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Let the Research Show

Developing the Research to Improve Early Childhood Teacher Preparation

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Introduction and Background

Early childhood educators play a crucial role in supporting the development of our nation's youngest children. Research shows that the quality of interactions between adults and children is one of the strongest predictors of children's learning in early childhood classrooms,[1] and that the difference between a more and less effective kindergarten teacher can have lifelong effects on children's learning and earnings.[2]

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And yet, despite their crucial importance, early childhood teachers are undervalued. Their compensation reflects that: Child care workers earn, on average, $10.72 per hour [3] — less than animal care workers[4] and locker room attendants.[5] As a result, more than half of early educators are on some kind of public assistance.[6] At the same time, education requirements for early educators are low — and journalists, policymakers,[7] and analysts[8] have questioned the need to raise them. Taken together, these facts suggests that the work of early educators is perceived to be low-skill, deserving of low pay, and requiring little knowledge or education. But that perception is unequivocally wrong.

Over the past 20 years, policymakers and advocates have sought to elevate the early childhood profession by increasing credential requirements and pay for early educators — at least in public settings. Thirty-four state pre-k programs now require pre-k teachers to hold a bachelor's degree and certification, though not necessarily specializing in early childhood education,[9] and the federal Head Start program requires half of all lead Head Start teachers to have a bachelor's degree. And 16 states require that pre-k teachers in state-funded pre-k programs are paid on par with kindergarten teachers.[10]

Other efforts, particularly over the past three years, have drawn increased attention to the importance of early educators and sparked efforts to elevate their preparation and prestige. A 2015 report from the National Academies, *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation*, reviewed the research on early childhood teaching, identified key skills and competencies that early childhood educators need across the 0-8 continuum, and called for raising credentials and compensation of early childhood educators to reflect the importance and complexity of their work — including requiring a bachelor's degree for all lead teachers of children 0–8.[11] In early 2018, New York Times and Washington Post magazines ran long articles regarding the training and pay of early childhood workers. And a slew of policy, advocacy, and philanthropic efforts at the local, state, and national levels are now working to elevate the qualifications, professional prestige, and pay of early childhood workers.[12] The most notable of these is the National Association for the Education of Young Children's Power to the Profession Initiative. Power to the Profession brings together representatives of the major professional associations and organizations representing the early childhood field to define the early childhood profession by establishing a unifying framework for career pathways, knowledge, competencies, qualifications, standards, and compensation.[13]

These various initiatives have differing agendas, goals, and approaches. And there is disagreement in the field about what credentials early educators need. While the research is clear that teachers with *some* postsecondary training in early childhood education are more effective than teachers with no such formal training, evidence is much less clear when it comes to the *specific* credentials that early childhood educators need to be effective.[14]

If public policies demand that early childhood educators earn degrees, it is incumbent to ensure that this preparation actually helps them improve their practice.

One thing is clear, however: If public policies demand that early childhood educators earn degrees, it is incumbent to ensure that this preparation actually helps them improve their practice. Particularly for current early educators, achieving additional credentials requires a good deal of money and time that few have. That burden must be worth the cost.

Alarmingly, we don't know if the burden is indeed worth the cost. There is little research on the quality of existing preparation programs. And to make matters worse, we have virtually no idea what existing preparation programs for early educators look like. We can't say with certainty the type of content that early educators complete within these programs or what practices and strategies they learn. Without information on program content, we can't develop research on program effectiveness. That's a problem.

To ensure that increased qualifications actually translate into better-prepared teachers and better results for kids, the early childhood field needs ways to identify existing preparation programs and practices that equip early childhood educators with the skills and knowledge to teach young children effectively. It also needs to be able to develop new models of preparation that are more effective — both in supporting early educators to successful completion and in preparing them to be effective with young children — than much of what exists today.

A combination of thoughtful research and a policy environment that supports targeted innovations in the field can make that possible. Specifically, the current attention to early childhood educator competencies, credentials, and compensation creates an opportunity for strategic research and policymaking to build our knowledge base on what works in preparing early childhood educators and to improve the quality and results of early educator preparation programs. Further, because many early childhood educators complete some type of postsecondary training, whether or not they earn a credential or degree, improvements in preparation programs have the potential to drive improvement in early learning quality and outcomes that go beyond higher credentials.

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This report outlines a research agenda to build the knowledge base around what works in early childhood educator preparation and catalyze evidence-based innovations and pilots that can further expand our knowledge and offer new approaches to improve both the quality of preparation and its accessibility for early educators. At the same time, this report makes the case for a policy environment in which both of these things are possible.

In doing so, it builds on a previous report, by Bellwether and New America, that identified the policy and practice changes needed to increase the number of pre-k teachers with bachelor's degrees and early childhood training while maintaining diversity in the pre-k workforce. While that paper highlighted a variety of promising models and approaches, it also noted a need for additional research and experimentation to identify "More strategies to improve the quality of bachelor's degree and teacher preparation programs for pre-K teachers," as well as the need for strategies to "motivate higher education institutions to revamp their programs."[15] This paper offers recommendations for how the field can address these needs.

At the same time, this paper also builds on prior Bellwether work focused on improving the preparation of K–12 public school teachers. In a 2016 report, Melissa King and I argued that most existing research on K–12 teacher preparation provides little practical guidance on the specific preparation practices that lead to more effective classroom teaching; we outlined an ambitious research agenda for building the knowledge base on K–12 teacher preparation.[16] Although the early childhood workforce and preparation landscape differ from those of K–12 public school teachers in key ways — discussed further below — the lack of research useful for improving program design is common across both early childhood and K–12 teacher preparation. By exploring how the ideas outlined in this previous work can apply to the early childhood field, this paper seeks to help bridge the divide between conversations about early childhood and K–12 teacher preparation, and spur innovative thinking in both spheres.

This paper begins by reviewing the existing research literature on early childhood educator preparation, identifying what is currently known as well as the major gaps in the existing knowledge base. Then it addresses the importance of competencies as the basis for improving preparation of early childhood educators and outlines an agenda for research and practice-based innovation to identify, pilot, and test preparation practices and models that support early educators in mastering those competencies. Finally, it offers recommendations for policy and practice steps to realize this agenda.

To be sure, there are other, less tangible — but equally valuable — benefits to higher degree attainment, such as building educators' understanding of their roles as professionals and elevating the prestige of the profession more generally. But to truly realize the potential of early childhood education, we must prioritize teachers and their role in the classroom.

Research Does Not Provide the Information Preparation Programs Need to Improve

To date, the vast majority of research on early educator preparation has focused on educators' degrees and credentials. This research spurred policy changes that increased preparation and training expectations in publicly funded preschool programs and, more recently, has stimulated rich debate in the field about the qualifications that early childhood educators actually need and the trade-offs involved in raising higher education requirements for them.

Research tells us very little about the quality of preparation programs that policy has increasingly required early educators to complete.

The problem with this research, however, is that it tells us very little about the quality of the preparation programs that policy has increasingly required early educators to complete. In fact, we have hardly any information about what these degree programs even look like; the practices, processes, and structures of existing preparation programs are largely unknown. As a result, while we have some information about the relationship between educators' education levels and their teaching practices, we don't actually know the mechanism through which additional education contributes to improved practice. It's possible that completing additional coursework in early childhood makes people better teachers. But it's also possible that postsecondary education and degrees are proxies for other characteristics or experiences that actually lead to improved practice. In other words, this research is essentially useless for preparation programs; it offers no lessons on what preparation programs can do to improve their program design or better prepare teachers. What's more, the existing research can't help policymakers seeking to set standards for quality in early childhood teacher preparation programs.

What is potentially promising, however, is the large body of research on early educators' in-service professional development. This research points to several strategies and practices that may lead to increased teacher effectiveness. As such, professional development research offers lessons for preparation programs that want to improve their impact on teachers.

The Bulk of Existing Research Focuses on the Effect of Early Educator Degree Attainment on Quality

Research on the types of degrees that teachers need largely focuses on the effect that early educators' credentials or formal education have on classroom and teaching quality as well as child outcomes. Older research looked at this relationship between education and quality along a continuum, while recent studies have focused on whether early educators should have bachelor's degrees.

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Research in the 1990s and early 2000s demonstrated compelling evidence that preschool teachers with bachelor's degrees are more effective than educators with only a high school degree. This research has been discussed at length,[17] but it is worth reviewing several key studies. A 1990 study, for example, led by Marcy Whitebook, found that the amount of formal education obtained by a teacher is the strongest predictor of high-quality teaching practice. Teaching staff provided more sensitive and appropriate caregiving if they had more years of formal education, including early childhood specific training in college. A 2005 study of classroom quality, measured by the Early Childhood Environmental Rating Scale (ECERS) and the Infant and Toddler Environmental Rating Scale (ITERS), showed that educators with a bachelor's degree in early childhood education had higher-quality classrooms than educators without formal education; the study further showed that specialized training in early childhood education was a better predictor of classroom quality than a bachelor's degree alone.[18]

This research convinced many in the field that early educators should have bachelor's degrees — at least those who work in publicly funded preschool programs. As of 2017, 34 state preschool programs required lead teachers to have a bachelor's degree in early childhood education.[19] Federal and local policies have also codified these requirements: The 2007 Head Start Act, for example, required that 50 percent of Head Start lead preschool teachers nationally must have a bachelor's degree by 2013. It's worth noting, however, that this requirement does not extend to Early Head Start teachers, nor does it require that lead teachers' degrees be in early childhood education — child development or "equivalent coursework" are also acceptable specializations.[20] Other programs have focused more on early childhood background; the Seattle Preschool Program, for example, requires that all lead and assistant teachers, directors, and coaches have a bachelor's degree with specialized knowledge in early childhood education.[21]

Recent research suggests that the relationship between education and effectiveness is not as straightforward as once thought.

More recent research, however, suggests that the relationship between education and effectiveness is not as straightforward as was once thought. Research shows that early educators with a bachelor's degree are not guaranteed to be more effective than those without. In 2007, for example, Early et al. accessed the original data sets from seven studies and ran slightly different analyses, focusing on the effect of teacher education/major on classroom quality and children's academic gains. Very few of their analyses showed a positive relationship, and several predicted a negative relationship between higher degree attainment and quality.[22] Similarly, another Early et al. study from 2006 largely found no associations between teacher education, major, or credentials and either classroom quality or child academic gains.[23]

This research prompted discussions within the field — ongoing today and still undecided — about how to best interpret and act on both the research-based and practical arguments in favor of requiring bachelor's degrees for early educators. Several researchers and analysts hypothesized that variation — and perceived lack of quality — in early childhood educator preparation programs might be an explanation for the findings.[24] We don't know the quality of the programs that the studied teachers completed or, in some cases, even the type of degrees they held. We do know, however, that there is wide variation in the quality and content of early childhood teacher preparation programs.[25]

Degree Attainment Research Also Focused on the Barriers and Challenges to Completion and Access

The other focus of early childhood teacher preparation research has been on the barriers and challenges that current early educators face in completing degree requirements, and the strategies that can help them do so.

As more states and the federal government enact policies requiring early childhood educators to complete additional higher education, there's increased interest in how to support people in earning these degrees. Current early educators are incentivized — and, in some cases, required — to increase their qualifications via degree attainment. But early educators' current reality makes that prohibitively difficult: Salaries are low,[26] leading to enrollment in public assistance programs nearly double the rate of the broader workforce.[27] Many have children in their home or are single mothers,[28] can only enroll in programs part time because they work full time,[29] or have limited English proficiency.[30]

There are further barriers once educators enroll in degree programs. For example, educators' previous coursework, such as on-the-job professional development and experience or course credit from two-year degree programs, is often not recognized by four-year colleges. This leads to duplicative coursework, increasing the time and cost of completion. Educators also struggle to attend daytime classes, meet practicum requirements, and map out and complete their transition from two- to four-year degree programs.

In response to these challenges, a large body of analyses examines and proposes high-leverage strategies to better support current early educators to complete degree requirements.

Additionally, some states and programs have created developed scholarship and incentive programs to financially support educators in completing degree programs. The Child Care WAGE$ Project, for example, provides salary stipends to teachers in exchange for completing higher-degree requirements. Educators continue to receive these salary stipends every six months for as long as they stay with the same employer.[31] In 2017, the WAGE$ Project provided income supplements to more than 5,000 participants, 60 percent of whom earned less than $12 an hour.[32]

The Center for the Study of Child Care Employment, for example, analyzed four counties' efforts to increase bachelor's degree access and completion for early educators currently working in the field. The researchers interviewed 85 educators over five years as they completed bachelor's degree requirements. Interview data supported both the aforementioned strategies: Study participants identified structural supports — such as financial aid and flexible class schedules — as integral to their successful completion of the program.[33]

The existing research on these approaches is largely qualitative or descriptive, as opposed to the more rigorous quasi-experimental studies that use statistical methods and large data sets to analyze relationships between teacher credentials and other factors. But it does provide some evidence about strategies that can help early childhood educators earn credentials.

Neither of These Bodies of Research Provides Information on the Content or Quality of Preparation Programs

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The Center for the Study of Child Care Employment (CSCCE) and the National Council on Teacher Quality (NCTQ) have led two efforts to build our understanding of the content of teacher preparation programs. Since 2013, CSCCE inventoried the early childhood-related offerings in preparation programs in eight states. It cataloged the types of degree and early childhood certificates offered, for example, as well as instruction delivery methods and strategies to assess candidates' competencies.[34] Similarly, in 2016, the National Council on Teacher Quality defined its own set of quality standards for early childhood educator preparation programs and analyzed whether 100 programs across 29 states met those standards.[35] These analyses build the field's knowledge in helpful ways: They describe the landscape of existing educator preparation, including specifics about program content and design, and assess the quality of programs based on factors that they've determined reflect

what high-quality programs' content and design should look like. This work is particularly important, given the pull that state teacher licensure requirements make on preparation programs. But it's crucial to note that the factors both these studies look at mirror "best practice" knowledge and ideas about what early childhood teachers need to know rather than actual evidence about what effective teacher preparation programs look like.

Further, there is basically no research on the outcomes of teacher preparation in terms of changes in teacher practice or children's learning. As discussed, a few studies have examined the effect of teachers' degrees on children's learning outcomes, but none connect specific program practices to those outcomes.

The challenge, in part, is that there is no clear consensus within the field about how to best define and measure teacher effectiveness, specifically when measured using young children's learning outcomes. Several measures, such as the Classroom Assessment Scoring System (CLASS), are commonly used for many teachers in state pre-k programs and Head Start, and could, theoretically, be used as a measure of preparation program outcomes. But very few preparation programs use these tools to track the development or skills of candidates in their programs and have little access to data on CLASS scores of graduates working in the field.

Taken together, these bodies of research offer little evidence-based information on what an effective early educator preparation program looks like. Additionally, even though we don't know much about the content or quality of existing preparation options, the research and data we do have suggests there is a lot of variation in what happens in teacher prep programs, the content they cover, and their requirements. As a result, policymakers seeking to raise standards for early childhood educators' preparation — and the types of programs that meet these requirements — are largely flying blind.

Without research on how high-quality programs operate — including specific components such as content, practices, and expectations for future teachers — preparation programs lack the information they need to improve. They don't know what programs are effective or why, and so cannot learn from their own or other programs' practices.

There is extensive literature on teacher professional development in early childhood settings that may offer some lessons for pre-service preparation.

Research on Educators' In-Service Professional Development Offers Insight into What Works in Teacher Preparation

Despite the dearth of actionable research on early childhood teacher preparation, there is extensive literature on teacher professional development in early childhood settings that may offer some lessons for pre-service preparation. Given the varying, and often low, levels of pre-service preparation of early childhood educators, many efforts to improve the quality of early childhood teaching have instead focused on providing professional development to help existing early educators improve their knowledge and skills. Some of these professional development models have demonstrated effectiveness in improving the quality of early childhood teaching and learning results for children. Research has identified

a variety of practices and strategies that appear to contribute to positive results in early childhood educator professional development. Crucially, this research may offer lessons for ways pre-service preparation programs can better prepare early educator candidates.

Professional development for early childhood educators has larger impacts on practice when it has clear, specific objectives (as opposed to broad or general goals),[36] and when the duration and intensity of the professional development matches the content and goals of the professional development.[37] The most effective professional development interventions focus on practice and support teachers in integrating what they learn into their practice. Coaching, in which a trained coach (often a former experienced teacher) with both early learning expertise and adult learning skills provide individualized modeling and feedback to help teachers build skills and achieve specific goals for their practice, has demonstrated effectiveness in a variety of settings and models.[38] Some research also suggests that coaching models that combine skill-based coaching with knowledge-building resources or trainings may produce greater results than either training or coaching alone.[39]

Integration of observational tools and child assessments can also improve the effectiveness of professional development. Coaching or professional development that incorporates observational measures of classroom quality or teaching practices can also help teachers to improve their practice, provided the tools align with the skills the professional development seeks to build.[40] Similarly, professional development that incorporates aligned child assessments can help teachers understand how the skills they are building contribute to children's learning, track the results of their development, and inform coaches in providing feedback to teachers or targeting goals for growth and improvement.[41]

Finally, professional development is most effective when it is customized to the context or setting in which early childhood educators work. And there is some evidence that professional development interventions that engage groups of teachers from the same programs, or those that include leaders as well as teachers, may increase the likelihood that changes in practice will be sustained over time.[42]

The research on in-service professional development can serve as a jumping-off point for understanding what practices improve educators' knowledge and skills and, ultimately, the quality of pre-service early educator preparation.

This body of research on in-service professional development can serve as a jumping-off point for understanding what practices improve educators' knowledge and skills and, ultimately, the quality of pre-service early educator preparation. Not all of these features, however, are applicable to pre-service preparation programs. Most of the effective strategies have thus far only been tested in select in-service contexts and so should not be dropped into pre-service preparation programs without first being tested for effectiveness in those contexts. But these practices are promising, particularly given the dearth of evidence in pre-service preparation, and may have implications for the design of pre-service preparation programs that prepare teachers to teach young children effectively. And they're already happening in some places. EarlyEdU Alliance, for example, integrates practice-based coaching methodologies, which were developed for and have demonstrated effectiveness in in-service preparation, into pre-service coursework.

Sidebar

Practice-based Coaching from EarlyEdu Alliance

EarlyEdu Alliance is an innovative model that seeks to expand access to affordable, high-quality higher education coursework and bridge the gap between theory and practice to equip early educators with the skills they need.

EarlyEdu Alliance offers a set of early childhood courses grounded in research about effective early childhood teaching. Coursework is competency-based, meaning it prepares early educators to master specific competencies that are aligned to NAEYC competencies and clearly defined for each course, and practice-focused. All courses integrate video of effective classroom practice, as well as the Coaching Companion, a video-sharing and feedback app that allows students and instructors to share and discuss videos of their own practice in early childhood settings. By providing high-quality, already-developed course content and integrating the Coaching Companion, EarlyEdu Alliance's approach transforms the focus of the course instructor's role. Instead of creating and delivering instructional content, instructors become a job-embedded coach helping early childhood educators enrolled in degree programs integrate what they are learning in their own classrooms and improve their practice. In doing so, it incorporates lessons from extensive research on in-service professional development, training, and coaching models that result in improved early childhood teaching practices and customizes delivery for a post-secondary context.

EarlyEdu Alliance is operated by Cultivate Learning, a center within the University of Washington, but it is not itself a degree program or Institution of Higher Education (IHE). Rather, EarlyEdu Alliance courses are offered through a network of two- and four-year higher education institutions that have partnered with EarlyEdu Alliance to deliver their courses. This approach results in a highly scalable model for expanding access to high-quality postsecondary early childhood coursework. Currently, over 50 higher education institutions, and numerous state and local government and nonprofit agencies, are members of the EarlyEdu Alliance.

Members of EarlyEdu Alliance may offer just one or a few EarlyEdu Alliance courses, or the full set. Participating institutions receive access to the courses and supporting materials, which were developed with a combination of Head Start and philanthropic funding, free of charge. And courses are deliberately designed to use free resources rather than commercial textbooks, keeping down costs for participants. All courses are available for in-person delivery by member IHE faculty, and online versions of some courses are also available. Starting in 2018, several institutions are using EarlyEdu Alliance course resources to establish or expand online, competency-based early childhood degree programs. Through these approaches, participating institutions are making higher education coursework more accessible and, in some cases, more affordable, for early educators, and ensuring that what teachers learn in coursework makes a difference in their practice and results for children they work with.

Information on Early Educator Competencies Is a Key Lever for Improving Educator Preparation Programs

Another opportunity for improving educator preparation programs is the research on educator competencies — that is, the evidence and consensus on the standards for what early educators should know and be able to do to be effective.

Another opportunity for improving educator preparation programs is the research on educator competencies — that is, the evidence and consensus on the standards for what early educators should know and be able to do to be effective.

Currently, there is movement within the early childhood field to coalesce around a common set of competencies for early educators. This movement — Power to the Profession, led by the National Association for Education of Young Children — recognizes that aligning on what educators should know and be able to do is necessary for creating the systems and supports to improve the effectiveness of early educators and, commensurately, their compensation. These competencies are being developed based on research about how young children learn and what effective early childhood teaching looks like. This is an unprecedented undertaking: Historically, states, localities, and other networks have their own list of educator competencies that reflect their unique priorities and vision.

This convergence of multiple disparate competencies may have a substantial impact on how early educators are prepared. The right competencies can effectively serve as a picture of a preparation program's ideal outcome, helping to define what a high-quality preparation program looks like in a way that hasn't been done previously. With competencies defined as the end goal, preparation programs can work backward to map out the specific program components and practices that effectively prepare candidates to demonstrate mastery of individual or clusters of competencies.

Unfortunately, while this backward mapping works in theory, the existing research on educator competencies offers no information on what preparation program practices or content should provide lead educators to prepare them to demonstrate the ideal competencies once they enter the classroom. In other words, knowing what educators need to know and be able to do is not the same as knowing what preparation program practices teach them how to do those things. In this way, existing research has again proven to be useless for program design.

But there is also an opportunity here. The right educator competencies can be used to identify effective preparation programs: Effective preparation programs are those that prepare teachers who demonstrate these competencies. If we have agreed-upon competencies for what people should know and be able to do, then we can use that as a basis for defining a research agenda to learn which preparation program practices develop those knowledge and skills.

Future Research Should Fill in the Gaps Left by Existing Evidence

Ultimately, future research on early educator teacher preparation should fill in the gaps left by existing research. Specifically, future research should provide the type of information that preparation programs can translate into actions that enable them to improve their design and content and, in doing so, better prepare early educators.

1 Educator competencies should serve as the foundation for future research.

As discussed, the field's shared understanding of educator competencies can help us identify the preparation program practices that help teachers develop those competencies. This approach places educator competencies at the center of a research cycle. Based on our knowledge about what effective educators know and do, researchers and teacher educators start this cycle by developing hypotheses about the specific program practices and activities that lead to educators demonstrating those competencies. They then test those hypotheses by isolating the effects of those specific practices and assessing the degree to which they led to changes in the outcomes of interest: improvements in teacher practice. Specifically, teacher practice can be measured by the ability to demonstrate competencies as well as other existing measures of teacher practice, such as CLASS. Programs use this information to alter if and how they use that practice, and researchers use this information to form new hypotheses. These studies should be conducted by researchers working in partnership with practitioners and the people who prepare early educators. Ideally, hypotheses

and ideas for practices to test could come from either researchers' understanding of the existing literature or teacher preparation educators' understanding of their students' needs or the data on their programs.

2 Future research studies should ask question that focus more on how specific practices —the things programs can control—affect a broad range of outcomes for teachers and children.

Under these research questions, the independent variables are the myriad elements of program design and practice. These are the variables that preparation providers can control to determine the candidate's preparation experience. Structural and content changes, for example, are key design decisions that can serve as independent variables (see Figure 1 for examples of these variables).

Figure 1 Independent Variables

There are myriad ways that preparation providers can alter programs' design and practice. The below variables are examples of the design and practice elements that providers may change — and that researchers may study.

Structural Independent Variables

- Delivery format (e.g., online vs. in-person, schedule of courses, class sizes)
- Recruitment and selection processes and priorities
- Criteria for clinical experience sites
- Criteria for faculty background and expertise
- Measures of faculty success

Content Independent Variables

- Duration and timing of clinical experience
- Number of courses in specific subject areas
- Scope and sequence of course materials
- Content (e.g., readings, assignments) of each course

Research questions' dependent variables are the outcomes of interest; in this case, the dependent variables are the impact of a specific change. Often, change in child outcomes is considered the ultimate outcome of interest, but future research should include other outcomes of interest to provide programs with more actionable information.

Rather than jumping immediately to child outcomes, researchers should first assess if the specific practice improves teachers' mastery of competencies (specifically, the Power to the Profession competencies), then look at the effect on valid and reliable measures of classroom quality and practice, and only then — after a practice is proven to improve both mastery of competencies and classroom quality — should research look at the impact on child outcomes. This gradual working-up to child outcomes emphasizes the teacher's practice; indeed, in some cases, it may be appropriate to assess the effectiveness of a program change based on teacher mastery alone. Additionally, given the barriers that early educators face, measures of candidate access and completion should also continue to be an outcome of interest for future research.

Figure 2 Dependent Variables

Studies can assess the impact of changes to program design and content using a range of outcomes. The variables below are example outcomes of interest for studies assessing the impact of educator preparation.

Dependent Variables

- Classroom environment
- Educator mastery of competencies
- Child learning
- Access to degree programs
- Completion of degree programs

Future research should also explore new tools to measure these outcomes of interest. There isn't yet a tool, for example, to measure a teacher's mastery of the Power to the Profession competencies, but a variety of existing tools developed by researchers could be repurposed or modified to assess mastery of specific competencies. Such tools could help programs both internally assess the impact of their program and better support teachers as they work to demonstrate these competencies. A variety of existing measures to assess teacher practice may also be useful. Subdomains of CLASS, for example, may be used directly in, or as the foundation for, a new tool. Regardless of what tools are used, a core focus of preparation research and innovation should be educators' mastery of these competencies.

Additionally, researchers' analysis of outcome measures should be much more specific. To date, analysis has largely asked, in varying forms, "Does it work?" (e.g., does requiring a bachelor's degree "work" for improving teacher effectiveness, or does a cohort model "work" for increasing candidate completion of degree programs). But often that is the extent of the analysis. Instead, future analysis should seek to provide more nuanced information: How effective are these program changes for specific populations of candidates and students, under what circumstances, and in what contexts? Particularly for analyzing teacher effectiveness in the classroom, "in what contexts" is a crucial qualifier: The realities of the environment that teachers enter after pre-service preparation — including working conditions, like compensation, effectiveness of supervision, and quality of in-service professional development — should be taken into account when considering how to best prepare teachers.

Taken together, these research questions will produce strategies that can inform program design in ways that aren't currently possible. Course content that might be effective via a flexible online platform, for example, may not be effective when delivered during an evening in-person lecture; the effectiveness of the delivery method may also depend on the background of the early educator taking the course. This new research agenda will reflect those nuances.

3 Research questions should be examined via studies designed to produce results that program can use in real time.

One way to accomplish this goal is to explore the use of rapid-cycle evaluations, a form of quick-turnaround, smaller-scale research studies that use existing administrative data to test and adjust specific program practices or strategies. In this context, rapid-cycle evaluations can also use formative assessment and teacher practice data. Rapid-cycle evaluations can assess effectiveness in less than a year and begin to provide feedback in weeks or months — which is a very different timeline than the years that it takes to conduct a randomized controlled trial. The idea behind rapid-cycle evaluations is not to definitively decide if a practice is effective but to quickly determine how well a practice is working for a specific set of candidates, students, and circumstances. Rapid-cycle evaluations can also be used to pilot new practices and activities. Research on effective in-service strategies, for example, can be quickly piloted in pre-service environments via rapid-cycle evaluations. And as with other research, these evaluations should examine the nuances of program practice on a broad range of outcome measurements.

Recommendations

As a field, we have never been more sure that early educators are crucial to the development of young children. This certainty creates a sense of urgency, a feeling that we must do everything possible, as quickly as possible, to support high-quality early educators. In the realm of early educator preparation, that urgency translates into the temptation to create bright line, system-wide requirements for programs and candidates.

But the research isn't clear on what those requirements should be. Even when the research appears straightforward, future studies won't necessarily support the same conclusions. The research on bachelor's degrees, for example, was convincing enough to set off a ripple of policy changes for early educators. Now, it's unclear if the effect is as strong as once thought. That's not to say that bachelor's degrees aren't worth pursuing, but the current research doesn't suggest that completion of existing bachelor's degree programs guarantees effectiveness. As a result, thousands of early educators continue to pursue bachelor's degrees, regardless of its impact on their practice, because of an outdated standard. And it's incredibly difficult to change policies once they are in place.

Instilling higher expectations and standards for early educators cannot be accomplished through immovable policy mandates.

There is a cautionary tale here: Instilling higher expectations and standards for early educators cannot be accomplished through immovable policy mandates. There are dozens of promising practices supported by research, but we should not codify them into policy requirements for all preparation programs. Instead, truly improving the quality of educator

preparation requires policymakers to create an environment that holds preparation programs accountable for results while giving them the flexibility to determine how they achieve those results. At the same time, researchers, philanthropists, and preparation programs themselves must capitalize on this new policy environment and develop the type of information that programs need to improve.

State and Federal Policymakers Should Create Policy and Regulatory Environments That Create Space for — and, Ideally, Incentivize — Innovation

Existing evidence suggests that there is a great deal of variation in the content and quality of teacher preparation programs. In light of this evidence, policymakers have toyed with — and, in some cases, acted on — proposals to more closely standardize preparation requirements. That's understandable, but, as discussed, it would be a mistake in the absence of more solid research on effective preparation program practices.

Instead of regulating preparation program practice and design, state and federal policy should focus on the competencies that effective early educators should master and give programs the flexibility to design programs to reach that mastery. There are already efforts to more precisely define educator competencies, driven by actors within the field. State and federal policy can support those efforts by, once consensus has been reached, standardizing the agreed-upon competencies (though it is crucial that policymakers create ways for these competencies to be updated as necessary over time). There is also the potential to use existing and new accreditation systems as a quality assurance and improvement mechanism for preparation.

Policy's primary goal should be to ensure that educators master the competencies they need to be effective, not dictate how programs prepared educators to do so.

In this way, policy's primary goal is to ensure that educators are prepared to master these competencies, not dictate how programs prepare educators to do so. In other words, this new policy and regulatory environment would be outcomes-focused rather than prescriptive. State policy commonly requires educator preparation programs, for example, to provide candidates with a certain amount of clinical experience time. Under a more flexible policy environment, state policy may instead require that program completers demonstrate certain classroom management and instruction competencies. Programs can then determine the environment and structure that best prepares candidates to demonstrate those competencies. Doing so frees programs up to experiment with alternative practices and delivery methods, creating new strategies and lessons for the field. Future policy environments must leave room for this type of program flexibility, as variation and experimentation are necessary to build knowledge and effective new models to meet the needs of a varied early childhood workforce.

State and Federal Policy Should Support Programs' Capacity and Ability to Innovate and Experiment

Even in a policy environment that encourages innovation, programs do not necessarily have the capacity or tools to conduct the analyses necessary to develop and test potential innovations. Policymakers should develop systems and resources to support programs in doing so.

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Policymakers can fund research to support the development of tools, for example, to measure how prospective and current educators demonstrate mastery of competencies. These tools would allow programs to assess the effect of program practices on candidates internally and in real time, such as through rapid-cycle evaluations and other continuous improvement efforts.

Policymakers should also encourage programs to engage in practice-research partnerships to formally and externally assess the effectiveness of innovations in program practices, share findings across programs, and replicate or conduct further study on innovations that the practice-research partnerships find effective. Federally funded technical assistance centers, for example, or research grants through the federal Institute for Education Sciences can be valuable vehicles for conducting and disseminating applied research and evaluations.

Additionally, states should share existing data back with preparation programs. Many states, for example, collect data on teacher practice using existing tools such as CLASS and the Early Childhood Environment Rating Scale (ECERS). These data are expensive for programs to collect on their own and can pose a barrier to developing innovations. States should make these data, as well as other data collected from workforce registries or Quality Rating and Improvement Systems (QRIS), available to programs and their research partners to track results of program graduates or inform continuous improvement. Other data from accreditation bodies can also be leveraged in this way.

State and federal policymakers can also take data sharing one step further by creating a data repository where providers or their research partners upload the raw data from their internal analyses, including data on independent and dependent variables, for other researchers and providers to use. Say, for example, a preparation provider and research partner conduct a study on the effects of an online delivery pilot on course completion for single mothers. To conduct their analysis, they must define their dependent and independent variables and collate a variety of new and existing data on those variables. After they complete their analysis, they would have the option of uploading those data to this repository. Other providers and researchers could access those data to add depth to their own internal analyses or conduct original research. These data wouldn't be used for provider accountability; instead, they would form the foundation for a new body of research. The data would be incredibly helpful for future researchers, but this repository

would also produce a more thorough understanding of the ways that programs revise their practice and define their dependent and independent variables. In creating such a system, policymakers would leverage individual practice-research partnerships' findings into broader program improvement efforts.

Finally, state and federal policymakers should be aware of — and, to the extent possible, change — policies that hinder this type of research. Federal research funding, for example, is largely dedicated to researchers who develop and conduct random controlled trials of new models. This research builds knowledge in the field and can inform changes in program practice, but it is not sufficient to improve preparation program quality. There are very few opportunities to do the implementation, innovation, and rapid-cycle research discussed here; as a result, researchers have little incentive to do this type of research. Changes to federal policy can create that incentive, making a policy environment that is conducive to actionable research and alternative study designs.

Preparation Programs Should Actively Take Advantage of a Flexible Policy Environment to Innovate Based on Their Specific Needs and Develop Research for the Field

If policymakers require early educators to complete early childhood preparation programs and provide the resources for educators to do so, preparation programs must take advantage of this policy environment to assess the effectiveness of their own practices and develop a body of evidence-based strategies that can improve the quality of educator preparation across the field.

If policymakers require early educators to complete early childhood preparation programs and provide the resources for educators to do so, preparation programs must take advantage of this policy environment to assess the effectiveness of their own practices and develop a body of evidence-based strategies that can improve the quality of educator preparation across the field.

Primarily, preparation programs must aggressively experiment with alternative ways to prepare teachers. In this new policy environment, there is no reason to stay within the traditional parameters. Indeed, the evidence on teacher preparation effectiveness suggests that future innovations should look nothing like traditional models. Particularly for early educators, who face intense barriers to accessing and completing traditional preparation programs and may benefit from new modalities, this type of innovation of necessary. It's important to note, however, that not all innovations are created equal. Programs must strategically and intentionally select the innovations they pursue, using evidence from other sectors or environments — such as effective in-service development strategies — to develop hypotheses and starting with smaller pilots before rolling out large-scale reforms. Preparation programs must also consider that, given the dearth of research on specific program practices, they may already be implementing effective program components and should look to improve existing practices in addition to developing new ones.

Additionally, preparation providers, research institutions, and early childhood programs serving young children should collaborate to form research-practice partnerships. Through this type of partnership, researchers can conduct analyses informed by the experience,

needs, and data of both preparation providers and the early childhood programs that employ early educators. In this research, preparation providers can more precisely define the potential independent variables: the practices and activities that define a candidate's preparation experience and the changes that can be made to them. And early childhood programs have direct visibility into the dependent variables: the outcomes of interest, including teacher mastery of competencies and effects on children's learning.

Finally, preparation providers must invest in their own internal capacity to conduct research and analyses. Providers should not necessarily strive to conduct the types of rigorous analyses that teams at research institutions conduct, but they can use the tools developed in research-practice partnerships to ask — and begin to answer — their own research questions on a smaller scale. The ability to do this is particularly useful for conducting analyses while candidates are completing their preparation. For example, programs can leverage measures of teacher practice — including new measures of candidates' mastery of competencies — to set expectations for candidates, define key milestones, support their development, and, if necessary, know when to counsel them out of the program. Research partnerships are powerful for summative evaluations, but internal analysis capacity allows for continuous improvement cycles and close tracking of the results for which programs will ultimately be held accountable.

Researchers Should Rethink the Focus and Design of Future Studies

Researchers' role in improving the quality of educator preparation is to provide the body of evidence necessary to inform program design and practice.

Researchers' role in improving the quality of educator preparation is to provide the body of evidence necessary to inform program design and practice, allowing programs to capitalize on a new, more flexible policy environment. To develop that evidence, researchers must shift their expectations of their relationship with preparation programs (and those programs' data) and explore new research questions and study designs.

Researchers should view their relationship with preparation programs as a mutually beneficial cycle. Often, they will request one-time access to programs' summative data to run analyses and draw generalizable conclusions. But, as discussed, these analyses are not useful to program design. Instead, researchers should partner with programs to analyze current program data and identify opportunities for improvement. Through these partnerships, researchers can play a more substantial role in informing the innovations that providers pilot. Researchers can leverage their visibility into new and innovative research-based practices to suggest interventions or program adjustments. Researchers can analyze the literature on in-service preparation strategies, for example, to make recommendations to providers for how to adopt those strategies in a pre-service environment; they could even design the pilots to test those strategies in pre-service settings. Ideally, policymakers will develop the incentives for researchers to develop these partnerships, but if nothing else, researchers can provide programs support in exchange for access to data that allows them to run the large-scale analyses.

Researchers should also explore new research questions and study designs. The ideal study design would be much more nuanced, assessing the effects of a specific program design decisions on a range of existing and new outcome measures — specifically, measures of teacher practice and mastery of competencies. Ultimately, these questions will produce analyses that can answer: What, if any, effect does this program practice or strategy have on teacher effectiveness and mastery of competencies? How do those results look different based on different populations of candidates and students, under different circumstances, and in different contexts or settings? To that end, researches should explore rapid-cycle evaluation study design. Asking these nuanced research questions is particularly necessary in the context of early childhood educator preparation. Early educators complete formal preparation requirements in a variety of modalities and from a wide range of pathways. Research must pay particular attention to these differences in preparation contexts to provide relevant, actionable information.

Additionally, researchers should not focus solely on evaluative research. There is alarmingly little information on the structure, operations, and content of early educator preparation programs — a problem that researchers can address. Researchers should not shy away from descriptive research, which catalogs and documents these programmatic details across preparation programs. Indeed, without qualitative data on what candidates are actually doing in preparation programs, researchers cannot examine specific program practices, and future evaluative research risks being no more helpful than it currently is. Higher education programs can incentivize this type of research by recognizing these studies in faculty tenure decisions.

Philanthropists Should Build Provider Capacity to Innovate and Assess Those Innovations

To realize the potential of past efforts, philanthropic funders must invest in building the knowledge base on effective early childhood educator preparation practices and the capacity of programs to implement those practices.

Philanthropic funders have played a significant role in raising awareness of the importance of early childhood educators' knowledge and skills, and catalyzing the current wave of initiatives to elevate the prestige, credentials, and compensation of the early childhood workforce. For these efforts to realize their potential, however, investments in building the knowledge base on effective early childhood educator preparation practices and the capacity of programs to implement those practices are equally important.

Many preparation providers lack the capacity and resources to engage the cycles of innovation, assessment, and ongoing continuous improvement needed to inform meaningful improvements in their practice. Rigorous research is expensive, and the cyclical, observation-based research, the type of research necessary to do this work, is even more so. Moreover, existing federal research and higher education funds are not designed to support this type of research and ongoing improvement work.

Philanthropic funders can help fills these gaps in capacity and existing research in a number of ways. They can invest in building provider capacity, whether through funding research-practice partnerships or directly funding new or built-out staff positions within providers. They can fund development of new tools used to measure mastery of specific competencies. They can fund research, preparation program, and practitioner or state system partnerships to develop, pilot, and learn from new, innovative practices. They can support qualitative and descriptive research to better understand the current state of practice in early childhood educator preparation. They can support the development of systems to share data across preparation providers, such as the aforementioned data repository of new and existing teacher practice and child outcome data, or support state systems leaders in their efforts to create such systems. And they can support the dissemination of effective practices to other preparation programs.

Equally important, philanthropic funders can support policy analysis and development to help state and national leaders craft systems of early childhood preparation program accountability and oversight that can help rationalize a currently fragmented preparation landscape while also maintaining flexibility for innovation and continuous improvement. And they should ensure that advocacy efforts they fund prioritize improving the quality of early childhood educator preparation without seeking to impose simplistic solutions or one-size-fits-all requirements that go beyond what existing research supports.

Conclusion

Early childhood educators do crucially important, highly skilled work and deserve to be respected and compensated on a level commensurate with the value of their work. If we respect the value of early childhood educators as professionals, we should also hold high expectations for the programs that prepare them and ensure that those programs are a good use of their time and resources. But it's not clear if the training programs currently available for early educators adequately prepares them. The research we do have suggests there is wide variation among preparation programs, but it does not provide the type of information that preparation programs need to improve the design and content of teacher preparation.

Valuing early educators as professionals must mean resisting the temptation to impose simple solutions and instead investing the time, energy, and resources needed to develop new models and approaches that can meet their needs. To truly improve the quality of early educator preparation, there must be a new body of evidence explicitly designed to support program improvement. At the same time, the policy environment that programs exist in must also shift: Programs must have the flexibility, incentives, and resources to use that evidence to boldly experiment with new and innovative preparation models and methods. Without these changes, preparation programs, early educators, and young children will remain stuck in the current reality.

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Bellwether Education Partners is a national nonprofit focused on dramatically changing education and life outcomes for underserved children. We do this by helping education organizations accelerate their impact and by working to improve policy and practice.

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