

**ALEX EBLE**  
**STATEMENT OF PROFESSIONAL PLANS**

My fundamental career goals are to better understand the sources of global inequality in education and economic outcomes, and to help identify the best policy options for reducing this inequality. In my research I pursue these goals using a wide range of techniques in causal inference, while also developing and refining techniques from other fields that facilitate learning from important but understudied sources of data, for example, the application of natural language processing and computer vision to images and text in educational materials. My work is informed by theoretical research in economics, as well as theoretical and empirical findings from psychology, sociology, anthropology, and history, fields that offer deep understanding of the social forces that generate inequality. The signature contributions of my research program focus on **two key topics**: the **economics of education in very low-income international settings**, and the **economics of beliefs and information in education**. In this statement I describe my research, teaching, and service, starting with a description of the motivation for my work.

In the early 2000s, I worked with a local entrepreneur in a remote Chinese village to bring more resources into his community by developing a sustainable ecotourism business. Our work was successful, and the community has enjoyed large income gains from the business, which have sustained over time. This experience showed me that assisting and complementing local development initiatives can yield large improvements in human welfare. Seeing the hundreds of other communities on their own paths to prosperity in just that single prefecture led me to work in development practice for several years before earning my PhD. I worked on upstream efforts to assist and inform policy and action aimed at increasing the capabilities, particularly education and health, of children in low-income and historically marginalized populations. I learned that the resources available for such efforts are scarce, underscoring the key role of high-quality evidence in guiding efforts to help these populations prosper. This duality – the great potential of policy and action to accelerate such benevolent cycles, and the need for high-quality evidence to guide this policy and action – directs my research, teaching, and service.

**Research\***

*Topic 1: The economics of education in very low-income international settings*

The first focus of my research program is motivated by the fact that despite large global gains in income, education, and health, pockets of extreme poverty persist in rural, hard-to-reach parts of low-income countries, especially in South Asia and sub-Saharan Africa. In these areas, most children born today will grow up functionally illiterate and innumerate and will have a much lower life expectancy than those who live in better-served urban and peri-urban areas of the same countries. People living in these areas occupy the left-most tail of global distributions of educational, health, and economic outcomes. As a result, crafting policy to target such areas must be central to efforts to reduce global inequality. While researchers have conducted hundreds of evaluations of interventions that aim to improve learning in these contexts, meta-analysis of these studies shows that, to date, most interventions generate only small-to-modest learning gains<sup>1-3</sup>.

My research, driven by the theory that programs must simultaneously address multiple complementary needs to generate transformative change in these children’s learning trajectories, challenges the prevailing narrative about what is and is not possible in such historically neglected

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\* I provide two lists of references at the end of this document. For references to my work, in the text of this document I use publication and year, or for work-in progress, I use “WIP#”, with # corresponding to the project’s number on the reference list. For references to others’ work, I use *Nature*-style numerical superscript references.

settings. In a series of studies, I evaluate a model of teacher-focused intervention that “bundles” multiple interventions known to work in isolation. This approach has been effective in targeting issues, such as extreme poverty, that single-pronged interventions usually fail to improve significantly<sup>4,5</sup>. By evaluating a combination of prongs likely to enhance each other’s effects, my work in this topic moves beyond most previous research, which has focused primarily on evaluating the impact of individual intervention prongs. My results show that children who attend school in these settings can achieve much larger learning gains than previously thought possible.

In “How Much Can We Remedy Very Low Learning Levels in Rural Parts of Low-Income Countries? Impact and Generalizability of a Multi-Pronged Para-Teacher Intervention from a Cluster-Randomized Trial in The Gambia” (*Journal of Development Economics*, 2021), my coauthors and I report the results of a randomized controlled trial (RCT) that evaluated one such bundled intervention. The program combined three teacher-focused interventions known to work in isolation – the use of “para teachers” (individuals previously untrained as teachers) to deliver after-school classes; teaching via scripted lessons; and “coaching” or hands-on teacher monitoring with a focus on improving both teachers’ skills and student learning. Importantly, this approach aims to produce gains without direct non-educational service delivery to children and their families, in contrast to many early childhood interventions such as the Perry Preschool Project, which included home visits, and the Abecedarian project, which provided on-site health care<sup>6,7</sup>.

The study followed children entering primary school in rural communities in The Gambia, where learning trajectories are flat despite high rates of school enrollment and low rates of teacher and student absenteeism. After three years, the intervention generated learning gains far greater than previously seen in this type of study. Using gold-standard tests of reading and math ability<sup>8,9</sup>, we observed large gains across the spectrum of skills necessary for both literacy and numeracy at the critical point of third grade/mid-primary schooling. I was first author on the study, leading the conception, design, execution, and reporting of the research, and facilitating work across practitioners, statisticians, and economists. An opportunity for an ambitious follow-up study of longer-term effects and fadeout using administrative data from national exams was lost because the exams were cancelled in 2020 due to the pandemic, as described in my COVID-19 impact statement. Nonetheless, the research team and I remain committed to work in these areas and have procured funding to continue the intervention in all project villages and expand to new ones.

A separate study, run in parallel, highlights the dramatic challenges faced by research in such contexts, as well as the tremendous learning gains that bundled, teacher-focused interventions can yield. In “Large Learning Gains in Pockets of Extreme Poverty: Experimental Evidence from Guinea Bissau” (*Journal of Public Economics*, 2021), we report an evaluation of a different bundled intervention implemented in rural Guinea Bissau. Guinea Bissau, a West African country that is even poorer than The Gambia, is frequently considered a “failed state” because of its very low state capacity. Because public services in rural areas of the country are often spotty or nonexistent, we evaluated a bundled, teacher-focused intervention that entailed running entire schools in lieu of the government, and hiring certified teachers instead of previously untrained ones. Other core aspects of the intervention aligned with those evaluated in The Gambia, including scripted lessons, teacher coaching, and supporting the work with adequate resources. Because so few local adults speak Portuguese, the national language of instruction, we added a year of preschool during which students were taught the language.

The results revealed even larger learning gains than those observed in The Gambia. After four years of the intervention, 60 percent of children in intervention villages were able to read “fluently with comprehension,” a standard measure of literacy derived from these gold-standard

tests. In control villages, less than one percent of children displayed such skills. Further, the end-line reading and math skills of the students who participated were similar to national averages in far wealthier countries, including the Philippines and several countries in Latin America.

Achieving these gains, however, required extensive resources. Both interventions cost more than \$200 per child per year – an amount similar to the total per-child primary educational expenditure in each country – but were nonetheless highly cost-efficient, with benefit-cost ratios of 1.5 and 3.1 in The Gambia and Guinea Bissau, respectively. These results underscore the key message of the work: It is possible to achieve far greater learning gains in these areas than previously imagined, but doing so entails increasing the resources devoted to the problem.

Importantly, conducting this research required extensive amounts of time, resources, and energy. In addition to data analysis and manuscript composition, it involved on-the-ground information gathering, operations planning, fundraising, and design of pre-analysis plans, as well as logistical and project management spanning five years and, for me, over six months in-country.

These studies have more authors than is customary in economics; our team made a deliberate choice to recognize local collaborators and elevate the position of historically excluded voices in this literature. I led the conception, design, evaluation, and write-up of the work, and this is reflected in my status as first author and co-first author, respectively, on the two papers.

In an earlier publication, “The Support to Rural India’s Public Education System (STRIPES) Trial: A Cluster Randomised Controlled Trial of Supplementary Teaching, Learning Material and Material Support” (*PLoS ONE*, 2013), colleagues and I report a precursor study in which we conducted an RCT to evaluate an educational intervention designed by a local Indian NGO using para teachers to deliver remedial, after-school education. We found that the intervention raised test scores of primary-aged children in rural India by 0.75 standard deviations.

I have also conducted studies of bundled interventions in health and health education, partnering with local NGOs and leveraging their hard-won insights from decades of on-the-ground experience. In “The CHAMPION Trial: Community Health and Medical Provision: Impact on Neonates” (*PLoS Medicine*, 2017), my coauthors and I report on an RCT conducted in 464 villages in rural India, evaluating a bundled intervention designed to reduce neonatal mortality via health education provided by local workers and partnerships with private hospitals. Here too, the motivation for bundling interventions was the belief that the simultaneous improvement of multiple components – in this case, health outreach, knowledge-building, and provision methods – is necessary to achieve real change. After three years, neonatal mortality was 25 percent lower in intervention villages than in controls, and both health knowledge and care-seeking increased substantially in intervention villages, indicating strong educational and behavioral impacts. Based on these results, private donors funded an additional three years of rollout in all project villages. Two national Indian newspapers, *The Hindu* and *The Times of India*, reported on the work.

The education and outreach model used in this study was pioneered by a rural Indian NGO operating since 1970. In “A Comparative Study to Assess the Lasting Impact of a Long-Running Community-Based Primary Health Care Programme on Under-5 Mortality in Jamkhed, India” (*Bulletin of the World Health Organization*, 2010), colleagues and I show that child mortality is 30 percent lower in the villages where the charity worked than in a synthetic control group of nearby villages. Moreover, women in these villages also demonstrate greater health knowledge.

Finally, I have studied the economics of education in very low-income contexts at the macro level by assessing the potential of national education policies to address inequality. In “Does the Duration of Primary Education Matter? Evaluating the Consequences of a Large Chinese Policy

Experiment” (*Economics of Education Review*, 2019), my coauthor and I study a national policy that extended the length of primary school from five to six years to offer students an extra year to master the curriculum. We collected archival data from over 1,000 primary documents to determine the implementation date in each locality, and matched these data to Chinese census data on educational attainment, labor force participation, and earnings. We found that the policy, as intended, was massively redistributive toward less-educated individuals, generating large earning gains (roughly 10 percent per year) among those who did not advance to high school, and little to no gains for others. The popular economics blog *Marginal Revolution* reported on our findings.

Taken together, my work on this topic has transformed perceptions of the maximum possible learning gains that children can achieve in remote, low-income settings, and has provided valuable evaluation data on several potentially high-leverage policy options for reducing global inequality in education outcomes.

### *Topic 2: The economics of beliefs and information in education*

During the years I worked with child-focused NGOs in China and India, the potential for beliefs to shape lives – an important focus of educational psychology and child development<sup>10,11</sup> – appeared often, and across a wide range of settings. In the second topic of my research program, I work to understand how information, both correct and incorrect, contributes to inequality in the formation of human capital. This work draws heavily on insights from the economics of beliefs and information, and from decades of psychology research on child development<sup>11–13</sup>.

Societal stereotypes – beliefs that certain groups, such as those defined by gender or ethnicity, are inherently inferior to others – are a key source of information that children process to understand the world and their place in it. In an ongoing series of studies, I examine how gender stereotypes persist across generations, measure their negative consequences for students, and evaluate policies designed to weaken stereotypes and reverse historical patterns of exclusion.

In “Gendered Beliefs About Math Ability Transmit Across Generations Through Peers” (*Nature Human Behaviour*, 2022), my coauthor and I examine how beliefs about innate gender differences in ability are transmitted across individuals and generations, and how this impacts academic performance. We study the intergenerational transmission of the belief that men are innately superior to women in the study of mathematics. Because this problem is hard to study using normal causal inference – children cannot be randomized to parents, for example – we instead use the random assignment of children to classes within Chinese middle schools, which generates random variation in the proportion of a child’s peers whose parents hold this belief (as measured in surveys). This study design allows us to causally estimate the intergenerational transmission of the belief via peers. We find that an increase in the proportion of classmates with parents who hold the focal belief significantly increases the likelihood that the child holds the belief. The results also show that for both girls and boys, there is greater belief transmission from same-gender peers whose parents hold the belief than from their opposite-gender counterparts, consistent with the notion of “homophily,” or people associating with, and learning more from, similar others. Finally, we find that this exposure affects learning, generating gains for boys and losses for girls in their performance on standardized math tests. The study highlights both an important channel for belief formation in this crucial stage of life, and the nuanced influence of the informational environments in which children grow up on their personal trajectories.

These results raise the issue of what parents, teachers, and others can do to counter the negative effects of exposure to gendered stereotypes. In “Child Beliefs, Societal Beliefs, and Teacher-Student Identity Match” (*Economics of Education Review*, 2020), my coauthor and I assess the extent to which the provision of shared-identity role models can reverse the gendered

harms from exposure to the belief that boys are inherently better than girls at learning math, particularly for vulnerable students. The paper advances prior literature on teacher-student identity match<sup>14-16</sup> using a theoretical model to show how this match works, and for whom. The model predicts that this match should be most helpful to students whose identity is targeted by such societal beliefs, and who perceive themselves to be of low ability in the subject targeted by the stereotype. Given the characteristics of the focal context, China, we focused on girls who believe they are bad at math (called “low-perceived-ability girls” in the paper). We find that being assigned a female math teacher dramatically decreased low-perceived-ability girls’ likelihood of perceiving math to be very difficult, and substantially increased their performance on standardized math tests. In contrast, as the model predicts, we find no gains in math from teacher-student identity match for boys, for girls who do not perceive themselves to be of low ability, or for any students in subjects not affected by pro-boy biases. The gains we measure for low-perceived-ability girls are larger than found for girls in previous work, which we argue is due to our focus on those students who are most likely to benefit from this match. Finally, we show that these gains are most likely driven by “role model” effects rather than other mechanisms, such as greater teacher attention.

This work led to a request to collaborate on a large project with the Guatemalan Ministry of Education and the World Bank. Specifically, I was asked to develop and evaluate an intervention to reduce the dropout rate of girls attending Guatemalan middle schools, operationalizing the insights from my prior work and related research on the economics of beliefs and gender. The project progressed from 2018 onward, culminating with plans to implement an RCT in over 300 schools starting in mid-2020. As described in my COVID-19 impact statement, the pandemic stopped the work and ultimately caused Guatemalan authorities to postpone the project indefinitely.

These three studies suggest many other places where stereotypes might spread through a community or society and exacerbate existing inequality. My time embedded with NGOs in China taught me that textbooks are a key site for the propagation of beliefs, about both gender roles and societal function more generally. Based on related studies in qualitative content analysis and quantitative economic history<sup>17,18</sup>, I identified a fruitful direction for the continuation of my research on information and belief transmission. In 2019, I won a National Academy of Education (NAEd)/Spencer Foundation Postdoctoral Fellowship to use new, computerized text analysis tools to measure the representation of gender in text. I chose to focus on textbooks in the United States, instead of China or other international contexts, based on my native understanding of the context, and because I could better identify content and parse the messages within.

After winning the NAEd/Spencer award, I combined forces with a colleague, Professor Anjali Adukia at the University of Chicago, who had independently begun work in a similar vein. We won a large grant from the Institute of Education Sciences (\$844,205) to support the development of computer-driven tools to analyze the representation of race and gender in both text and images. Our plan was to use these tools to measure levels of representation in textbooks from the state of Texas, and estimate how exposure to different levels of representation maps onto longer-term student outcomes. Unfortunately, we received the award in April 2020 as COVID-19 lockdowns were underway, and thus we were unable to access the targeted textbooks via inter-library loan as planned. We plan to return to this analysis in mid-2022 (WIP1). As described in my COVID-19 impact statement, we pivoted to analyzing books we could access digitally, and focused on improving the computer vision and Natural Language Processing (NLP) tools we planned to use. This pivot generated an unexpected but exciting new direction for the work.

In “What We Teach About Race and Gender: Representation in Images and Text of Children’s Books” (*NBER Working Paper 29123*; revise and resubmit at the *Quarterly Journal of*

*Economics*<sup>+</sup>), my colleagues and I describe our development of a set of novel tools for image analysis, and outline our efforts to use them in conjunction with frontier NLP tools to study the representation of race and gender in children’s literature. Our new tools classify the skin color of people shown in images in books, and the software suite we developed combines these new tools with existing computer vision and NLP tools to rapidly capture representations of race, gender, and age in images and text. We used this set of tools to analyze the text and images in a century’s worth of books recognized by the American Library Association’s Association for Library Service to Children, including those awarded the *Caldecott*, *Newbery*, *Coretta Scott King*, and *Rise* awards.

We find extensive inequality in the representation of people by race and gender in these books: White people and males are consistently overrepresented relative to their share of the U.S. population. Further, we uncover multiple sites of “hidden” messages. For example, women are more likely to be shown in images (seen) than represented in text (heard), consistent with the possibility of token, rather than substantive, inclusion. In addition, children are represented with lighter skin than adults, despite there being no definitive biological reason for such a difference. The findings were reported in the *Wall Street Journal*, *The 74 Million*, *Yahoo News*, and the *School Library Journal*, and *Edutopia* named the project one of the 10 most important education studies of 2021. We were invited to present the findings at two program meetings—education, and separately, culture and institutions—of the *National Bureau of Economic Research* (NBER).

In sum, my work on this topic has documented the important contribution of information and beliefs to inequality in educational outcomes, particularly by gender. My results have illuminated the processes underlying a key approach to helping those most harmed by negative gender stereotypes. Finally, this research has generated new tools for understanding the information about race, gender, and other identities contained in the materials used to teach children.

#### *Other methodological contributions*

In the course of my work, I have made several improvements to tools used by economists and other quantitative social scientists. In our research on measuring representation in books, my colleagues and I developed tools that, for example, can accurately measure the skin color of characters in both photos and illustrations. These tools will facilitate future research using text and images as data, including studies of how exposure to these texts and images shapes beliefs and behavior. Once the work has been published in peer-reviewed journals, we will make the tools available to the public, aiming for easy-to-use interfaces to ensure that both scholars and practitioners can use them in their own work.

My colleagues and I also developed improvements to a new NLP tool – word embeddings<sup>19</sup> – that can capture *how* people are represented in text, not just *whether* they appear. In its original version, the tool was unable to study intersectional identities, a crucial site of societal exclusion<sup>20</sup>. In “Category Embeddings Measure Intersectional Portrayals of Race and Gender” (WIP2), we report our solution to this limitation, introducing a new method for measuring how intersectional identities, such as those at the intersection of race and gender, are portrayed in text.

Another key tool in empirical microeconomics is the RCT. In “On the Minimization of Bias in Randomized Controlled Trials in Economics” (*World Bank Economic Review*, 2017), my coauthors and I generate a series of lessons to improve the way economists design, run, and report RCTs. Using 60 years of medical literature on the sources of bias in RCTs in medicine, we identify

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<sup>+</sup> In a previous version of this document, the paper was listed as *reject and resubmit* (equivalent to a weak R&R). After a revision, resubmission, and new round of reviews, it was upgraded to *revise and resubmit* on 9/5/2022. The paper was also solicited by an editor at another “top 5” economics journal, the *Review of Economic Studies*.

key lessons about how the risk of bias from problems with selection, unblinding, attrition, and reporting is linked to exaggerated estimates of treatment effects<sup>21</sup>. We develop a tool to identify risk of bias, assess the extent of this risk in RCTs published between 2001 and 2011 in a set of top economics journals, and offer recommendations for minimizing this risk in future work. The Berkeley Initiative for Transparency in the Social Sciences, a leader in this field, invited us to summarize our findings on its blog and participate in its annual conferences on research transparency. The paper was an early contributor to efforts to standardize practices in conduct, analysis, and reporting of RCTs in economics, resulting in key policy changes in journals and practice; for example, in line with our recommendations, in 2018 the *American Economic Review* began requiring that papers reporting RCTs must log the study in a registry prior to submission.

My research to date has garnered national and international recognition. Nationally, I was named a 2019 Emerging Education Policy Scholar, one of a select group of scholars chosen annually to participate in trainings on how to maximize the policy impact of their research. Internationally, I was one of 13 scholars and practitioners chosen to serve on the advisory board for the Learning at Scale Research Group at the Center for Global Development, the premier think tank in the analysis of economic development. I am also one of eight international experts on the advisory board for The Luminos Fund, a charity working to raise literacy and numeracy among out-of-school children in developing countries. In the academic sphere, I was recently selected as a research fellow at the IZA Institute of Labor Economics in Bonn, Germany, and, separately, as affiliated faculty of the Abdul Latif Jameel Poverty Action Lab (J-PAL) at MIT.

#### *Work in progress and directions for future research*

In the years to come, I will continue to advance the two core topics in my research program while targeting “upstream” policy decisions to maximize the work’s positive human impact. Here I describe my pipeline projects that embody these goals and outline my plans for future work.

A large portion of my pipeline work builds on *Topic 2: The economics of beliefs and information in education*. In one project (WIP3), I am partnering with Adukia and a research lab at the University of Texas at Austin that facilitates applied research leveraging learning technology platforms. This research will experimentally vary the levels of student-content identity match in curricular materials to estimate how closer matches in curriculum affect three outcomes: students’ beliefs about themselves and others, effort in school-related activities, and academic performance.

Other work in progress combines insights from Topics 1 and 2. In “When Bootstraps Aren’t Enough: Demand, Supply, and Learning in a Very Low-income Context” (*EdWorkingPaper 21-473*), a graduate student and I study how beliefs and education policy interact to shape educational outcomes in low-income international contexts. The paper addresses two core questions: 1) how much learning can families in rural Gambia achieve on their own by investing in their child’s education? and 2) how much more can these families achieve for their children when complementary inputs, such as adequate school resources, are also present? We show that many families seek to provide a better future for their children by investing heavily in their children’s education, despite the steep financial cost of this strategy. We demonstrate that this demand can map onto large learning gains, but only in the presence of educational supply that is of adequate quality. We were invited to present this work at the spring 2022 meeting of the NBER Program on Children, after which we will submit it to the *American Economic Journal: Applied Economics*.

Another current project builds on my previous research on how beliefs and information shape educational outcomes. In “Signals, Information, and the Value of College Names” (forthcoming in the *Review of Economics and Statistics*), my coauthor and I bring insights from my prior work to bear on inequality in higher education. We study the widespread phenomenon of colleges

changing their names to signal higher quality in hopes of attracting better applicants. Using lessons from the study of imperfect information and a variety of empirical methods – difference-in-differences analysis of administrative data, a large resume audit study, and sentiment analysis of scraped text data from discussion boards – we show that name changes have real impacts on college choice, particularly among those with little information about their chosen colleges; further, text data reveal many students who report being misled by the new names. I presented this at the fall 2021 NBER Education Program meetings.

In “Motivating Teacher Effort in Kenyan Private Schools” (WIP4), colleagues and I evaluate whether an intervention targeting teacher beliefs about the impact of their effort can change teacher behavior and, in turn, student learning outcomes. We conducted an RCT in more than 300 low-cost private schools in urban and rural areas of Kenya. One group of teachers received messages highlighting the connection between teacher effort and student learning, while the other group received messages highlighting the connection between effort and the teacher’s professional advancement. High-frequency administrative data show a precise zero effect of either type of messaging, or their combination, on teacher effort and student learning. This finding illustrates the limitations of using beliefs as the sole lever for addressing educational inequality in such contexts.

Existing inequalities are likely to persist and even expand in the absence of deliberate efforts to reverse them. Looking further into the future, I plan to focus my research program on efforts to develop and evaluate potentially high-impact policies to reverse two crucial sites of inequality: 1) disparities from historical marginalization by gender, race, and identities at the intersection of the two, and 2) disparities between low-income countries and the rest of the world. For example, I hope to scale up my work on representation in curricular materials, working directly with publishers and content creators to design and evaluate equitably representative and maximally beneficial content. I would also like to study ambitious national policies that attempt to reverse historical patterns of exclusion by identity group. One pipeline project (WIP5) works toward this goal by evaluating the impact of a national policy in China that seeks to address and reverse gender inequality in senior STEM research roles, a particularly stubborn site for such inequality. This affirmative action policy dramatically increased public scientific funding for early-career female scientists. Using a novel dataset from a sample of over 26,000 Chinese STEM faculty, my coauthor and I will assess whether, and to what extent, this policy reduced gender inequality in these fields, drawing lessons for similar policy targeting inequality in STEM in a wide range of contexts. Finally, I have plans to study the generalizability of the transformative learning gains at the primary level produced by bundled interventions in pockets of extreme poverty. Specifically, I plan to test whether, with proper adaptation, these learning gains can be achieved in other contexts, in secondary school, and beyond. I will fund this work with support from private donors and competitive funding from two sources: national agencies, such as IES and NSF, both of which have previously supported my research, and large foundations, such as the Gates, Russell Sage, and Arnold Foundations, two of which I have engaged in preliminary discussions.

### **Teaching and advisement**

My teaching philosophy is that learning must draw on the wealth of all participants’ lived experiences to date. My teaching and advisement draw heavily from both my own research and students’ expressed interests and backgrounds. I create greater engagement and learning by leveraging my fieldwork and professional experiences working to reduce global inequality in educational outcomes, and by relating these experiences to the potential role students could play in these efforts as professionals. In my time at Teachers College, I have taught four separate courses and an independent study class with a substantial enrollment. I teach two core courses in



the MA program: *Microeconomic Theory with Applications to Education* and *Education and Economic Development*. In *Microeconomic Theory*, I teach students to use the key tools of microeconomics that can be applied to education policy discussions and guide them through exercises that illustrate real-world applications, for example, what economics says about the social externalities created by free primary school. I created the *Education and Economic Development* course based on my expertise in and passion for education in developing countries. The course explores the persistence of low education levels in the developing world, progress in raising these education levels through deliberate intervention and market responses, and ways for students to become professionally involved in this progress. I also teach a PhD-level course, *Education and Economic Development: Advanced Topics*. The course began as an independent study in response to demand from students, taught in spring 2019 above and beyond my course load; I taught the course formally in the spring of 2021. In this course, students critically read recent research (published articles, working papers, and PhD dissertations) to understand how research is crafted. Over the course of the semester, I help students generate a workable plan for implementing their own research ideas. Finally, I teach the *Workshop in the Economics of Education*, a linchpin in the PhD program. The course teaches students how to design, execute, present, and critique cutting-edge research in the field. It also exposes students to the frontiers of this research to inform their substantive and methodological choices. My teaching ratings are strong across these courses – I have no mean rating on any item lower than 4.0 out of 5; my average rating is over 4.6 out of 5.

I have also served as an advisor to more than 20 MA students and the primary advisor to 11 PhD students within my program. Seven of these PhD students are currently completing their doctorates. The others graduated and found gainful employment: two obtained tenure-track jobs and another won a prestigious post-doctoral fellowship funded by the NIH. I see the training of my primary advisees as one of my key duties; I guide each of them in the process of crafting research ideas and, when opportunity allows, I coauthor work with them (details of student coauthors listed in CV). I have also served on the dissertation committees of 13 other PhD students, eight from my home program and five from other departments. In addition, I have provided regular advisement to PhD students in programs including International and Transcultural Studies, Statistics, Health Education, Psychology, and Economics (Columbia University GSAS).

### Service

My service aligns with my research interests. In my department, I facilitate students' development as scholars and practitioners, particularly in the fields that align most closely with my own research. I also work to raise the stature of these fields within the university and beyond, and to elevate the contribution of historically excluded groups within the profession. Finally, I take every opportunity possible to ensure that my work is incorporated into both policy and practice.

*Program, department, and college:* Within my program, I have contributed substantially to the development of the PhD program. I crafted a new 30-page guidebook for PhD students, focused on navigating the challenges of the PhD, developing research projects, and succeeding on the job market; I also meet with students on an as-needed basis to provide explicit guidance on each stage of the process. Within the department, I have contributed to department-level antiracist reform of syllabi and course offerings as a member of the department's anti-racism curriculum and teaching working group and I helped present the group's findings to the department. I then led a related workshop at the college's annual *Reimagining Education Summer Institute*. I have served on five committees crucial to college-level functioning: the Faculty Research Advisory Committee; the Program Adjacencies Committee; the committee for selecting the Dean's Grant for Faculty; the Campus Security Committee; and the Faculty Salary Committee, for which I co-wrote an updated

and expanded proposal to increase professional development funds that was approved pending appropriate funding by the provost. I also serve as an alternate to the IRB. Finally, as enumerated in my bulleted service dossier, I have participated in several college-wide events as a representative of the college and have served on selection committees for numerous college-level awards.

*University:* I have several service roles in Columbia-wide organizations, raising the profile of the college in the university while also forging connections to resources that support my intellectual agenda. As a faculty affiliate of the Center for Development Economics and Policy at the Columbia School of International and Public Affairs, I co-organize the center's development economics colloquium, contribute to the working paper series, and help advise students. As a faculty affiliate at the Weatherhead East Asian Institute (WEAI), I helped our then-PhD student Anna Wen earn a competitive \$30,000 fellowship from WEAI, and as an affiliate of the Columbia Population Research Center, I contribute to their annual conferences and regular research seminars.

*Profession:* I have been a referee for top general-interest journals in economics, including the *American Economic Review*, *Journal of Political Economy*, *Quarterly Journal of Economics*, *American Economic Journal: Applied Economics*, *American Economic Journal: Economic Policy*, and *Review of Economics and Statistics*. I also regularly conduct peer reviews for top general-interest journals in the social sciences such as *Nature Human Behaviour* and *Science Advances* and for top field journals in multiple fields related to my research, such as labor economics, the economics of education, and development economics. In the last three years, I have written 15-25 reviews per year. In recognition of the quality of my work, I was asked to serve on the editorial board of the *Journal of Research on Educational Effectiveness* (term 2021-22). In these leadership positions, I work to elevate research on education in, and conducted by those from, low-income countries. In 2019, I chaired the "Education in Global Contexts" section of the Society for Research on Educational Effectiveness (SREE) Annual Conference. I also served as the 2021-22 co-chair of the Scholars of Education in Developing Countries community group at the Association for Education Finance and Policy (AEFP). Finally, I mentor PhD students from historically excluded minorities in the economics profession via the Association for Mentoring in Economics.

*Policy and practice:* I have advised governments and international agencies on education, development, and evaluation measures. I presented my work on bias in RCTs to the U.S. and Ecuadorian governments, my work on child mortality to government officials from the Indian state of Andhra Pradesh, and my work on bundled interventions in primary education to the Gambian Permanent Secretary of Education. I also contributed, as an invited participant, to a workshop informing UNICEF's Generation 2030 Model, providing statistical and conceptual input on the development of one of UNICEF's flagship products, and contributed to the World Bank's 2018 World Development Report, "Learning to Realize Education's Promise."

### **Conclusion**

My time since arriving at Teachers College has been highly productive, despite the profound disruption from the COVID-19 pandemic, and deeply rewarding. I am sustained by the impacts my work has had to date: thousands of children in rural parts of very low-income countries learning how to read and figure, in contexts where these skills were almost certainly otherwise beyond reach; a fundamental change in the understanding of the maximum possible learning gains in such contexts; deeper comprehension of the role of beliefs and information in shaping educational outcomes and inequality; and the introduction of new tools to measure the representation of race and gender in the material used to teach children. In the coming decade, I hope to build on this foundation, producing an even more policy-active body of research, teaching, and service targeted at generating dramatic reductions in global inequality in educational and economic outcomes.

## **References to my scholarly output (in reverse chronological order)**

### *Published work*

1. Alex Eble and Feng Hu “Signals, Information, and the Value of College Names” *EdWorkingPaper Number 20-329* (forthcoming in the *Review of Economics and Statistics*)
2. Alex Eble and Feng Hu “Gendered Beliefs About Math Ability Transmit Across Generations Through Children’s Peers” (2022). *Nature Human Behaviour* doi: s41562-022-01331-9
3. \*Ila Fazio<sup>Ⓣ</sup>, Alex Eble<sup>Ⓣ</sup>, Robin L. Lumsdaine, Peter Boone, Baboucarr Bouy, Jenny Hsieh, Chitra Jayanty, Simon Johnson, and Ana Filipa Silva (2021). “Large Learning Gains in Pockets of Extreme Poverty: Experimental Evidence from Guinea Bissau” *Journal of Public Economics* 199: 104385
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\* Indicates that order of authorship reflects size of contribution, with largest contribution coming first. Authorship on articles without asterisk is in the alphabetical order of authors’ last names.

<sup>Ⓣ</sup> Indicates that these two authors share “co-first author” status; order of co-first authors randomized.

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*Papers with initial journal decisions*

11. Anjali Adukia, Alex Eble, Emileigh Harrison, Hakizumwami Birali Runesha, and Teodora Tsasz “What We Teach about Race and Gender: Representation in Images and Text of Children’s Books” *NBER Working Paper 29123* (reject and resubmit at the *Quarterly Journal of Economics*; also solicited by the editor for submission at the *Review of Economic Studies*)

*Working papers*

12. Alex Eble and Maya Escueta<sup>‡</sup> “When Bootstraps Aren’t Enough: Demand, Supply, and Learning in a Very Low-income Context” *CDEP-CGEG Working Paper Number 99*

*Work in progress (WIP)*

1. Anjali Adukia, Alex Eble, and Emileigh Harrison “What Difference Can Textbooks Make in Achievement Gaps? Exploring Early Exposure to Messages About Gender and Race”
2. Anjali Adukia, Callista Christ, Anjali Das, Alex Eble, Emileigh Harrison, and Hakizumwami Birali Runesha “Category Embeddings Measure Intersectional Portrayals of Race and Gender”
3. Anjali Adukia, Peter Bergman, and Alex Eble “How Student-Content Identity Match Affects Beliefs, Effort, and Learning Outcomes: Evidence from Large Online Learning Platforms”
4. Alex Eble, Ifeatu Oliobi<sup>‡</sup>, and Tim Sullivan “Motivating Teacher Effort in Kenyan Private Schools”
5. Alex Eble and Feng Hu “Can Affirmative Action Remedy Gender Inequality in Science? Evidence from Early Career Funding”

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<sup>‡</sup> Indicates graduate student co-author.

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