed subjects for research project
- Transcribed interview data
- Coded qualitative data and organized themes
- Curated research for a systematic literature review
- Entered scales and surveys into Qualtrics
- Organized and wrote the protocol for the IRB for data gathering for renorming of an instrument
- Organized fall gifted and talented conference

**University of Iowa** Iowa City, IA

*Mentor:* Dr. Laurie Croft

2017 – 2018

- Two projects: "Teachers Who Make A Difference: What Gifted Students Say", & "QUEST: Professional Development for Teachers of the Gifted"

## Professional Development Provided

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**Waco ISD** Waco, TX

Mathematical Modeling 2021

Professional development offerings on use of mathematical modeling to provide differentiation in the mathematics classroom and to prepare students for future Advanced Placement mathematics classes.

**Baylor University** Waco, TX

Project Light the Way 2019-2021

Year-long professional development offerings on differentiating for gifted students in a heterogeneous classroom for a local elementary school. Mathematics professional development for the mathematics teachers in a local elementary school.

**National Association for Gifted Children** Waco, TX

CHALLENGE ME! 2018-2019

Member of professional development team that created the online microcredential "CHALLENGE ME!"

**University of Iowa** Iowa City, IA

iMaP<sup>2</sup>. 2016

Training teachers to develop student math proficiency using mathematical modeling.

## Professional Trainings Attended

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<b>AERA</b>	Waco, TX
Modern Meta-Analysis Research	2021
Training in meta-analysis and use of R statistical analysis to conduct meta-analysis research	
<b>Baylor University</b>	Waco, TX
Data Scholar Program	2018-2019
Training in the use of nVivo, Demographic Data searches, & Data Management for research purposes	
<b>University of Iowa</b>	Iowa City, IA
Lynda.	2017-2018
Online training courses for software programs including SPSS, iMovie, Photoshop, and nVivo	
nVivo.	2017
Using the qualitative software program to support coding research	
<b>Mississippi Bend AEA</b>	Bettendorf, IA
Transitioning to IA Core Mathematics.	2012-2014
Professional development course on understanding and implementing the Common Core State Standards in mathematics (grades 9-12).	
<b>Loras College</b>	Dubuque, IA
Japanese Lesson Study.	2009-2010
Lesson study looked at implementing change in the mathematics classroom to further the growth and comprehension of students mathematical capabilities.	
<b>University of Iowa</b>	Des Moines, IA
Advanced Placement Teacher Training Institute.	2009
Training and certification on teaching Advanced Placement Calculus AB/BC.	

## Teaching Experience

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<b>Baylor University</b>	Waco, TX
Co-Instructor	
- EDP 5334- Statistical Methods	2021
- TED 3651- Teaching Associate Gifted/Talented Part II	2020
- EDP 5351- Soc/Emo Needs of the Gifted	2019
Guest Lecturer	
- EDP 3326- The Developing Child	2019
- EDP 4352- Exceptionalities	2018-2019
<b>University of Iowa</b>	Iowa City, Iowa
Instructor	
-EDTL:4085- Current Readings & Research in Gifted Education	2020-2023
-EDTL:4096- Teaching Outside the Lines	2022
-EDTL:4096- Excellence Gaps in Education	2021
-EDTL:4096- Creativity 101	2020
-EDTL:4096- Giftedness 101	2020
-EDTL:4096- Topics:Common Core State Standards for Gifted/Talented: Mathematics	2019
-EDTL:4024- Differentiating Projects with Technology	2018
-EDTL:4535- Methods of High School Mathematics	2016
Co-Instructor	

- RCE:5237- Seminar in Gifted Education	2022
- RCE:4188- Practicum in Gifted Education	2021
- EDTL:4091- Observation and Lab Practicum in Secondary Schools (Mathematics)	2016-2017
- EPLS:4113- Staff Development for Gifted Programs	2017
- EDTL:4087- Seminar Curriculum and Student Teaching	2016-2017
- EDTL:3002- Technology in the Classroom	2016
<b>Teaching Assistant</b>	
- EDTL:4022- Math Programming for the Highly Gifted	2016-2021
- EDTL:4066- Curriculum Concepts in Gifted Education	2018
- EDTL:4096- Topics in Teaching and Learning : Smart Girls in the 21st Century	2017
<b>Guest Lecturer</b>	
- EDTL:4900- Foundations of Special Education	2018
<b>Augsburg University</b>	Minneapolis, Minnesota
<b>Guest Lecturer</b>	
-PSY 261- Personality and Cultural Context	2023
-PSY 105- Principles of Psychology	2020-2022
<b>St. Thomas University</b>	St. Paul, Minnesota
<b>Guest Lecturer</b>	
-PSYC111- General Psychology	2022
<b>Waco Independent School District</b>	Waco, TX
High School Mathematics Teacher, Waco High School	2022 – 2023
- Differentiated for students with multiple ability levels including 504/IEP/ELL students	
- Provided supplemental instruction during class in Spanish	
<b>Muscatine Community School District</b>	Muscatine, IA
High School Mathematics Teacher, Muscatine High School	2010 – 2014
- Taught multiple levels including Honors, ESL, and special education mathematics	
- Provided professional development to teachers and mentoring for at-risk students	
- Served as head National Speech and Debate Association (NSDA) coach	
<b>Camanche Middle School</b>	Camanche, IA
7th & 8th grade mathematics, Pre-Algebra, and Algebra I	2009 – 2010
- Created and coached the school's first competitive MathCounts team and participated in implementation of school wide culture improvement.	
<b>Mediapolis High School</b>	Mediapolis, IA
Algebra II, Geometry, Basic Algebra, Consumer Mathematics	2008-2009
- Administered the American Mathematics Competition exam to high-achieving students in grades 9-12	
- Junior Class Sponsor	
<b>Waterloo Community Schools</b>	Waterloo, IA
9th grade Mathematics teacher	2005-2008
- Led advisory and homeroom time for a core section of the 9th grade students	
-In addition to instructional duties, Co-produced annual variety show	

## Service

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### To Field:

- International Group for Mathematical Creativity and Giftedness (MCG) working group member	2022 - Present
- Javits-Frasier Scholars Program for Diverse Talent Development mentor	2022
- American Educational Research Association reviewer	2020 - Present
- Journal of Advanced Academics reviewer	2020 - Present

- Journal for the Education of the Gifted reviewer 2020 - Present
- Southwest Educational Research Association University graduate representative 2020 - Present
- Southwest Educational Research Association reviewer 2018 - Present

**To University:**

- Led workshops on graduate school preparation for Ronald E. McNair Scholars Program (TRIO) undergraduate students 2019-Present
- Mentor for Graduate-Undergraduate Mentoring Program at Baylor University 2018-Present
- Test proctor for I-Excell for Belin-Blank Exceptional Student Talent Search 2016-2017
- Invent Iowa State Invention Convention volunteer 2017

**To Community:**

- Advanced statistics tutor - Baylor University, Waco, TX Fall 2020
- Red Cross Instructor (Lifeguarding- Waterpark & Waterfront, CPR, First Aid, AED, Oxygen Administration, Water Safety Instruction) 2000-present
- Eastern Iowa chapter of the National Speech and Debate association, judge/parliamentarian representing Iowa in Congressional Debate at the NSDA tournament 2014-present
- Muscatine Special Olympics Head Swim Coach 2015-2019
- Muscatine Special Olympics Event Day Volunteer 2015-2019
- Muscatine Manta Rays Swim Team Head Referee 2011-2018

## Grants

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**Primary Investigator**

- "BEAR Grant", \$450 Summer 2021, 2022  
 -Promote collegiality, scholarship, and community among new & current graduate students and faculty  
 Submitted to the Baylor GSA. Author.(Funded)

**Primary Investigator**

- "UI Innovators I-Corps", \$2500 Spring 2020  
 - Develop a marketable database containing Model Enacting Activities and provide PD to pre-service and in-service teachers on mathematical modeling.  
 Submitted to University of Iowa. Author. (Funded)

**Author, Key Personnel**

- Graduate Student Association Grant, \$100 Summer 2019  
 Submitted to the Baylor GSA. Author.(Funded)

## Awards

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Dissertation Fellowship,  
 School of Education, Baylor University 2021-2022

Center for the Integration of Research, Teaching, and Learning (CIRTL) Associate,  
 Graduate College, University of Iowa Summer 2017

**Travel Awards:**

Baylor Graduate College Travel Award, \$400 Fall 2019  
 Submitted to the Baylor Graduate School. Author.(Funded)

Educational Psychology Department Travel Award, \$300 Summer 2019  
 Submitted to the Educational Psychology Department. Author.(Funded)

Baylor Graduate College Travel Award, \$400 Spring 2019  
 Submitted to the Baylor Graduate School. Author.(Funded)

Audrey Qualls Travel Award, College of Education, University of Iowa, \$300 Summer 2017



Submitted to the College of Education. Author.(*Funded*)  
Dean's Graduate Student Travel Award, College of Education, University of Iowa, \$300 Summer 2017  
Submitted to the College of Education. Author.(*Funded*)

## Professional Society Memberships

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National Association for Gifted Children (NAGC)  
World Council for Gifted and Talented Children (WCGTC)  
Kappa Delta Pi International Honor Society in Education (KDP)  
National Council of Teachers of Mathematics (NCTM)  
Association of Mathematics Teacher Educators (AMTE)  
American Educational Research Association (AERA)  
Southwest Educational Research Association (SERA)

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