

Delwin Carter, Ph.D.

Quantitative Methodologist

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EDUCATION

Ph.D., Education (June 2026)

- Emphases: (1) Quantitative Methods, (2) College Teaching
- Dissertation: *Understanding the performance of random intercepts latent transition analysis (RI-LTA): A Monte Carlo simulation study with MplusAutomation.*

M.A., Education (December 2020)

- Thesis: *Mixture models: Calculate the explained variance in distal outcomes from the categorical latent variable*

University of California, Santa Barbara (UCSB)

M.A., General Experimental Psychology (June 2016)

- Thesis: *Evaluating the 8-item patient health questionnaire's psychometric properties among Filipino emerging adults*

B.A., Psychology (June 2013)

California State University, Northridge (CSUN)

CERTIFICATIONS

- HSR Basic Course for Social-Behavioral Educational Researchers (2015 - 2016, 2024-2025) - Collaborative Institutional Training Initiative
- Summer Institute for Teaching Associates (August 2020) – UCSB
- Human Participants Protection Education for Research Teams (2015) - National Institutes of Health

SCHOLARSHIP

GRANTS

Carter, D. B. (PI). Support for computationally intensive Monte Carlo simulations of random intercepts latent transition analysis (RI-LTA). DISCOVER Allocation, ACCESS Program. Awarded 750,000 supercomputing credits (valued over \$5,000) in 2025 to enable large-scale simulation studies, enhancing methodological precision in educational data analysis.

Carter, D. B. (PI). *Understanding the performance of random intercepts latent transition analysis (RI-LTA): A Monte Carlo simulation study with MplusAutomation.* Gevirtz Graduate School of Education Dissertation Grant. University of California, Santa Barbara. Funded \$9,000 for dissertation research in 2022, enabling comprehensive simulation studies to refine educational data analysis techniques, contributing to the field's methodological advancements.

Carter, D. B. (PI). *Evaluating the 8-item patient health questionnaire's psychometric properties among Filipino emerging adults.* Thesis Support Funding. Office of Research and Graduate Studies, California State University, Northridge. Funded for \$1,000 in Spring 2015, which facilitated the collection and analysis of data to enhance mental health screening tools, impacting assessment practices in diverse populations.

JOURNAL ARTICLES

Carter, D. B. (2026). Distal outcomes in mixture modeling: A guide for pairwise comparisons, multiplicity control, and effect size reporting. *Behavior Research Methods*, 58(9). <https://doi.org/10.3758/s13428-026-03144-4>

Carter, D. B., Plunkett, S. W., Alpizar, D., Ainsworth, A. T., & Laganá, L. (2026). Psychometric evaluation of the 8-Item patient health questionnaire among Filipino American emerging adult men and women. *Journal of Psychopathology and Behavioral Assessment*, 48(3). <https://doi.org/10.1007/s10862-026-10305-4>

- Nylund-Gibson, K., Arch, D. A., & **Carter, D.** (2026). Latent transition analysis with auxiliary variables: A demonstration of the ML 3-Step and BCH in Mplus. *The Quantitative Methods for Psychology*, 22(1), 1–8. <https://doi.org/10.20982/tqmp.22.1.p001>
- Olwert, M. R., Hart, S. R., **Carter, D.**, & Stromberg, N. R. (2026). A latent profile analysis of body image and disordered eating attitudes and behaviors in adolescent boys. *Journal of Adolescence*, 98(6), 2142–2149. <https://doi.org/10.1002/jad.70185>
- Romero, L. S., O'Malley, M., & **Carter, D.** (2025). Replication using confirmatory latent class analysis: A school climate example. *Journal of School Psychology*, 110, 101455. <https://doi.org/10.1016/j.jsp.2025.101455>
- Lawrie, I. L., **Carter, D.**, Nylund-Gibson, K., & Kim, H. S. (2025). A tale of two belongings: Social and academic belonging differentially shape academic and psychological outcomes among university students. *Frontiers in Psychology*, 15, 1394588. <https://doi.org/10.3389/fpsyg.2024.1394588>
- Moore, S. A., **Carter, D.**, Kim, E. K., Furlong, M. J., Nylund-Gibson, K., & Dowdy, E. (2024). Adolescents' covitality patterns: Relations with student demographic characteristics and proximal academic and mental health outcomes. *School Mental Health*, 16, 550–565. <https://doi.org/10.1007/s12310-024-09663-9>
- Nylund-Gibson, K., Garber, A. C., **Carter, D. B.**, Chan, M., Arch, D. A., Simon, O., Whaling, K., Tartt, E., & Lawrie, S. I. (2023). Ten frequently asked questions about latent transition analysis. *Psychological Methods*, 28(2), 284–300. <https://doi.org/10.1037/met0000486>
- Dowdy, E., Furlong, M. J., Nylund-Gibson, K., Arch, D., Hinton, T., & **Carter, D.** (2023). Validating a brief student distress measure for schoolwide wellness surveillance. *Assessment for Effective Intervention*, 48(3), 159–169. <https://doi.org/10.1177/15345084221138947>
- Furlong, M. J., Paz, J. L., **Carter, D.**, Dowdy, E., & Nylund-Gibson, K. (2023). Extending validation of a social emotional health measure for middle school students. *Contemporary School Psychology*, 27(1), 92–103. <https://doi.org/10.1007/s40688-022-00411-x>
- Denson, N., Ing, M., Arch, D. A., Garber, A. C., Chan, M., **Carter, D. B.**, & Nylund-Gibson, K. (2022). A latent class analysis of students' openness to learning from diverse others. *Journal of Diversity in Higher Education*, 17(5), 806–816. <https://doi.org/10.1037/dhe0000451>
- Wagle, R., Dowdy, E., Nylund-Gibson, K., Sharkey, J. D., **Carter, D.**, & Furlong, M. J. (2021). School belonging constellations considering complete mental health in primary schools. *Educational and Developmental Psychologist*, 38(2), 173–185. <https://doi.org/10.1080/20590776.2021.1964071>
- Furlong, M. J., Dowdy, E., Nylund-Gibson, K., Wagle, R., **Carter, D.**, & Hinton, T. (2020). Enhancement and standardization of a universal social-emotional health measure for students' psychological strengths. *Journal of Well-Being Assessment*, 4(3), 245–267. <https://doi.org/10.1007/s41543-020-00032-2>
- Hinton, T., Dowdy, E., Furlong, M. J., Nylund-Gibson, K., **Carter, D.**, & Wagle, R. (2020). Examining the social emotional health survey-secondary for use with Latinx youth. *Journal of Psychoeducational Assessment*, 39(2), 242–246. <https://doi.org/10.1177/0734282920953236>
- Wagle, R., Dowdy, E., Furlong, M. J., Nylund-Gibson, K., **Carter, D.**, & Hinton, T. (2020). Anonymous versus self-identified response formats for school mental health screening. *Assessment for Effective Intervention*, 47(2), 112–117. <https://doi.org/10.1177/1534508420959439>
- Laganá, L., Gavrilova, L., **Carter, D. B.**, & Ainsworth, A. T. (2017). A randomized controlled study on the effects of a documentary on students' empathy and attitudes towards older adults. *Psychology and Cognitive Sciences - Open Journal*, 3(3), 79–88. <https://doi.org/10.17140/pcsoj-3-127>
- Plunkett, S. W., White, X., **Carter, D. B.**, & Horner, M. E. F. (2016). Parental support and psychological control in relation to African American college students' self-esteem. *Journal of Africana Studies*, 9(4), 199–218.

JOURNAL ARTICLES IN REVIEW

- Carter, D (under review) Relational Calibration: A Framework for Dynamic Instructional Regulation in Complex Learning Environments. *Learning, Culture and Social Interaction*.

JOURNAL ARTICLES IN PREPARATION

- Carter, D. B. (in preparation). When is RI-LTA necessary? A Monte Carlo comparison of latent transition models.
- Carter, D. B. (in preparation). Residual-based variance decomposition for continuous outcomes in mixture models.
- Carter, D. B. (in preparation). The simulation evidence base for latent transition analysis: What do we know and what remains unknown?
- Carter, D. B. (in preparation). Model fit evaluation in latent transition analysis: Practices, trends, and associations with class enumeration.
- Carter, D. B. (in preparation). Measurement invariance in latent transition analysis: Practices, design complexity, and temporal trends.
- Carter, D. B. (in preparation). Covariates and distal outcomes in latent transition analysis: Patterns of use, model complexity, and missing-data practices.
- Carter, D. B. (in preparation). Enumeration strategies in latent transition analysis: Comparing LCA- and LPA-based approaches.
- Carter, D. B. (in preparation). Reporting practices in latent transition analysis: Transparency, completeness, and reproducibility.
- Carter, D. B. (in preparation). Design characteristics of latent transition analysis studies: Trends in model structure and implementation.
- Carter, D. B. (in preparation). Item sequence $\times$ response layout: Measurement invariance and latent mean differences across four paper survey forms.

RESEARCH MONOGRAPHS

- Carter D. B., Sharkey, J., Doty, S.** (2018, December). *Moral reconation therapy engagement study: Client and counselor perspectives*. University of California Santa Barbara
- Carter, D. B., Hunnicut, K., & Sharkey, J.,** (2018, November). *Santa Barbara County annual report: Public safety realignment October 2011 - December 2017*. University of California Santa Barbara
- Carter, D. B., & Sharkey, J.,** (2018, August). *Substance abuse treatment court outcome evaluation*. University of California, Santa Barbara
- Hunnicut, K., **Carter, D. B., & Sharkey, J., Cosden, M.,** (2018, March). *Santa Barbara County annual report: Public safety realignment October 2011 - December 2016*. University of California Santa Barbara

SELECTED PEER REVIEWED CONFERENCE PRESENTATIONS – 8 of 21 total conference presentations

- Carter, D.** (2026, April). *When is RI-LTA necessary? A Monte Carlo comparison of latent transition models*. Symposium presentation at the annual meeting of the American Educational Research Association, Los Angeles, CA, USA.
- Carter, D., & Nylund-Gibson, K.,** (2023, April). *Understanding the performance of random intercept latent transition analysis under varied conditions and competing models*. Symposium talk presented at the annual meeting of the American Educational Research Association, Chicago, IL, USA.
- Carter, D., Nylund-Gibson, K., Furlong, M. J., & Dowdy, E.** (2022, April). *Random intercepts latent transition analysis: An illustration, comparison, and simulation* [Symposium presentation]. American Educational Research Association, San Diego, CA, USA.
- Carter, D., & Nylund-Gibson, K.** (2021, April). *Validation and calibration in mixture modeling: The exploratory factor analysis/confirmatory factor analysis of mixture models* [Symposium presentation]. American Educational Research Association, Online Format.
- Carter, D., Garber A., Nylund-Gibson, K., Dowdy, E., & Furlong, M. J.** (2021, April). *Understanding patterns of social-emotional strengths across students with and without disabilities: Different, not worse* [Symposium presentation]. American Educational Research Association, Online Format.
- Carter, D., & Nylund-Gibson, K.,** (2019, April). *Mixture models: calculate the explained variance in distal outcomes from the categorical latent variable* [Symposium presentation]. American Educational Research Association, Toronto, ON, Canada.
- Carter, D., & Nylund-Gibson, K., & Furlong, M.,** (2018, April). *The effect of item order on participants' response choices* [Roundtable presentation]. American Educational Research Association, New York, NY, USA.

Spina, A. D., & **Carter, D. B.**, (2018, April). *The influence of teacher gender on females' math self-efficacy* [Poster presentation]. American Educational Research Association, New York, NY, USA.

Carter, D. B., Laganá, L., Gavrilova, L., Sholl, K., & Prilutsky, R. (2016, May). *The initial validation of a non-medical stress scale created for ethnically diverse older women* [Poster presentation]. Association for Psychological Science, Chicago, IL, USA.

RESEARCH EXPERIENCE

Founder and Director (June 2021 – Present)

The MIX Institute UCSB, Santa Barbara, CA

<https://delwincarter.com/researchteam/>

- Founded and direct a quantitative research and training institute focused on mixture modeling, longitudinal latent variable methods, measurement, and applied quantitative methodology.
- Lead a multi-project research program integrating methodological research, simulation, systematic evidence synthesis, and applied quantitative studies across the social and behavioral sciences.
- Recruit, train, and supervise a growing research team of undergraduate and post-baccalaureate researchers in quantitative methods, literature synthesis, reproducible research workflows, statistical analysis, data visualization, scientific writing, and research dissemination.
- Develop and oversee collaborative research projects from conceptualization through analysis and dissemination, while mentoring student researchers in increasingly independent scholarly roles and authorship contributions.
- Build research infrastructure that supports multiple concurrent projects, methodological training initiatives, conference presentations, manuscripts, and collaborative research partnerships.

Graduate Research Assistant (September 2016 – June 2026)

Latent Variable Group (PI: Karen Nylund-Gibson), UCSB, Santa Barbara, CA

<https://lvucsb.weebly.com>

- Conducted advanced quantitative research using R and Mplus, with an emphasis on latent variable, mixture, and longitudinal modeling.
- Designed and executed large-scale Monte Carlo simulation studies, including automated workflows involving datasets approaching 2 million rows.
- Developed and optimized R-based simulation and data-processing workflows, reducing computational runtime from approximately one month to one week.
- Provided statistical consultation, methodological troubleshooting, and analytic quality assurance across collaborative research projects, contributing to four national conference presentations and a publication.

Graduate Research Assistant (August 2023 – June 2024)

Mixture Modeling Training for Discipline-Based Education Researchers Grant (PI: Karen Nylund-Gibson), UCSB, Santa Barbara, CA

<https://mm4dbers.education.ucsb.edu>

- Provided advanced quantitative consultation and methodological support to researchers applying mixture modeling in discipline-based education research.
- Developed and facilitated training activities, workshops, and applied exercises designed to make complex mixture-modeling methods accessible to substantive researchers.
- Created and maintained reproducible instructional and analytic materials using R, Markdown/Quarto, and data visualization tools.
- Contributed to reports, presentations, and project dissemination by translating advanced statistical results into clear, applied guidance for researchers.

Graduate Research Assistant (August 2019 – June 2021)

Project Covitality (PI: Michael J. Furlong), UCSB, Santa Barbara, CA

- Served as lead quantitative analyst on a large-scale research program, contributing to five peer-reviewed publications and two national conference presentations.
- Conducted advanced statistical modeling, psychometric evaluation, scale development and validation, and measurement invariance testing.
- Managed and analyzed data from more than 100,000 participants, including data preparation, transformation, quality assurance, and analytic documentation.
- Collaborated on the interpretation, visualization, and communication of quantitative findings across multiple research projects.

Graduate Research Assistant (August 2016 – June 2019)

Sharkey Laboratory (PI: Jill Sharkey), UCSB, Santa Barbara, CA

- Led quantitative analysis and evaluation activities across four formative program evaluations conducted in partnership with Santa Barbara County Probation.
- Served as project manager for three evaluation projects, coordinating research design, data management, analysis, interpretation, and final reporting.
- Applied advanced statistical methods to complex administrative and program data, including data preparation, quality assurance, and outcome analysis.
- Developed evaluation reports and presented findings to research and community stakeholders, translating quantitative results into actionable program recommendations.

Lab Statistics Coordinator (August 2015 – June 2016)**Graduate Research Assistant** (June 2014 – July 2015)

Behavioral Medicine Laboratory (PI: Luciana Laganá), CSUN, Northridge, CA

- Led and supervised a team of 10 research assistants in data collection, data management, and quantitative analysis.
- Trained laboratory members in SPSS and EQS and provided statistical guidance on research projects using advanced quantitative methods.
- Contributed quantitative expertise to collaborative research resulting in a peer-reviewed publication and provided statistical mentoring for student theses and dissertations.

Statistics Consultant (July 2015 – June 2016)

Psychometrics, Research, and Evaluation Promoting Adaptation, Resiliency, and Education (PREPARE) Lab (PI: Scott Plunkett), CSUN, Northridge, CA

- Provided statistical consultation on research projects involving path analysis, structural equation modeling, and other advanced quantitative methods.
- Collaborated on study design, analysis, interpretation, and preparation of quantitative findings for dissemination.
- Contributed quantitative expertise to a peer-reviewed publication and mentored students in the development of research presentations for professional conferences.

Graduate Research Assistant (July 2015 – June 2016)

Applied Psychometric Laboratory (PI: Andrew Ainsworth), CSUN, Northridge, CA

- Collaborated on psychometric and quantitative research projects involving experimental design, data analysis, and interpretation as part of a five-member research team.

TEACHING EXPERIENCE

UNIVERSITY OF CALIFORNIA, SANTA BARBARA**Teaching Associate (Instructor of Record)**

- PSYCH 120L: Lab in Advanced Research (Spring 2026, Winter 2026, Summer 2024)
- PSYCH 105: Developmental Psychology (Summer 2020) - **Online**

Teaching Assistant – Graduate Quantitative Methods

- ED 216F: Structural Equation Modeling (Winter 2024, Spring 2019, Spring 2018)
- ED 216B: Factor Analysis (Fall 2023, Winter 2019, Winter 2018)
- ED 216A: Multivariate Statistics (Fall 2019, Fall 2018, Fall 2016)

Guest Lectures – Graduate Quantitative Methods

- Factor Analysis (6 occasions)
- Ordinal Latent Class Analysis (1 occasion)

Graduate Level Stats Tutor (Winter 2018, Fall 2022, Winter 2023, Spring 2023, Fall 2024, Spring 2024)

Gevirtz Graduate School of Education, UCSB, Santa Barbara, CA

- Provided statistics tutoring to master's students, doctoral students, and faculty, enhancing their quantitative research capabilities.

Teaching Assistant – Undergraduate Courses

- PSYCH 120L: Lab in Advanced Research (Multiple terms Spring 2023 - Winter 2019)
- PSYCH 148: Self and Identity (Summer 2022)
- INT 95C: The Second Year Experience (Summer 2021)
- SOC 1: Introduction to Sociology (Spring 2021) - **Online**
- PSYCH 10B: Statistics (Fall 2018)

Technology Teaching Assistant (Fall 2021, Winter 2022)

Department of German & Slavic Studies, UCSB, Santa Barbara, CA

- Assisted faculty with remote technology integration in teaching for enhanced multimedia delivery.

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE**Part-Time Faculty**

- PSY 320L: Statistical Methods for Psychological Research (Fall 2026)

Teaching Associate (Instructor of Record)

- PSY 320L: Statistical Methods for Psychological Research (Spring 2016, Fall 2015)

Teaching Assistant – Graduate Level Courses

- PSY 524: Multivariate Statistics (Fall 2016, Fall 2015)
- PSY 485: Advanced Univariate Statistics (Fall 2013)

Teaching Assistantships – Undergraduate Level Courses

- PSY 320L: Methods for Psychological Research (Spring 2015)
- PSY 365: Introduction to Gerontology (Fall 2015)
- PSY 321: Research Methods for Psychology (Spring 2014)

Statistics and Writing Tutor (Fall 2015, Spring 2016)

College of Social and Behavioral Science, CSUN, Northridge, CA

- Provided tutoring in statistics and writing, supporting students across multiple departments.

SERVICE**PROFESSIONAL AFFILIATIONS**

National Council on Measurement in Education (2016 – Present)

- **Chair, Graduate Student Issues Committee (2020)** — Led committee activities addressing issues relevant to graduate students in educational measurement and research.
- **Graduate Student Issues Committee (2018, 2019)** — Contributed to committee initiatives supporting graduate student engagement and professional development.
- **Conference Submission Reviewer (2018)** — Reviewed conference submissions for the annual meeting.

American Educational Research Association (2016 – Present)

- **Chair, “Model Contemplations: Identification, Detection, Effects, and Errors,” Educational Statisticians SIG (2019, April)**
- **Member, Structural Equation Modeling SIG and Educational Statisticians SIG**

CAMPUS SERVICE – UCSB

- **Vice President of Communications, Graduate Student Association in Education (2018)** — Coordinated communications and information dissemination for the graduate student organization.
- **Information Technology Group Committee (2018 - 2026)** — Contributed to departmental and campus discussions related to instructional and research technology.
- **Peer Advisor, Quantitative Methods in the Social Sciences Emphasis (2016 – 2026)** — Advised graduate students on quantitative-methods coursework, training, and program requirements.

COMMUNITY OUTREACH

- Delivered 100+ presentations on addiction recovery to clients in treatment centers, halfway houses, and inpatient and outpatient facilities (2001 – Present).

PROFESSIONAL DEVELOPMENT

Data Carpentry, University of California, Santa Barbara

- **Introduction to Python** (October 19-22, 2021)

Methods University Stats Camp

- **Mediation and Moderation** (June 17-18, 2019)
- **Introduction to Latent Class Analysis** (June 18-19, 2019)
- **Introduction to Latent Transition Analysis** (June 20, 2019)

SKILLS

- **Statistical Software:** R/RStudio (advanced data analysis, visualization, simulation, and automation); Mplus (advanced structural equation and mixture modeling); EQS, Stata, SPSS
- **Research Tools:** Qualtrics, E-Prime, ArcGIS
- **Reproducible Research & Programming:** R, Quarto, Markdown
- **Learning Management Systems:** Canvas, Moodle; familiarity with Brightspace/D2L
- **Productivity:** Microsoft Word, Excel, PowerPoint
- **Languages:** English (native); Spanish (intermediate conversational and listening proficiency)

HONORS

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

- Alumni Fellowship in Education for Teaching & Mentoring (2023, 2020)
- Graduate Student Association Excellence in Teaching Honorable Mention (2019)
- Graduate Student Association Excellence Nomination (2018, 2020)

- Gevirtz Graduate School of Education Fellowships (2018-2022; 5 Awards)
- Gevirtz Graduate School of Education Two-Year Full Fellowship (2016)
- Gevirtz Graduate School of Education Alumni Fellowship Award (2016)

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

- James R Simpson Merit Scholarship (2012)
- Dean's List (every semester)