

Corinne A. Bower

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California State University, Los Angeles

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EDUCATION

- 2011 – 2017 Ph.D. in Developmental Psychology, The Pennsylvania State University
State College, PA
Dissertation: *Facilitating children's understanding of astronomy through
a spatial perspective-taking intervention*
Advisor: Lynn Liben, Ph.D.
Minor: Curriculum & Instruction, College of Education
- 2006 – 2011 B.S. & M.S., combined 5-year program, Saint Joseph's University
Philadelphia, PA
M.S. in Experimental Psychology
Thesis: *The formation of illusory correlations in young children*
Advisor: Chris Lawson, Ph.D.
B.S. in Psychology, *Cum Laude*

ACADEMIC POSITIONS

- 8/2022 – Assistant Professor, Department of Psychology, California State
University, Los Angeles
Director of the Child Development and Learning Lab
- 8/2021 – 8/2022 Postdoctoral Teaching Fellow, University of Southern California
- 8/2019 – 8/2021 Postdoctoral Research Fellow, University of Maryland
Project: NSF Grant, Using Cognitive Science Principles to Help Children
Learn Place Value.
PIs: Kelly Mix, Ph.D. and Linda Smith, Ph.D.
- 6/2017 – 7/2019 Postdoctoral Research Fellow, Temple University
Project: IES Grant, Spatial Instruction for Preschoolers: Identifying the
Malleable Factors.
PIs: Kathy Hirsh-Pasek, Ph.D., and Roberta Golinkoff, Ph.D.

GRANTS

- 2024 – Blocking Out Time for Early STEM Play: Bridging Homes, Schools, and Communities
Provost SEED grant
\$10,000
Role: Principal Investigator
- 2022 – 2024 Using Educational Technology to Examine the Influence of Sociocultural Values and Family Socioeconomic Status on Preschoolers' STEM School Readiness Skills
APA Division 15, Educational Psychology, Early Career Research Award
\$6,000
Role: Principal Investigator
- 2022 – 2024 The Science Faculty for Inclusive Excellence and Transformation
Howard Hughes Medical Institute, USE Inclusive Excellence Grant
\$1,000,000 (Bower: \$14,000)
Role: Ad hoc co-PI (starting 8/2022)
PIs: Andre Ellis, Ph.D., Kirsten Fisher, Ph.D., Krishna Foster, Ph.D., Tina Salmassi, Ph.D., Kimi Wilson, Ph.D.

HONORS AND AWARDS

- April 2023 APA Science Spotlight recognition of contributions to psychological science
- 2017 Travel Award
Society for Research in Child Development, Biennial Meeting
- Spring 2016 Liberal Arts Research and Graduate Studies Office Dissertation Award
The Pennsylvania State University
\$2,235
- Spring 2015 Dissertation Funding Award
Child Study Center, The Pennsylvania State University
- 2013 – 2016 Travel Awards (7)
Child Study Center, The Pennsylvania State University
- 2011 *Alpha Epsilon Lambda* Graduate Honor Society, Omega Chapter
- 2011 Student Poster Presentation Award, 1st Place,
6th Annual Philadelphia Area Psi Chi Research Day Conference

EDITORIAL POSITION

- 2022 – present Editorial Board: *Journal of Applied Developmental Psychology*

GRANT CONSULTANT AND ADVISORY POSITIONS

- 2023 – 2025 Bridging the Gap: Spatial-based teaching as a novel approach to reduce SES-based attainment gaps, €14,550. University College Dublin.
PI: Katie Gilligan-Lee
- 2021 – present Trackosaurus©, Cape Town, South Africa

Role: Advise/create STEM and cognitive assessment and EdTech development

PEER-REVIEWED JOURNAL ARTICLES

*indicates mentee

1. **Bower, C. A.**, Zimmermann, L., Verdine, B., Toub, T. S., Golinkoff, R. M., & Hirsh-Pasek, K. (in press). What's play got to do with it? A spatial intervention with 3-year-olds predicts STEM learning. *Developmental Psychology*.
2. **Bower, C. A.**, Mix, K. S., Hancock, G. R., Yuan, L., & Smith, L. B. (2024). Smart errors in learning multidigit number meanings. *Journal of Cognition and Development, 25*, 487-510. doi: 10.1080/15248372.2024.2338722
3. Mix, K. S., **Bower, C. A.**, Hancock, G. R., Crespo, S., & Smith, L. B. (2024). Place value learning in kindergarten. *Journal of Educational Psychology, 116*, 1129-1152. doi: 10.1037/edu0000866
4. **Bower, C. A.** & Liben, L. S. (2023). Instructors' gestural accuracy affects geology learning in interaction with students' spatial skills. *Journal of Intelligence, 11*, 192-217. doi: 10.3390/jintelligence11100192
5. Mix, K. S., **Bower, C. A.**, Yuan, L., Hancock, G. R., & Smith, L. (2023). Predictive relations between early place value understanding and multidigit calculation: Approximate versus syntactic measures. *Educational Psychology, 43*, 795-813. doi: 10.1080/01443410.2023.2254528
6. **Bower, C. A.**, Mix, K. S., Yuan, L., & Smith, L. (2022). A network analysis of children's emerging place value concepts. *Psychological Science, 33*, 1112-1127. doi: 10.1177/09567976211070242
7. Mix, K. S., **Bower, C. A.**, Hancock, G. R., Yuan, L., & Smith, L. (2022). The development of place value concepts: Approximation before principles. *Child Development, 93*, 778-793. doi: 10.1111/cdev.13724
8. **Bower, C. A.**, Zimmermann, L., Verdine, B., Pritulsky, C., Golinkoff, R. M., & Hirsh-Pasek, K. (2022). Enhancing spatial skills of preschoolers from under-resourced backgrounds: A comparison of digital app vs. concrete materials. *Developmental Science, 25*, 1-9. doi: 10.1111/desc.13148
*Top 10 most cited articles published in 2022 and 2023
9. Mix, K. S., Levine, S. C., Cheng, Y-L., Stockton, J. D., & **Bower, C. A.** (2021). Effects of spatial training on mathematics in first and sixth grade children. *Journal of Educational Psychology, 113*, 304-314. doi: 10.1037/edu0000494
10. **Bower, C. A.**, Foster, L., Zimmermann, L., Verdine, B., Marzouk, M., Islam, S., Golinkoff, R. M., & Hirsh-Pasek, K. (2020). Three-year-olds' spatial language comprehension and links with mathematics and spatial performance. *Developmental Psychology, 56*, 1894-1905. doi: 10.1037/dev0001098
11. **Bower, C. A.** & Liben, L. S. (2020). Can a domain-general spatial intervention facilitate children's science learning? A lesson from astronomy. *Child Development, 92*, 76-100. doi: 10.1111/cdev.13439
12. *Pritulsky, C., Morano, C., Odean, R., **Bower, C. A.**, Hirsh-Pasek, K., & Golinkoff, R. M. (2020). Spatial thinking: Why it belongs in the preschool classroom. *Translational Issues in Psychological Science, 6*, 271-282. doi: 10.1037/tps0000254

13. **Bower, C. A.**, Odean, R., Verdine, B., Medford, J. R., Marzouk, M., Golinkoff, R. M., & Hirsh-Pasek, K. (2020). Associations of 3-year-olds' block-building complexity with later spatial and mathematical skills. *Journal of Cognition and Development, 21*, 383-405. doi: 10.1080/15248372.2020.1741363
14. **Bower, C. A.**, Zimmermann, L., Verdine, B., Toub, T. S., Islam, S., Foster, L., Evans, N., Odean, R., Cibischino, A., Pritulsky, C., Golinkoff, R. M., & Hirsh-Pasek, K. (2020). Piecing together the role of a spatial assembly intervention in preschoolers' spatial and mathematics learning: Influences of gesture, spatial language, and socioeconomic status. *Developmental Psychology, 56*, 686-698. doi: 10.1037/dev0000899
15. Plummer, J. D., **Bower, C. A.**, & Liben, L. S. (2016). The role of perspective taking in how children connect reference frames when explaining astronomical phenomena. *International Journal of Science Education, 38*, 345-365. doi: 10.1080/09500693.2016.1140921
16. Lawson, C. A. & **Bower, C. A.** (2014). Illusory correlations in preschoolers. *Cognitive Development, 31*, 22-34. doi: 10.1016/j.cogdev.2014.02.005
17. Liben, L., Myers, L., Christensen, A., & **Bower, C. A.** (2013). Environmental-scale map use in middle childhood: Links to spatial skills, strategies, and gender. *Child Development, 84*, 2047-2063. doi: 10.1111/cdev.12090
18. **Bower, C. A.** & Lawson, C. (2011). Role of attention in the formation of illusory correlations among preschoolers. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society*. Boston, MA: Cognitive Science Society.

PEER REVIEWED CHAPTER

*Indicates mentee

1. *Herbst, E., Cruz, T., **Bower, C. A.**, Hirsh-Pasek, K., & Golinkoff, R. M. (2022). Playing for the future: Spatial thinking belongs in preschools and home environments. In A. Betts & K. Thai (Eds.), *Handbook of research on innovative approaches to early childhood development and school readiness* (pp. 416–451). IGI Global.
<https://doi.org/10.4018/978-1-7998-8649-5.ch017>

PUBLICATIONS UNDER REVIEW

1. **Bower, C. A.**, *VonSchonfeldt, W., Hirsh-Pasek, K., & Golinkoff, R. M. (under review). Preschoolers' understanding of horizontal and vertical dimensions in language: The moderating role of parental education. In A. M. Weber, S. Greiff, B. D. Jee, W. Möhring, & R. M. Golinkoff (Eds.), *Educational Relevance and Implications of Spatial Development in Early Childhood* [Special Issue], *Learning and Instruction*.
2. **Bower, C. A.**, Gaudreau, C., Pritulsky, C., Hirsh-Pasek, K., & Golinkoff, R. M. (under review). Playing for the future: Spatial thinking belongs in preschool. *APA Division 15 Education Practice Brief*.

BLOG POST

1. **Bower, C. A.**, Vu, L., Golinkoff, R. M., & Hirsh-Pasek, K. (2019, July 12). School's out: Block out time for spatial learning. *Brookings Institution*.
<https://www.brookings.edu/blog/education-plus-development/2019/07/09/schools-out-block-out-time-for-spatial-learning/>

EDUCATION OUTREACH PUBLICATIONS

1. **Bower, C. A.**, Zimmermann, L., Hirsh-Pasek, K., & Golinkoff, R. M. (2018, Spring). Blocking out time for blocks: Increasing STEM skills through playful learning. *AfterSchool Today*.
2. **Bower, C. A.** & Hirsh-Pasek, K. (2020, May). Learning Games and Toys for Preschoolers. *The Genius of Play*. [<https://www.thegeniusofplay.org/genius/expert-advice/articles/learning-games-toys-for-preschoolers.aspx#.XrwKTFNKgUQ>]

INVITED TALKS

1. **Bower, C. A.** (2025, March). A domain-general approach to STEM learning: The role of spatial cognition. University of Pittsburgh, PA.
2. **Bower, C. A.** (2022, March). Putting it together: Spatial play and STEM learning. University of Southern California, CA.
3. **Bower, C. A.** (2021, October). The impact of spatial-cognitive interventions on STEM learning. University of Connecticut, CT.
4. **Bower, C. A.** (2019, March). A developmental perspective on the role of spatial cognition in STEM achievement. University of Maryland, MD.

PAPER PRESENTATIONS

*Indicates mentee

1. **Bower, C. A.**, Lassaigne, M., Plascencia, E., Avakian, A., VonSchonfeldt, W., Dore, R., & Bonus, A. (2025, May). How educational is YouTube? Investigating spatial and math language and skill development in videos for 3-to-5-Year-Olds. In L. Pagano (Chair), *Out-of-school time tech: Supporting children's STEM engagement through digital tools and conversations*. Symposium presentation submitted to the Biennial Meeting of the Society for Research in Child Development. Minneapolis, MN.
2. Morales-Chicas, J., Bowen, C., **Bower, C. A.**, Szabo, Y., Joseph, M. S., Salmassi, T., Talavera-Bustillos, V., Foster, K., Sode, O., Ellis, A. (2025, April). *Transforming teaching practices: The impact of an equity-minded faculty development program*. Paper presentation submitted to the Annual Meeting of the American Educational Research Association. Denver, CO.
3. **Bower, C. A.**, Mix, K. S., Yuan, L., Hancock, G. R., & Smith, L. B. (2024, June). Beyond task accuracy: How kindergartners' 'smart' errors in place value tasks predict later multidigit calculation performance. In H. P. Osana & K. S. Mix (co-Chairs), *Investigating children's knowledge of Base-Ten Numeration*. Symposium presentation at the Mathematical Cognition and Learning Society Conference. Washington, DC.
4. **Bower, C. A.**, Szabo, Y. Z., Fernando, G., Bowen, C., Salmassi, T., Selvan, M. J., Talavera-Bustillos, V., & Foster, K. (2024, April). Correlates of college persistence among students at a Hispanic Serving Institution: The moderating roles of first-generation college student status and gender. In Y. Z. Szabo & C. A. Bower (co-Chairs), *What matters most? Correlates of adjustment, sense-of-belonging, and persistence among diverse student samples*. Symposium presentation at the Western Psychological Association Conference. San Francisco, CA.
5. *Lassaigne, M., Plascencia, E., Dore, R., Bonus, A., & **Bower, C. A.** (2024, April). *Preschoolers' media consumption and its implications*. Paper presentation at the Western

- Psychological Association. San Francisco, CA. [*received award for excellence in cognitive science research*]
6. Szabo, Y. Z., **Bower, C. A.**, Bowen, C., Salmassi, T., Foster, K., Joseph, M. S., Talavera-Bustillos, V. & Fernando, G. (2024, April). Is this university for me? Correlates of sense of belonging differ for year 1 & 2 compared to latter years. In Y. Z. Szabo & C. Bower (co-chairs), *What matters most? Correlates of adjustment, sense of belonging and persistence among diverse student samples*. Symposium presentation at the Western Psychological Association, San Francisco.
 7. **Bower, C. A.**, Szabo, Y., Bowen, C., & Fernando, G. (2023, April). To professors with love: The role of instructor support in college persistence. In G. Fernando (Chair), *Relationship matters: Student and faculty perspectives on equity and knowledge-building in higher education*. Symposium presentation at the Western Psychological Association Convention. Riverside, CA.
 8. **Bower, C. A.**, Zimmerman, L., Verdine, B., Toub, T. S., Golinkoff, R. M., & Hirsh-Pasek, K. (2023, March). Spatial training with concrete materials or a digital app: Effects on preschoolers' spatial and math outcomes. In **C. A. Bower** (moderator), *Young children's learning from educational media*. Flash talk paper presented at the Biennial Meeting of the Society for Research in Child Development. Salt Lake City, UT.
 9. *Eisen, S., **Bower, C. A.**, Jirout, J., & Hassinger-Das, B. (2022, April). Parental perceptions of informal learning from digital devices and physical toys. Symposium presentation at the 2020 SRCD Special Topic Meeting: Learning through Play and Imagination. St. Louis, MO. (Meeting postponed due to COVID-19.)
 10. **Bower, C. A.**, Mix, K. S., & Smith, L. (2021, April). Kindergartners' mastery of the base-10 representational system predicts place value understanding and later calculation skills in second grade. In G. Borriello (Chair), *Beyond accuracy: Children's correct and incorrect strategies on early STEM tasks provide insights into cognitive development*. Symposium presentation at the Biennial Meeting of the Society for Research in Child Development. Virtual due to COVID-19.
 11. Odean, R., **Bower, C. A.**, Verdine, B., Medford, J. R., Marzouk, M., Golinkoff, R. M., & Hirsh-Pasek, K. (2021, April). Early block play strategy predicts later math and spatial reasoning. In S. Kucker and M. Lorenz (Chairs), *Cascading consequences of object play*. Symposium presentation at the Biennial Meeting of the Society for Research in Child Development. Virtual due to COVID-19.
 12. Zimmerman, L., **Bower, C. A.**, Verdine, B., Toub, T. S., Hirsh-Pasek, K., & Golinkoff, R. M. (2021, April). Investigating malleable factors during spatial training in preschool: Transfer to spatial skills but not math outcomes. In E. Zippert (Chair), *Examining the roles of patterning knowledge, spatial assembly, and analogic reasoning in early mathematics development*. Symposium presentation at the Biennial Meeting of the Society for Research in Child Development. Virtual due to COVID-19.
 13. *Foster, L., Zimmerman, L., Verdine, B., Marzouk, M., Islam, S., **Bower, C. A.**, Golinkoff, R. M., & Hirsh-Pasek, K. (2019, March). A spatial language assessment for preschoolers and its relationship to mathematical and spatial tasks. In S. Horvath (Chair), *Beyond vocabulary size: New considerations for receptive vocabulary assessment in the preschool years*. Symposium presentation at the Biennial Meeting of the Society for Research in Child Development. Baltimore, MD.

14. Zimmerman, L., **Bower, C. A.**, Verdine, B., Foster, L., Islam, S., Hirsh-Pasek, K., & Golinkoff, R. M. (2019, March). Designing an app to improve preschoolers' spatial skills: An examination of transfer. In M. Callaghan (Chair), *Connection development to mobile preschool app design and use*. Symposium presentation at the Biennial Meeting of the Society for Research in Child Development. Baltimore, MD.
15. Liben, L. S. & **Bower, C. A.** (2018, May). Strategies in linking surrounding places to spatial representations. In L. Liben & J. Lockman (Organizers), *Using, conceptualizing, and representing spaces across ages, scales, and purposes: Theoretical, empirical, and methodological issues* Symposium presentation at the 48th Annual Meeting of the Jean Piaget Society. Amsterdam, The Netherlands.
16. Zimmerman, L., **Bower, C. A.**, Verdine, B., Hirsh-Pasek, K., & Golinkoff, R. M. (2018, April). Putting the educational in educational app design for spatial learning. In R. M. Golinkoff & L. Zimmermann (Chairs), *Designing educational technology for young children: What does the research say?* Symposium presentation at the American Psychological Association's conference on Technology, Mind, & Society. Washington, DC.
17. Liben, L. S., Signorella, M., & **Bower, C. A.** (2017, April). Effects of a spatial-skills curriculum on STEM outcomes in middle-school students. Symposium presentation at the Biennial Meeting of the Society for Research in Child Development. Austin, Texas.
18. **Bower, C. A.** & Liben, L. S. (2017, April). A spatial perspective-taking intervention facilitates children's understanding of astronomy. Symposium presentation at the Biennial Meeting of the Society for Research in Child Development. Austin, Texas.
19. **Bower, C. A.**, Liben, L. S., & Plummer, J. P. (2016, June). The role of spatial skills and gesture in understanding and communicating scientific concepts: Concepts in astronomy and geology. Symposium presentation at the annual meetings of the Jean Piaget Society, Chicago, IL.
20. **Bower, C. A.** & Liben, L. S. (2016, June). Children's map use in environmental space: Does suggesting map alignment help? Paper to be presented at the annual meetings of the Jean Piaget Society, Chicago, IL.
21. **Bower, C. A.**, Simpson, M., Bagher, M. M. (2016, May). Topographic map understanding and the role of immersion. Paper presented at the 2016 Pennsylvania & Friends Spatial Cognition Symposium. University Park, PA.
22. **Bower, C. A.**, Plummer, J. D., & Liben, L. S. (2016, April). The role of spatial perspective-taking in understanding celestial motion. In J. Willhelm (chair), *How Spatial Factors Relate to Earth-Space Conceptual Learning and Understanding*. Symposium to be conducted at the National Association for Research in Science Teaching Annual International Conference. Baltimore, MA.
23. **Bower, C. A.**, Plummer, J. D., & Liben, L. S. (2014, May). The role of perspective-taking skills and gesture in connecting astronomical frames of reference. Paper presented at the 2014 Pennsylvania Spatial Cognition Symposium. University Park, PA.
24. **Bower, C. A.**, Plummer, J. D., & Liben, L. S. (2014, March). The role of perspective taking skills in children's explanations of astronomical phenomena. Paper presented at the National Association for Research in Science Teaching Annual International Conference. Pittsburgh, PA.

POSTER PRESENTATIONS

*Indicates mentee

1. *Alanis, N., *Avakian, A., *VonSchonfeldt, W., *Ardiano Longo, S., *Lassaigne, M., Dore, R., Bonus, A., & **Bower, C. A.** (2025, May). *Parental perceptions of math language and learning skills in educational YouTube videos*. Poster submitted to the Biennial Meeting of the Society for Research in Child Development. Minneapolis, MN.
2. *Jumarang, Y., *Avakian, A., *VonSchonfeldt, W., *Ardiano Longo, S., *Lassaigne, M., Dore, R., Bonus, A., & **Bower, C. A.** (2025, May). *Associations between parent-child engagement and frequency of spatial and math language in educational YouTube videos*. Poster submitted to the Biennial Meeting of the Society for Research in Child Development. Minneapolis, MN.
3. *Lassaigne, M., *Plascencia, E., Dore, R., Bonus, A., & **Bower, C. A.** (2025, May). *Active versus passive portrayals of adaptive skills in children's YouTube content: Implications for early development*. Poster submitted to the Biennial Meeting of the Society for Research in Child Development. Minneapolis, MN.
4. *Plascencia, E., *Avakian, A., *VonSchonfeldt, W., *Ardiano Longo, S., *Lassaigne, M., Dore, R., Bonus, A., & **Bower, C. A.** (2025, May). *Do sing-along educational YouTube videos encourage happy mood and math and spatial learning?* Poster submitted to the Biennial Meeting of the Society for Research in Child Development. Minneapolis, MN.
5. *Valadez, A., Dore, R., & Bonus, A., & **Bower, C. A.** (2025, May). *Parent perceptions of distractibility and learning skills in educational versus non-educational YouTube videos for 3-to-5-year-olds*. Poster submitted to the Biennial Meeting of the Society for Research in Child Development. Minneapolis, MN.
6. *Vega, J., *Avakian, A., *VonSchonfeldt, W., *Ardiano Longo, S., *Lassaigne, M., Dore, R., Bonus, A., & **Bower, C. A.** (2025, May). *Frequency of math and spatial language in educational YouTube videos for 3- versus 5-year-olds*. Poster submitted to the Biennial Meeting of the Society for Research in Child Development. Minneapolis, MN.
7. *Plascencia, E. & Bower, C.A. (2024, August). *Examining the relationship between parent math anxiety & fixed mindset on the HNE and children's math skills*. Poster presented at the University of California Los Angeles (UCLA) annual Cal State University (CSU) Summer Symposium. Los Angeles, CA.
8. *Ardiano Longo, S., *Avakian, A., *Shin, A., *VonSchonfeldt, W., Dore, R., Bonus, A., & **Bower, C. A.** (2024, April). *Family structure in YouTube videos for 3- to 5-year-olds*. Poster presented at the Western Psychological Association. San Francisco, CA.
9. *Avakian, A., *VonSchonfeldt, W., *Shin, A., *Padilla, G., *Lassaigne, M., *Ardiano Longo, S., Dore, R., Bonus, A., & **Bower, C. A.** (2024, April). *Frequency of math language in YouTube videos for 3-to-5-year-olds*. Poster presented at the Western Psychological Association. San Francisco, CA.
10. *VonSchonfeldt, W., *Avakian, A., *Ardiano Longo, S., *Lassaigne, M., *Padilla, G., *Shin, A., Dore, R., Bonus, A., & **Bower, C. A.** (2024, April). *Frequency of spatial language in YouTube videos for 3-to-5-year-olds*. Poster presented at the Western Psychological Association. San Francisco, CA.
11. *Plascencia, E. & **Bower, C. A.** (2024, April). *Exploring social learning strategies on YouTube through sing-along videos, active participation, social interactions, and problem-solving skills*. Poster presented at the National Conference on Undergraduate Research. Long Beach, CA.

12. *Ardiano Longo, S., *Avakian, A., *Shin, A., *VonSchonfeldt, W., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Lack of variability in family structure in YouTube videos for 3-to-5-year-olds*. Poster presented at the Cognitive Development Society Meeting. Pasadena, CA.
13. *Avakian, A., *VonSchonfeldt, W., *Shin, A., *Padilla, G., *Lassaigne, M., *Ardiano Longo, S., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Prevalence of math language in YouTube videos watched by 3-to-5-year-olds: Are there differences by child gender and parent education?* Poster presented at the Cognitive Development Society Meeting. Pasadena, CA.
14. *Lassaigne, M., Plascencia, E., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Conceptual, social, and practical life skills in young children's educational YouTube videos: Associations with parental education*. Poster presented at the Cognitive Development Society Meeting. Pasadena, CA.
15. *Plascencia, E., *Lassaigne, M., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Collaborative versus independent learning in young children's educational YouTube videos*. Poster presented at the Cognitive Development Society Meeting. Pasadena, CA.
16. *Shin, A., *Ardiano Longo, S., *Avakian, A., *Lassaigne, M., *VonSchonfeldt, W., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Gender-stereotyped conformity in YouTube videos viewed by 3- to 5-year-olds*. Poster presented at the Cognitive Development Society Meeting. Pasadena, CA.
17. *VonSchonfeldt, W., *Avakian, A., *Ardiano Longo, S., *Lassaigne, M., *Padilla, G., *Shin, A., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Quality of spatial language in YouTube videos watched by 3-to-5-year-olds: Associations with caregiver education*. Poster presented at the Cognitive Development Society Meeting. Pasadena, CA.
18. *Ardiano Longo, S., *Avakian, A., *Shin, A., *VonSchonfeldt, W., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Family structure in YouTube videos for 3-to-5-year-olds*. Poster presented at the CSULA Student Symposium. Los Angeles, CA.
19. *Avakian, A., *VonSchonfeldt, W., *Shin, A., *Padilla, G., *Lassaigne, M., *Ardiano Longo, S., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Prevalence of math language in YouTube videos watched by 3-to-5-year-olds: Are there differences by child gender and parent education?* Poster presented at the CSULA Student Symposium. Los Angeles, CA.
20. *Lassaigne, M., Plascencia, E., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Conceptual, social, and practical life skills in young children's educational YouTube videos: Associations with parental education*. Poster presented at the CSULA Student Symposium. Los Angeles, CA.
21. *Plascencia, E., *Lassaigne, M., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Problem-solving and social learning skills through sing-along YouTube videos*. Poster presented at the CSULA Student Symposium. Los Angeles, CA. [**received award for best poster in education research**]
22. *Shin, A., *Ardiano Longo, S., *Avakian, A., *Lassaigne, M., *VonSchonfeldt, W., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Gender-stereotyped conformity in YouTube videos viewed by 3- to 5-year-olds*. Poster presented at the CSULA Student Symposium. Los Angeles, CA.

23. *VonSchonfeldt, W., *Avakian, A., *Ardiano Longo, S., *Lassaigne, M., *Padilla, G., *Shin, A., Dore, R., Bonus, A., & **Bower, C. A.** (2024, March). *Spatial language in YouTube videos watched by 3-to-5-year-olds*. Poster presented at the CSULA Student Symposium. Los Angeles, CA.
24. **Bower, C. A.** and Liben, L. S. (2023, October). *Advancing students' spatial and STEM Understanding: The moderating role of a teacher's gesture accuracy*. Poster presented at the Society for the Study of Human Development 2023 Conference. Philadelphia, PA.
25. *Plascencia, E. & **Bower, C. A.** (2023, September). *Parent growth mindset, parent math anxiety, home numeracy environment, and child math skills*. Poster presented at the annual CSULA Minority Opportunities in REsearch (MORE) Retreat. Lake Arrowhead, CA.
26. **Bower, C. A.**, Mix, K. S., Yuan, L. & Smith, L. B. (2023, March). *Kindergartners' 'smart' errors in syntactic and approximate place value tasks predict their second-grade multidigit calculation performance*. Poster presented at the Biennial Meeting of the Society for Research in Child Development. Salt Lake City, UT.
27. *VonSchonfeldt, W., **Bower, C. A.**, Hirsh-Pasek, K., & Golinkoff, R. (2023, March). *An exploratory analysis of preschoolers' structure of spatial language across socioeconomic status*. Poster presented at the Biennial Meeting of the Society for Research in Child Development. Salt Lake City, UT.
28. Mix, K. S., **Bower, C. A.**, Yuan, L. & Smith, L. B. (2020, June). *Longitudinal associations between place value and calculation skill*. In K. S. Mix & R. S. Siegler (Chairs) symposium, Understanding Multidigit Number Meanings, accepted for presentation at the annual meeting of the Mathematical Cognition and Learning Society, Dublin, Ireland. (Meeting cancelled due to COVID-19.)
29. **Bower, C. A.**, Zimmermann, L., Pritulsky, C., Hirsh-Pasek, K., & Golinkoff, R. (2020, January). *Effects of spatial instruction on preschoolers' spatial and math skills: A look at socioeconomic status*. Poster presented at the 2020 Annual Institute of Education Sciences PI Meeting, Washington, DC.
30. *Pritulsky, C., Odean, R., **Bower, C. A.**, Cibishino, A., Zimmermann, L., Verdine, B., Toub, T. S., Golinkoff, R., Hirsh-Pasek, K. (2019, May). *Improving shape knowledge in low-SES learners: Using spatial language helps*. Poster presented at the 2019 Annual Convention of the Association of Psychological Science, Washington, DC.
31. **Bower, C. A.**, Zimmermann, L., Verdine, B., Toub, T., S., Foster, L., Islam, S., Cibishino, A., Golinkoff, R. M., Hirsh-Pasek, K. (2019, March). *Longitudinal effects of spatial training on preschoolers' spatial and math outcomes*. Poster presented at the Biennial Meeting of the Society for Research in Child Development. Baltimore, MD.
32. *Vu, L., **Bower, C. A.**, Evans, N., Zimmermann, L., Verdine, B., Toub, T. S., Foster, L., Islam, S., Golinkoff, R. M., Hirsh-Pasek, K. (2019, March). *Growth curve modeling of preschoolers' spatial skills during spatial training*. Poster presented at the Biennial Meeting of the Society for Research in Child Development. Baltimore, MD.
33. **Bower, C. A.**, Zimmermann, L., Verdine, B., Foster, L., Islam, S., Golinkoff, R. M., Hirsh-Pasek, K. (2018, June). *An intervention's effects on preschoolers' spatial skills and the moderating role of SES*. Poster presented at the 6th International Workshop on Advanced Learning Sciences. Pittsburgh, PA.
34. **Bower, C. A.**, Zimmermann, L., Verdine, B., Fletcher, N., Toub, T. S., Foster, L., Islam, S., Marzouk, M., Medford, J., Golinkoff, R. M., Hirsh-Pasek, K. (2018, June). *What's play*

- got to do with it?: Associations between early play experiences and STEM achievement.* Poster presented at the XXI International Congress of Infant Studies Biennial Congress. Philadelphia, PA.
35. **Bower, C. A.**, Zimmermann, L., Verdine, B., Fletcher, N., Toub, T. S., Foster, L., Islam, S., Marzouk, M., Medford, J., Golinkoff, R. M., Hirsh-Pasek, K. (2018, May). *Differential effects of a spatial intervention on preschoolers' spatial and math outcomes.* Poster presented at the 30th Association for Psychological Science Annual Convention. San Francisco, CA.
 36. Zimmermann, L., **Bower, C. A.**, Verdine, B., Fletcher, N., Toub, T. S., Foster, L., Islam, S., Marzouk, M., Medford, J., Golinkoff, R. M., Hirsh-Pasek, K. (2017, October). *Tackling training: An analysis of performance on spatial instruction in preschool.* Poster presented at the Cognitive Development Society. Portland, OR.
 37. **Bower, C. A.** & Liben, L. S. (2017, April). *Spatial perspective-taking challenges across types of spaces: How and if training matters.* Poster presented at the Biennial Meeting of the Society for Research in Child Development. Austin, Texas.
 38. **Bower, C. A.**, Liben, L. S., Plummer, J. D., Christensen, A. E., & Kastens, K. A. (2015, November). *The role of spatial skills and gesture in communicating scientific concepts in developing learners: A Sciences of Learning approach.* Poster presented at the Learning Sciences and Sciences of Learning Poster Session. University Park, PA.
 39. **Bower, C. A.**, Liben, L. S., Plummer, J. D., Christensen, A. E., & Kastens, K. A. (2015, October). *Multiple modes of representation in communicating scientific concepts in developing learners: The role of spatial skills and gesture.* Poster presented at the Biennial Meeting of the Cognitive Development Society. Columbus, OH.
 40. **Bower, C. A.**, Plummer, J. D., & Liben, L. S. (2015, March). *The role of spatial perspective-taking skills in children's gesture use and explanations of astronomical phenomena.* Poster presented at the Biennial Meeting of the Society for Research in Child Development. Philadelphia, PA.
 41. **Bower, C. A.**, Plummer, J. D., Liben, L. S., & Small, K. (2013, April). *The role of perspective-taking skills in children's learning of astronomical phenomena.* Poster presented at the Biennial Meeting of the Society for Research in Child Development. Seattle, WA.
 42. **Bower, C. A.** & Lawson, C. (2011, July). *Role of attention in the formation of illusory correlations among preschoolers.* Poster presented at the 33rd Annual Conference of the Cognitive Science Society. Boston, MA.
 43. Lawson, C. A., & Mason, D., **Bower, C. A.** (2011, April). *One-shot illusory correlations in preschoolers.* Poster presented at the Biennial Meeting of the Society for Research in Child Development. Montreal, CA.
 44. **Bower, C. A.** & Lawson, C. A. (2011, April). *The formation of illusory correlations in young children.* Poster presented at the 6th Annual Philadelphia Area Psi Chi Research Day Conference. Philadelphia, PA.
 45. **Bower, C. A.** & Lawson, C. A. (2011, April). *The formation of illusory correlations in young children.* Poster presented at the 22nd Annual Saint Joseph's University Sigma Xi Student Research Symposium. Philadelphia, PA.
 46. **Bower, C. A.** & Lawson, C. A. (2011, April). *The formation of illusory correlations in young children.* Poster presented at the Biennial Meeting of the Society for Research in Child Development. Montreal, CA.

47. Zelikovsky, N., **Bower, C. A.**, & Millet, G. (2010). *Evaluation of MedActionPlan.com to improve adherence in adolescent transplant patients*. Poster presented at Society of Behavioral Medicine. Seattle, WA.

ADDITIONAL RESEARCH EXPERIENCE

- 2011-2017 Research Assistant, The Pennsylvania State University, Cognitive and Social Development Lab. PI: Lynn Liben, Ph.D.
- 2009 - 2011 Research Assistant, Saint Joseph's University, Cognitive Development Lab. PI: Chris Lawson, Ph.D.
- 2009-2010 Research Assistant for MedActionPlan Study, Children's Hospital of Philadelphia. PI: Nataliya Zelikovsky, Ph.D.

TEACHING EXPERIENCE

California State University, Los Angeles

Lead Instructor

Research Methods in Psychology with Lab (undergrad; Fall 2022, Spring 2023, Fall 2023, Spring 2024, Fall 2024)

Psychology of Human Development: Infancy and Childhood (undergrad; Spring 2025)

Graduate Seminar in Developmental Psychology (grad; Fall 2022, 2023, 2024)

Independent Research (undergrad/grad; Spring 2023-Spring 2025)

University of Southern California

Lead Instructor

Experimental Research Methods with Lab (Fall 2021, Spring 2022)

Children's Learning and Cognitive Development, service-learning (Fall 2021)

University of Texas, El Paso

Guest Lecturer

Play & Learning in the Early Years (Spring 2022)

The Pennsylvania State University

Lead Instructor

Psychology Research Methods, Lab (Spring 2015)

Graduate Instructor

Undergraduate Independent Research (2011 – 2017)

Teaching Assistant

Psychology Research Methods (Spring 2015)

Abnormal Psychology (Fall 2015)

Online Lead Instructor

Elementary Statistics in Psychology (Spring 2016)

Psychology Research Methods (Fall 2014; Summer 2015)

Saint Joseph's University

Guest Lecturer

Developmental Psychology (Fall 2010)

Teaching Assistant

Research Methods in Psychology (2010 – 2011)

Social Psychology (2010 – 2011)

TEACHING FELLOWSHIP & CERTIFICATES

Inclusive Excellence and Equity Fellows (IE&E Fellows) Program, CSULA, Fall 2023
Course in College Teaching, The Pennsylvania State University, October 2015

GRADUATE STUDENT MENTEES

Anthony (Wilder) VonSchonfeldt, Fall 2022-Spring 2024
Angela Valadez, Fall 2024-Spring 2026
Jessica Vega, Fall 2024-Spring 2026

CSULA MENTORING PROGRAM

Psychology Undergraduate Research Opportunity (PURO) program, Fall 2022-present
Minority Opportunities in Research (MORE) Programs, Spring 2023-present

REVIEWING

Grants:

National Science Foundation, Developmental Sciences (2020)

Journals:

*Child Development; Cognition and Development; Cognitive Development;
Cognitive Psychology; Developmental Psychology; Developmental Science; Early
Education and Development; European Journal of Educational Research;
Frontiers in Psychology; Journal of Applied Developmental Psychology; Journal
of Cognition and Development; Journal of Experimental Child Psychology;
Journal of Intelligence; Journal of Numerical Cognition; Journal of Social
Issues; Learning and Individual Differences; Learning and Instruction;
Mathematics Education Research Journal; Psychological Research;
Psychological Science; Physical Review Physics Education Research; Spatial
Cognition and Computation: An Interdisciplinary Journal; Translational Issues in
Psychological Science*

Conferences:

*American Educational Research Association (AERA); Society for Research in
Child Development (SRCD); National Association of Research in Science
Teaching (NARST)*

PROFESSIONAL AFFILIATIONS

American Educational Research Association
American Psychological Association
(Division 7, Developmental Psychology & Division 15, Educational Psychology)
Association for Psychological Science
Cognitive Development Society
International Congress of Infant Studies
National Association for Research in Science Teaching
Society for Research in Child Development
Society for the Study of Human Development
Spatial Intelligence and Learning Center (SILC)
Western Psychological Association
Women in Cognitive Science