

# Matias Placencio-Castro

Data Analysis Manager, Boston College Research Program on Children and Adversity  
Ph.D. Candidate in Measurement, Evaluation, Statistics, and Assessment  
Boston College Lynch School of Education and Human Development

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## Profile

Currently working as Data Analysis Manager for the Boston College Research Program on Children and Adversity ([www.bc.edu/rpca](http://www.bc.edu/rpca)), where I'm responsible for the integrity and security of datasets along with providing support to principal investigators, research scientists, program managers, postdoctoral researchers, and students on research methodologies, including research design, sampling, instrument development, data collection, data management, and statistical modeling. Extensive knowledge of applied statistics, psychometrics, experimental research designs, observational studies, and experience with several analytical methods/techniques and statistical packages. In the United States, I've worked as Statistical Analyst for the Boston University Center for Psychiatric Rehabilitation, and the Boston Public Schools District. I have also served as consultant across different research projects at Boston College, and for the UNESCO Regional Bureau for Education in Latin America and the Caribbean. In Chile, I've worked in governmental organizations such as the National Institute of Statistics and the Quality of Education Agency, and also as a research staff in several government-funded research (CONICYT-ANID).

## Academic Background

- 2017-2021 **Ph.D. Student**, BOSTON COLLEGE LYNCH SCHOOL OF EDUCATION AND HUMAN DEVELOPMENT, Measurement, Evaluation, Statistics, and Assessment (MESA) Department, .
- 2015 **Master in Sociology**, PONTIFICAL CATHOLIC UNIVERSITY OF CHILE, .
- 2012 **High School Teacher Degree**, PONTIFICAL CATHOLIC UNIVERSITY OF CHILE, .
- 2011 **Bachelor in History**, PONTIFICAL CATHOLIC UNIVERSITY OF CHILE, .

## Expertise

- Areas** Applied Statistics; Psychometrics; Instrument/Survey Development; Experimental Research Designs; Statistical Programming; Early Childhood Development; Global Mental Health.
- Methods** Classical Test Theory; Item Response Theory; Hierarchical Linear Models; Growth Modeling; Structural Equation Modeling; Latent Class and Latent Transition Analysis, Non-Parametric Statistics.

## Software skills

- STATISTICAL PACKAGES
  - Advanced** - R, Stata, Mplus, SPSS, HLM, Noharm, IRTPro, Winsteps, Conquest, UCINET.
  - Basic** - SAS, Python, Bilog.
- DATA CAPTURE: REDCap, Qualtrics, Google Forms.
- TEXT PROCESSORS: L<sup>A</sup>T<sub>E</sub>X, Markdown, Microsoft Office Suite.

## Relevant Experience

- 2022 - Present **Data Analysis Manager**, RESEARCH PROGRAM ON CHILDREN AND ADVERSITY, BOSTON COLLEGE GRADUATE SCHOOL OF SOCIAL WORK.
  - Develop and implement code for data, management, description and advanced statistical analysis (i.e., longitudinal multilevel modeling, factor analysis, SEM, IRT, latent class and latent profile analysis, multiple imputation)
  - Analyze and interpret data for reporting on program intervention findings for peer-reviewed publications, stakeholder reports, grant applications, and conferences.
  - Oversee survey programming for electronic data capture (REDCap, Qualtrics, SurveyCTO).
  - Support junior faculty and post-doctoral fellows at the RPCA on the writing of Clinical Trials Protocols and the development of Data Analysis Plans to ensure scientific rigor.
  - Lead the development of technical documentation following standard practices to ensure research reproducibility and to facilitate external auditing processes when needed.

- 2022 - Present **Part-Time Faculty**, BOSTON COLLEGE GRADUATE SCHOOL OF SOCIAL WORK.  
  - Program: Master in Social Work.
  - Courses: Research Methodologies; Program Evaluation
- 2022 - Present **Instructor**, BOSTON COLLEGE, LYNCH SCHOOL OF EDUCATION AND HUMAN DEVELOPMENT.  
  - Measurement, Evaluation, Statistics, and Assessment (MESA) Department.
  - Course: Intermediate Statistics.
- 2021 - 2022 **Social Sciences Data Manager**, RESEARCH PROGRAM ON CHILDREN AND ADVERSITY, BOSTON COLLEGE SCHOOL OF SOCIAL WORK.  
  - Coordinate data collection and management for several clinical and non-clinical studies.
  - Develop and implement statistical code and programs for data management and analysis.
  - Creation of data management plans, codebooks, data dictionaries, and structured data reports to be used by cross-diagnostic research teams.
- 2021 - 2022 **Instructor**, SCHOOL OF SOCIAL SCIENCES AND HISTORY, DIEGO PORTALES UNIVERSITY (CHILE).  
  - Course: Applied Statistics and Data Processing with R.
  - Program: Master in Social Research Methodologies.
- 2020 - 2021 **Graduate Statistical Analyst/Consultant**, BOSTON COLLEGE ACADEMIC RESEARCH SERVICES.  
  - Supervisor: Matt Gregas, Ph.D.
  - Assisting Boston College Faculty and graduate students with statistical modeling, data analysis, and research design.
  - Delivering workshops on statistical software and quantitative methodologies. • Policy-brief and peer-reviewed journals manuscripts preparation.
- 2019 - 2021 **Research Assistant**, RESEARCH PROGRAM ON CHILDREN AND ADVERSITY, BOSTON COLLEGE GRADUATE SCHOOL OF SOCIAL WORK.  
  - Principal Investigator: Theresa S. Betancourt, ScD.
  - Project: Families Strengthening Intervention for Early Childhood Development: Alternative Delivery System of Poverty Reduction Strategies in Rwanda
  - Statistical analysis of randomized trials, including Longitudinal Mixed Models, Latent Variable modeling, Item Response Theory, Multiple Imputation, Power Analysis, and Simulations.
  - Policy-brief, statistical/data reports, and peer-reviewed journals manuscripts preparation.
- 2019 - 2021 **Statistical Analyst/Consultant**, BOSTON UNIVERSITY, CENTER FOR PSYCHIATRIC REHABILITATION.  
  - Supervisor: E. Sally Rogers, Sc.D., Executive Director and Research Professor.
  - Data Management, Psychometric Analyses, Longitudinal Analysis for randomized trials evaluations.
- Spring 2019 **Statistical Consultant**, UNESCO, LATIN AMERICAN LABORATORY FOR ASSESSMENT OF THE QUALITY OF EDUCATION (LLECE).  
  - Project: Fourth Regional Comparative and Explanatory Study ERCE 2019, Pilot Test
  - Data Analysis: Descriptive, Reliability, Dimensionality Analysis, and Item Calibration.
  - Writing of technical reports and methodological recommendations for seven Latin American countries.
- 2018 - 2020 **Teaching Associate**, BOSTON COLLEGE, LYNCH SCHOOL OF EDUCATION AND HUMAN DEVELOPMENT.  
  - Courses: Intermediate Statistics, Introductory Statistics.
- Summer 2018 **Intern Statistical Analyst**, BOSTON PUBLIC SCHOOLS, OFFICE OF DATA AND ACCOUNTABILITY.  
  - *Education Pioneers* Summer Internship Program.
  - Supervisors: Ileana Gruia and Monica Hogan.
  - Data management and statistical analysis using Multilevel Modeling for the BPS Opportunity Index.
- 2017 - 2020 **Research Assistant**, BOSTON COLLEGE, LYNCH SCHOOL OF EDUCATION.  
  - Supervisor: Larry Ludlow Ph.D., Professor and MESA department Chair.
  - Research Project: *Communities of Practice in a Two-Way Immersion Network for Catholic Schools*.
  - Software: R, SPSS, Conquest, Excel and UCINET data management and Analysis.
  - Methods: Multidimensional Rasch Modeling, Social Network Analysis.
  - Annotated Research Results Report and peer-reviewed journals manuscripts preparation.
- Spring 2017 **Instructor**, ALBERTO HURTADO UNIVERSITY, PHILOSOPHY AND HUMANITIES DEPARTMENT.  
 Course: Theory and Economic Thought.

- 2016–2017 **Researcher**, QUALITY OF EDUCATION AGENCY, CHILEAN GOVERNMENT.
- Project Manager "First National Civic and Citizenship Education Study".
  - Head of Instruments Development (Knowledge Tests and Attitudinal Questionnaires).
  - Assessment Framework design and writing.
  - Supervision of the Test-Items development process.
- 2016 **Analyst**, NATIONAL INSTITUTE OF STATISTICS, CHILEAN GOVERNMENT.
- Design and application of the "Second CENSUS 2017 National Pilot Test".
  - Analysis and presentation of the "Second CENSUS 2017 National Pilot Test" data.
- 2015 **Field Researcher**, QUALITY OF EDUCATION AGENCY, CHILEAN GOVERNMENT.
- Project: "Evaluation and monitoring of Formative Assessment Program".
  - Qualitative research with Teachers and Principals in 6 schools (Santiago, Chile).
  - Writing of research reports and synthesis of the main results of the fieldwork.
- 2015 **Research Assistant**, MILLENNIUM NUCLEUS RESEARCH CENTER IN ENERGY AND SOCIETY.
- Supervisor: Jose Ossandon Ph.D., Copenhagen Business School.
  - Research Project: Exploring the construction of a Market for Electricity in Chile.
  - Literature Review, Historical research and Qualitative data analysis using Nvivo11.
- 2009-2015 **Teaching Associate**, PONTIFICAL CATHOLIC UNIVERSITY OF CHILE.
- Latin American Culture and Society; Topics of Contemporary History, INSTITUTE OF HISTORY.
  - Economic Sociology; Sociology of Inequality. INSTITUTE OF SOCIOLOGY.

## Publications

- Bond, L., **Placencio-Castro, M.**, Byansi, W., Puffer, E., & Betancourt, T. (Under Review). *Association of Quality of Delivery and Intervention Outcomes within a Home-Visiting Intervention. Pediatrics*. Pediatrics.
- Bond, L., **Placencio-Castro, M.**, Byansi, W., Puffer, E., & Betancourt, T. (Under Review). *Factors Associated with Nonspecialist Quality of Delivery within a Family Strengthening Intervention in Rwanda: A Parallel Latent Growth Model*. Prevention Science.
- Placencio-Castro, M.**, Phend, G., Bond, L., Vianney, JM., Jensen, S., Farrar, J., Kajani, U., Sezibera, V., & Betancourt, T. (Under Review). *The PLAY Collaborative -Scaling-Out an Evidence-Based Early Childhood Development and Violence Prevention Home-Visiting Program in Rwanda: Hybrid Type-2 Effectiveness-Implementation Study Protocol*. Frontiers in Public Health.
- Freeman, J., Farrar, J., **Placencio-Castro, M.**, Desrosiers, A., Brennan, R., Feika, M., Jambia, M., Hansen, N., Akinsulure-Smith, A., Su, S., Bangura, J., & Betancourt, T. (2024). *Effectiveness of Integrating a Transdiagnostic Group Mental Health Intervention for Youth into Entrepreneurship Programs Using a Collaborative Team Approach: A Hybrid Type II Effectiveness-Implementation Cluster Randomized Control Trial in Sierra Leone*. Journal of the American Academy of Child and Adolescent Psychiatry. <https://doi.org/10.1016/j.jaac.2023.09.552>
- Desmond, C., Grace Watt, K., Jensen, SK., Simmons, E., Murray, S.M., Farrar, J., **Placencio-Castro, M.**, Sezibera, V., Rawlings, L., Wilson, B., Betancourt, T. (2023) *Measuring the cost-effectiveness of a home-visiting intervention to promote early child development among families linked to the Rwandan Social Protection System*. PLOS Global Public Health 3(10). <https://doi.org/10.1371/journal.pgph.0002473>
- Jensen, S. K., Murray, S., **Placencio-Castro, M.**; Kajani, U., Amponsah, D., Sezibera, V., & Betancourt, T. (2023). *Family Violence Reduction Within a Parenting Intervention in Rwanda: A Mixed-Methods Study*. Pediatrics, 151(Supplement 2), e2023060221L. <https://doi.org/10.1542/peds.2023-060221L>
- McKay, E., **Placencio-Castro, M.** Kelly-Weeder, S. & Fontenot, H. (2023). *Development and psychometric testing of a scale to measure sexual minority-inclusivity in sex education (SMISES)*. Sexuality Research and Social Policy. <https://doi.org/10.1007/s13178-023-00794-3>
- Mendive, S., **Placencio-Castro, M.**, Strasser, K., Dominguez, P., Pozo, F., & Kucirkova, N. (2023). *Impacts of a Personalized Book Giveaway Intervention in low-SES Households*, Early Childhood Research Quarterly. <https://doi.org/10.1016/j.ecresq.2022.12.008>.
- McKay, E. A, **Placencio-Castro, M.**, Fu, M., & Fontenot, H. (2021). Associations between Sex Education Types and Sexual

Behaviors Among Female Adolescents: A Secondary Data Analysis of the National Survey of Family Growth 2011-2019, *Sexuality Research and Social Policy*. <https://doi.org/10.1007/s13178-021-00664-w>.

Maru, M., Rogers, E., S., Nicolellis, D., Legere, L., **Placencio-Castro, M.**, Magee, C., Harbaugh, A. (2021). Vocational Peer Support for Adults with Psychiatric Disabilities: Results of a randomized trials, *Psychiatric Rehabilitation Journal*. <https://doi.org/10.1037/prj0000484>.

Jensen, S., **Placencio-Castro, M.**, Murray, S., Brennan, R., Yousafzai, A., Farrar, J. Godfroid, K., Bazubagira, S., Rawlings, L., Wilson, B. Sezibera, V., Kamurase, A., & Betancourt, T., (2021). Promoting parent child relationships and preventing violence via home-visiting: A pre-post cluster randomized trial among Rwandan families linked to social protection programs. *BMJ Global Health*, 2021;6:e003508. <http://dx.doi.org/10.1136/bmjgh-2020-003508>

Ludlow, L., **Placencio-Castro, M.**, & Scanlan, M., (2020). Characterizing change within a two-way immersion network of schools promoting bilingual education: A social network analysis approach. *The International Journal of Diversity in Education*, 20(1). <https://doi.org/10.18848/2327-0020/CGP/v20i01/11-34>

Scanlan, M., Melley, K., **Placencio-Castro, M.**, & Ludlow, L. (2019). Transforming Communities of Practice Through Networks. In Scanlan, M., Hunter, C., & Howard, E., (Eds.). *Culturally and Linguistically Responsive Education: Designing Networks That Transform Schools*, Harvard University Press, Boston, MA.

**Placencio-Castro, M.** (2013). Del derecho de propiedad al derecho a la propiedad. La Reforma Agraria de la Iglesia como renovación de la doctrina social y la práctica política. Seminario Simon Collier 2012, Ediciones UC-Ril Editores, Santiago, Chile, pp. 113 - 154.

## Ongoing Journal Manuscripts

**Placencio-Castro, M.** (Doctoral Dissertation Paper). *Psychometric Properties and Measurement Invariance of the DERS-18 Scale in Rwanda: A Validation Study*.

**Placencio-Castro, M.** (Doctoral Dissertation Paper). *Validation of the Infant/Toddler HOME Inventory in Rwanda: Dimensionality, Item Calibration, and Differential Item Functioning*.

**Placencio-Castro, M.** (Doctoral Dissertation Paper). *The relationship between Maternal Mental Health, Quality of the Home Environment, and Child Development in Rural Rwanda: Results from a Clustered Randomized Trial*.

Jensen, S. K., **Placencio-Castro, M.**; Brennan, R., Nsabimana, J. A., Sezibera, V., & Betancourt, T. (In Preparation). *Mechanisms of change underlying effects of the Sugira Muryango parenting intervention on child development in Rwanda*.

**Placencio-Castro, M.**, Ludlow, L., Rogers, E., S., & Russinova, Z. (In preparation) *The Boston University Community Participation and Readiness Scenario (BU-CPRS) scale: A Comparison of Unidimensional and Multidimensional Rasch Models*. Measurement, Evaluation, Statistics, and Assessment Department, Boston College Lynch School.

Kirk, C., Frounfelker, R., **Placencio-Castro, M.**, Fink, G., Brennan, R., Dusabe, C., Pisani, L., & Betancourt, T. (In preparation) *Psychometric Properties of the Ages and Stages Questionnaire in rural Rwanda*. *Child: Health, Care, and Development*.

## Congress, Seminars, and Workshops

June 2023 **Speaker**, 2023 ACADEMYHEALTH ANNUAL RESEARCH MEETING, Seattle, WA.

- Presentation: Effectiveness of Integrating a Transdiagnostic Group Mental Health Intervention for Youth into Entrepreneurship Programs Using a Collaborative Team Approach: A Hybrid Type II Effectiveness-Implementation Cluster Randomized Control Trial in Sierra Leone.
- Presentation: Testing an Implementation Science Strategy to Expand Reach and Quality of Home-Visiting to Promote Early Childhood Development and Prevent Violence in Rwanda: A Hybrid Type II Implementation-Effectiveness Trial.
- Poster: Study of Long-Term and Household Spillover Effects of a Parenting and ECD Intervention on Children and Families Living in Extreme Poverty in Rwanda.

June 2023 **Co-author**, 2023 INTERNATIONAL CONGRESS ON EVIDENCE-BASED PARENTING SUPPORT, On-line.

- Presentation: Sugira Muryango Implementation Strategy - The PLAY Collaborative
- Presentation: Sugira Muryango Quasi-Experimental Study - Initial Results in children 0-2 embedded in the PLAY Collaborative Project

- Sept. 2022 **Speaker**, INTERNATIONAL SEMINAR: INVESTIGACIÓN EN EDUCACIÓN Y SALUD CON IMPACTO PÚBLICO, Pontifical Catholic University of Chile, Santiago, Chile.  
 • Presentation: The Sugira Muryango Family Strengthening Intervention: Promoting Early Childhood Development through Playful Parenting, Father Engagement, and Violence Reduction.
- Sept. 2022 **Instructor**, SCHOOL OF EDUCATION, PONTIFICAL CATHOLIC UNIVERSITY OF CHILE, Santiago, Chile.  
 • Workshop: *Desarrollo, Validación y Análisis de Instrumentos Psicométricos*
- July 2022 **Presenter**, INTERNATIONAL CONGRESS OF INFANT STUDIES, Ottawa, Canada.  
 • Poster: Mechanistic effects of a Family Strengthening Intervention on early child outcomes in Rwanda.  
 • Poster: Longitudinal study of the effects of early life parenting intervention on enrolled children and their siblings in Rwanda.
- Sept. 2021 **Instructor**, SCHOOL OF SOCIAL SCIENCES AND HISTORY, DIEGO PORTALES UNIVERSITY (CHILE).  
 • Workshop *Introduction to Psychometrics: Theory and Applications*  
 • Topics: Instrument Development and Latent Constructs, Introduction to Classical Test Theory, Introduction to Item Response Theory: 1PL, 2PL, 3PL models.
- April 2021 **Instructor**, UNESCO, LATIN AMERICAN LABORATORY FOR ASSESSMENT OF THE QUALITY OF EDUCATION (LLECE).  
 • Workshop *The challenge of measuring unobservable attributes: Topics in psychological and educational measurement.*  
 • Topics: Measuring Latent Variables, Instrument Development, Classical Test Theory, Item Response Theory.
- April 2021 **Speaker**, SOCIETY FOR RESEARCH IN CHILD DEVELOPMENT VIRTUAL BIENNIAL MEETING.  
 Title: Measuring Parenting in Sub-Saharan Africa: HOME Inventory dimensionality assessment, IRT calibration, and scale validation.
- Nov. 2020 **Speaker**, CENTER FOR ECONOMICS AND SOCIAL POLICIES (CEAS), UNIVERSIDAD MAYOR, CHILE.  
 Academic Seminar Presentation: Promoting early childhood development and preventing home violence: Results from a cluster-randomized trial linked to a social protection program in Rwanda.
- Oct. 2020 **Participant**, DATA ANALYSIS AND WRITING ONLINE WORKSHOP.  
 Host: Saving Brains: Innovation in Early Childhood Development, Grand Challenges Canada Foundation.
- April 2020 **Speaker**, AERA ANNUAL CONFERENCE, San Francisco, CA.  
 Title: A Multilevel Regression approach to the relationship between citizenship education and academic achievement in Chile. (Conference Cancelled due to Coronavirus)
- May 2019 **Speaker**, LATIN AMERICAN STUDIES ASSOCIATION ANNUAL CONFERENCE, Boston, Massachusetts.  
 Title: Citizenship Education and Learning Achievement in Chile: The relationship between students' democratic attitudes and practices, and academic achievement.
- April 2019 **Speaker**, NEW ENGLAND EDUCATIONAL RESEARCH ORGANIZATION ANNUAL CONFERENCE, Portsmouth, New Hampshire.  
 Title: A Rasch Approach to Measuring Students' Future Political Engagement: Some insights using ICCS 2016.
- March 2019 **Instructor**, INTRODUCTION TO APPLIED STATISTICS USING STATA, Boston College, Lynch School of Education and Human Development.
- Oct. 2018 **Speaker**, NORTHEASTERN EDUCATIONAL RESEARCH ASSOCIATION ANNUAL CONFERENCE, Trumbull, Connecticut.  
 Title: Learning Together: Characterizing change within a Two-Way Immersion Network of Schools promoting bilingual education.
- May 2018 **Participant**, INTRODUCTION TO SOCIAL NETWORK ANALYSIS SEMINAR (STATISTICAL HORIZONS), Philadelphia, Pennsylvania. Instructor: Stephen Borgatti Ph.D..
- Dec. 2015 **Speaker**, XXX LATIN AMERICAN SOCIOLOGICAL ASSOCIATION CONGRESS, University of Costa Rica. San José, Costa Rica.  
 Title: Legitimidad del Sistema Economico y Participacion Ciudadana: Aproximacion a la relacion entre percepciones individuales y actividad politica en Chile

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## Awards, Sponsorships, and Certifications

- 2020 **Passed with Distinction**, MESA DEPARTMENT DOCTORAL COMPREHENSIVE EXAMINATION.
- 2018 **Summer Fellowship at Boston Public Schools**, EDUCATION PIONEERS.

- 2018 **Certification**, IES WHAT WORKS CLEARINGHOUSE.  
"Group Design Standards On-line Training"
- 2018 **Doctoral Academic Sponsorship**, COES - CENTER FOR SOCIAL CONFLICT AND COHESION STUDIES.
- 2017-2021 **Becas Chile Ph.D Scholarship**, NATIONAL RESEARCH AND DEVELOPMENT AGENCY (ANID), CHILEAN GOVERNMENT.
- 2015 **Master Academic Sponsorship**, COES - CENTER FOR SOCIAL CONFLICT AND COHESION STUDIES.
- 2014-2015 **National Master Scholarship**, NATIONAL RESEARCH AND DEVELOPMENT AGENCY (ANID), CHILEAN GOVERNMENT.
- 2014-2015 **Master Scholarship**, VOLCÁN CALBUCO FOUNDATION.
- 2012 **Teacher's Vocation Scholarship**, MINISTRY OF EDUCATION, CHILEAN GOVERNMENT.

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## Languages

- Spanish** Native
- English** Advanced / Professional working proficiency

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## Relevant Graduate Level Coursework

Design of Experiments / Psychometric Theory I: CTT and Rasch Models / Psychometric Theory II: IRT Models / Survey Methods / Analysis with Missing Data / Structural Equation Models / Multivariate Statistics / Categorical Data Analysis / Multilevel Data Analysis / Intermediate Statistics / General Linear Models / Causal Inference / Advanced Techniques in Data Processing and Indicators Construction / Survey Methods / Evaluation and Public Policy / Design and Analysis of Social Research / Large Scale Assessment: Theory and Practice / Assessment and Test Construction / Technology Enhanced Assessment / Program Evaluation I / Program Evaluation II / Qualitative Research Methods.