

BRANDON FOSTER, PH.D.
EDUCATION DEVELOPMENT CENTER, INC.
43 FOUNDRY AVENUE, WALTHAM, MA 02453

PROFESSIONAL PREPARATION

Tufts University	Child Study and Human Development	M.A., 2013; Ph.D., 2017
University of Southern Maine	Psychology	B.A., 2010

CURRENT POSITION

Research Associate II, Education Development Center

OVERVIEW OF EXPERTISE

- Expertise in working collaboratively with state and local education agencies to engage stakeholders in research to inform decision making through work in Regional Educational Laboratory Northeast & Islands (REL-NEI)
- Experience in measure development activities, specifically using a stakeholder iterative approach with multiple pilots, and using various validity frameworks (i.e., American Educational Research Association, American Psychological Association, and National Council on Measurement in Education Standards, 2014; Messick, 1989, Kane, 2006).
- Expertise in using psychometrics to examine the psychometric properties of measures, including methods from classical test theory and item response theory (i.e., Rasch, 2-PL, 3-PL) and test equating, linking, scaling, and benchmarking.
- Experience leading large-scale data collection activities, including setting up protocols for data collection, a data quality assurance, and database creation and maintenance to optimize downstream analytic activities.
- Effective dissemination of analytic findings through reports to stakeholder audiences, and peer-reviewed journal publications, with particular expertise in presenting complex information in compelling visual and graphic displays.

RESEARCH EXPERIENCE

Researcher, *Regional Education Laboratory Northeast Islands, EDC (REL-NEI) (2017-2021)*. Provide methodological consultation to other REL researchers to help develop research designs and implement analytic design plans. Collaborate with state and district policymakers to develop proposals. Provide technical coaching to states and districts to help build capacity to use existing data to inform policy and programmatic decisions. Serve as Lead Alliance Researcher for the REL-NEI Early Childhood Education Research Alliance. Funded by IES through REL-NEI.

Principal Investigator, *Measuring Nonacademic Skills among Secondary Students: A Review of Participation, Collaboration, and Perseverance Instruments, EDC (2017-2019)*. Lead a large-scale review of extant measures for students' participation, collaboration, and perseverance. The goal of the project is to provide stakeholders with an overview of non-cognitive measures that might serve as the fifth indicator under the Every Student Succeeds Act (ESSA). Lead junior researchers in establishing protocols for examining and organizing the psychometric properties of various measures. Funded by Institute of Education Sciences (IES) through REL-NEI.

Methodologist, *Investigating the Evidence for Student-Centered Learning*, EDC (2017-2018). Lead analyses examining the relationship between exposure to student-centered learning and academic performance and engagement outcomes. Specific work includes latent class analyses of indicators for student centered learning, examining factors associated with class membership, and differential student outcomes. Funded by the Johnson Family Foundation.

Methodologist, *Science Fairs Under the Scope*, EDC (2017-2018). Tasks include: designing IRT analysis for a “science and engineering practices” (SEP) test, designing HLM analyses to assess school-level variance in the SEP scores, HLM analyses to test for associations with science fair model characteristics and SEP scores. Funded by the National Science Foundation through the Discovery Research PreK-12 program.

Methodologist, *Understanding Professional Development and Adoption Variation Related to the Revised Advanced Placement (AP) Curriculum*, EDC (2016-2017). Leading analytic work for a 5-year study investigating AP teachers' patterns of professional development use, and associations between those patterns and student performance on the AP exam. The project involves the psychometric analysis of large-scale teacher survey data ($N > 100,000$) using exploratory and confirmatory approaches, as well as designing and analysis plans, and supporting junior methodologists in the execution of those analytic plans. Funded by the National Science Foundation through the Discovery Research PreK-12 program.

Researcher, *The Readiness Through Integration of Science and Engineering project*, Tufts University (2012-2016). Project focused on the development of a pilot curriculum for dual language learners that fostered positive approaches to learning through hands-on science, technology, and engineering content. Work included conducting pilot and analyses of associations between program participation and child outcomes using Bayesian multilevel modeling and leading small groups of grad students in qualitative data analyses. Funded by the National Science Foundation through the Discovery Research PreK-12 program.

Psychometrician, *Investigating the Validity of the Early Childhood Environment Rating Scale-Revised Using Rasch Methods*, Tufts University (2015-2017). Doctoral dissertation project that was a comprehensive validity study of the Early Childhood Environment Rating Scale-Revised. The project examined the validity evidence supporting three existing dimensional specifications of the measure. Work included data wrangling of extant large scale secondary data (i.e., ECLS-B), Rasch analyses of item-level data (i.e., using standard Rasch specification of the rating scale model and partial credit model, as well as utilization of the multinomial logit random coefficients model for multidimensional specifications), examining the measure for item-bias, utilization of extant validity frameworks (i.e., Wolfe & Smith, 2006; APA, AERA & NCME, 2014), investigating rater bias and running regression models with child outcomes using complex sampling weights.

Psychometrician, *Parental Engagement of Families from Latino Backgrounds*, Tufts University (2014-2017). The project focused on creating a measure for low-income Latino families' educational engagement efforts in early childhood. Conducted the psychometric validation activities for a short form of the measure. Specific activities included: conducting exploratory and confirmatory factor analyses, item response analysis using Rasch methodology, testing for

differential item functioning (DIF), calibrating the measure for DIF, and conducting outcome studies using irt-scores as predictors of child outcomes. Project funded by the U.S. Department of Health and Human Services & Eunice Kennedy Shriver National Institute of Child Health and Human Development.

Researcher, *Analysis of the Head Start Family and Child Experiences Survey (FACES)*, Tufts University (2012-2016). Led the design and execution of longitudinal studies that investigated associations between Head Start children's problem behavior, approaches to learning, and cognitive skills. Conducted quantitative analyses of child outcomes with longitudinal modeling techniques that used autoregressive latent panel models, growth curve modeling, and latent continuous time models.

Psychometrician, *Massachusetts Department of Elementary and Secondary Education* (2015). Served as Doctoral Intern for the department, and worked under the supervision of the Department's head Psychometrician. Worked on several measure development projects, including leading the development of a statewide survey of students' perceptions of school bullying climates; supporting work on a measure of students' career and college readiness skills; and advancing the development of formative teacher feedback measures used to support the educator preparation for the state. Participated in all aspects of the measure development cycle, including: collaborating with stakeholders, experts, and policymakers to develop items, designing field testing procedures to pilot forms, conducting psychometric analyses using Rasch validation techniques, linking and equating multiple forms, and setting benchmarks.

SELECTED PUBLICATIONS

- Fischer, C., **Foster, B.**, Lawrenz, F., McCoy A., Frumin, K., Eisenkraft, A., Jurist Levy, A., Fishman, B., Dede, C. (submitted). Identifying Policy Malleable Levers Related to Student Performance on High-Stakes Science Exams: Examining School, Teaching, Teacher, and Professional Development Characteristics
- McCoy A., Jurist Levy, A., Frumin, K., Dede, C., Eisenkraft, A., Fischer, C., Fishman, B., **Foster, B.**, Lawrenz, F. (submitted). Affinity for a Large-Scale Curriculum Reform: Teachers' Adaptation to the AP Science Redesign
- Foster, B.** (Under Review). Advances in Understanding Transactional Models of Development: A Continuous Time Model for the Relations Between Head Start Children's Cognitive Skills and Approaches to Learning.
- Foster, B.** & McWayne, C. M. (Under Review). An Investigation of a Reciprocal Model for Overlapping Domains of Head Start Children's School Readiness: A Cross-lagged Structural Equation Modeling Approach.
- McWayne, C. M., **Foster, B.**, & Melzi, G. (accepted with revisions). Culturally Embedded Measurement of Latino Caregivers Family Involvement: A Rasch Analysis of the Parental Engagement of Families from Latino Backgrounds (PEFL-English) and Participacion Educativa de Familias Latinas (PEFL-Spanish) Measure.
- Foster, B.** (2017). *Classroom Quality in the Age of Accountability: Using a Comprehensive Multidimensional Rasch Approach to Investigate the Validity of the Early Childhood Environment Rating Scale-Revised* (Doctoral dissertation, Tufts University).

- Thompson, R. B., **Foster, B. J.**, & Kapinos, J. R. (2016). Poverty, affluence and the Socratic method: Parents' questions versus statements within collaborative problem-solving. *Language & Communication, 47*, 23-29.
- McWayne, C. M., Melzi, G., & **Foster, B.** (2014). User Manual for Parental Engagement of Families from Latino Backgrounds (PEFL-English) and Participacion Educativa de Familias Latinas (PEFL-Spanish) 43-item Parent Self-report Measure.
- Thompson, R. B., & **Foster, B.** (2013). Socioeconomic Status and Parent-Child Relationships Predict Metacognitive Questions to Preschoolers. *Journal of Psycholinguistic Research, 43* (4): 315-333.

SELECTED PROFESSIONAL SERVICE

Member of the Society for Research on Education Effectiveness
Member of the American Evaluation Association