

Emerging Pathways Into the Teacher Profession: Evaluating and Substantiating Their Effectiveness



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The United States has a staffing shortage in the educator workforce. With fewer individuals entering the profession, increased educator attrition, and all 50 states reporting a teacher shortage in at least one subject area, teacher positions are unfilled or staffed with emergency or uncertified and inexperienced teachers (American Association of Colleges for Teacher Education, n.d.; Partelow, 2019). In early 2020, Secretary Miguel Cardona issued a call to action to push for more innovation in pathways into the teaching profession. In response to this call and staff shortages, states, districts, and educator preparation programs are leveraging alternative and innovative pathways to establish a pipeline of teachers to fill the nation's classrooms, including [Grow Your Own](#) (GYO) programs, [teacher residency models](#), or [Registered Teacher Apprenticeship Programs](#) (RTAPs). Within this brief, we refer to these programs and models as *pathways* to teaching. The current proliferation of pathways, which reflects the increasing demand for high-quality teachers, holds the potential to increase the pipeline of teachers and make becoming a teacher more **accessible** and **affordable**. The goal of these pathways is to enhance the recruitment, preparation, and retention of teachers. Achieving this goal can improve academic and social outcomes for all students, particularly for students often most affected by teacher shortages, including students with disabilities, culturally and linguistically diverse students, students of color, and students living in poverty (Goldhaber et al., 2017).

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Notably, the use of RTAPs is growing rapidly and offers aspiring teachers the opportunity to receive training while earning a salary and working in schools. RTAPs are often structured like teacher residencies and GYO programs. Various U.S. Department of Labor and Department of Education funds (see [A Funding Guide for Supporting a Registered Teacher Apprenticeship Program With Federal and State Funds](#)) provide funding for RTAPs. According to the U.S. Department of Education (2023), 21 states have pioneered RTAPs, made possible through strategic collaborations between districts, universities, state departments of labor, and state departments of education. RTAPs enable schools and districts to cultivate and prepare a pipeline of educators for their specific context. Simultaneously, participating apprentices gain the advantage of paid work experience, in-class instruction, and a recognized teaching license.

As the use of pathways (e.g., RTAPs, GYO programs, teacher residencies) continues to grow, so does the need to substantiate their effectiveness. Some evidence exists regarding effectiveness of teacher residency programs in attracting a more diverse workforce, training teachers for subject areas that have critical shortages, and recruiting and retaining teachers for specific communities (Carver-Thomas, 2018; Gist et al., 2019; Papay et al., 2012). However, these findings do not represent all pathways. Additionally, few studies delve into the specific features of implementation or consider contextual factors or determine if the programs are addressing particular staffing challenges, whether by subject area (e.g., STEM and special education) or school settings (e.g., hard-to-staff schools; Cardoza, 2023). As such, current findings provide an incomplete picture of potential effects of pathways in terms of teacher quality, retention, and impact on student outcomes.

Challenges for Evaluating Pathways Programs

Evaluating programs that prepare teachers is a necessary ingredient to improve teacher performance. However, evaluations that investigate the effects of preparation programs on candidate knowledge and skills are difficult, as described in the paragraphs that follow.

Program design. A primary challenge in evaluating these programs is the absence of a clear understanding of what the design of each program entails, which is coupled with the diverse implementation methods the programs undertake in response to different community needs (Cardoza, 2023). Pathways can also vary significantly in their aims and implementation structures. Some pathways may focus on supporting paraprofessionals as they pursue their teaching credentials, other pathways may focus on supporting high school students in gaining an undergraduate degree, and still other pathways may support career changers who already hold a bachelor's degree. Likewise, the focus of the related instruction, training for mentors, hands-on experience, and available funding may vary. Pathways can mean completely different things in completely different contexts (Cardoza, 2023). Implementing pathways programs in different ways makes producing generalizable evidence related to those programs challenging and complicates the task of guiding decision makers toward effective strategies and away from ineffective strategies.

Effectiveness measures. Prior reviews identified several issues regarding measurement in impact evaluations of pathways into the teaching profession (Mancenido, 2023). One common problem is the lack of replicable measurement approaches. For example, different approaches are commonly used to measure effectiveness, including varying measures and metrics, which results in challenges when comparing studies, even in the most immediate input of training programs (Grossman, 2008; Zeichner, 2005). Additionally, although few studies examine effects on student outcomes, the majority of evaluations focus on short-term outcomes, such as preservice teacher perceptions (Cochran-Smith, 2004; Menter et al., 2010).

Cost of programs. Addressing the issues associated with studies of pathways is only one step in providing the information decision makers need regarding the adoption of these approaches. However, information about impact alone is insufficient to inform decisions. Districts have limited resources, and as states and districts prepare for the ending of the federal emergency funding provided by the American Rescue Plan Act, getting the most out of every investment is essential. Thus, it is important they understand the costs of programs and strategies, as well as the potential outcomes generated, before deciding which programs and strategies to implement. Economic evaluations provide essential information about the costs of programs.

Ideally, every impact evaluation should include a cost study to provide more comprehensive information to decision makers. Without comprehensive cost information, districts, states, and educator preparation programs are left to make decisions with only half the story.

A thorough cost study, specifically one that applies the *Standards for the Economic Evaluation of Educational and Social Programs* (Cost Analysis Standards Project, 2021), can provide detailed information about resource utilization in programs that vary in how they are implemented in response to community needs. Such a cost study helps future adopters fully understand the personnel and non-personnel resources used to achieve desired outcomes. Additionally, combining the impacts and costs of a single program yields a cost-effectiveness ratio, which helps districts and states better understand the costs associated with program implementation in relation to the outcomes generated.

A cost-effectiveness analysis can help decision makers compare multiple programs aimed at the same outcome (i.e., the outcome selected as a meaningful effectiveness measure), such as the number of new teachers in the field, years of retention, teacher effectiveness, or student outcomes. The cost-effectiveness analysis allows districts and states to compare multiple programs aimed at the outcome most meaningful to them to determine which program they prefer, given their resource constraints and goals.

A Look Ahead: Providing Practitioners With Robust Information Focused on Program Types, Outcomes, and Associated Costs

To determine if strategic pathways into the profession are effective and worth the investment, new research can focus on evaluating both the effectiveness (e.g., number of teachers produced and retained, decrease in high-need shortages, improved student outcomes) and associated costs (e.g., cost per teacher retained, cost per student measure of outcome) of different pathways. Studies focused on informing policy decisions should also include analyzing factors such as financial aid, practice-based opportunities, mentoring, and recruitment practices. The goal should be to address concerns and answer important questions about these programs. For example, some education stakeholders argue that apprenticeships are more expensive than traditional teacher training

programs, but evidence to support this claim is lacking. Cost-effectiveness studies can help differentiate program implementation costs from the outcomes they produce (Levin et al., 2017). We recommend implementing a renewed program evaluation agenda for pathways programs that includes the following elements:

- 1. Consistency in definitions used in program design and implementation.** Because *apprenticeship* and *residency* are terms that, in teacher training, mean different practices in different places, evaluations should focus on specific, explainable, and measurable program elements and determine how they differentially impact the outcomes of teacher candidates compared to teacher candidates with similar training absent these elements. By ensuring that everyone understands and uses the same terminology and program parameters, researchers, practitioners, and policymakers can more easily compare results across studies, which will lead to more accurate conclusions and actionable insights.
- 2. Experimental or quasi-experimental design for program evaluation.** Researchers consider randomized controlled trials (RCTs) to be the gold standard in research because they provide clear cause-and-effect conclusions. By using RCTs to randomly assign participants to control and experimental groups, researchers can determine the impacts of interventions or treatments. Quasi-experimental designs differ from true experimental designs in that they do not use random assignment. Instead, they employ statistical or methodological techniques to establish causality, typically matching participants based on specific characteristics or controlling for confounding variables. Quasi-experimental designs can be more efficient and feasible to implement for studies of teacher preparation programs, depending on the circumstances. Using experimental and quasi-experimental designs allows researchers to make stronger claims about the effectiveness of a program, which is essential to guide policy decisions in education. These designs minimize biases and confounding variables, offering clearer insights into the actual impacts of a program.
- 3. Consistency in goal measures used to evaluate programs.** Establishing clarity and agreement about the overall goal of these programs is important. New emerging pathways programs often aim at addressing specific staffing challenges in hard-to-staff districts, improving teacher retention and teacher satisfaction, and raising student outcomes. It is crucial for all program stakeholders to reach a consensus regarding the primary goal. This shared understanding will help align efforts, prioritize resources, and evaluate the program's effectiveness based on the agreed-upon goal.
- 4. Short and long-term measures of both workforce and student outcomes.** Short-term measures might relate to improvements in teacher skills post training. Long-term measures might include longer retention or career growth. Workforce outcomes concern teachers (e.g., job satisfaction, burnout rates), and student outcomes examine student learning effects. By studying a broad outcome set, evaluators can grasp a program's immediate and long-term effects on both teacher

and student outcomes. This comprehensive view is vital to understanding the real impact of a teacher training program.

- 5. Cost studies in the evaluation of strategic pathways programs for preparing teachers.** Cost studies of teacher recruitment and retention programs are essential to understanding the resources used to produce the outcome observed in a study, including per-teacher costs and start-up and ongoing operational costs. Cost information can inform future adopters about the resources used to implement each type of program. Once the research field makes cost studies a part of *each* study, researchers can use cost-effectiveness analysis to compare the cost and effects of programs aimed at similar outcomes.

Conclusion

Pathways into the teaching profession, such as GYO programs, teacher residency models, and RTAPs, may show promise in addressing staffing challenges and improving student outcomes. However, more consistent evidence of both the effectiveness and costs of the programs is needed to decide which programs should be undertaken and in what context. As an organization whose mission is to use and generate rigorous evidence that contributes to a better, more equitable world, we are interested in partnering to conduct this renewed research agenda in the coming years and encourage others to do the same.

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References

- American Association of Colleges for Teacher Education. (n.d.). *Teaching in the time of COVID-19: State recommendations for educator preparation programs and new teachers*. <https://aacte.org/state-actions-covid19/>
- Cardoza, K. (2023). *This teacher shortage solution has gone viral. But does it work?* <https://www.npr.org/2023/10/26/1207073068/grow-your-own-teacher-solution-research>
- Carver-Thomas, D. (2018). *Diversifying the teaching profession: How to recruit and retain teachers of color*. [https://learningpolicyinstitute.org/sites/default/files/product-files/Diversifying Teaching Profession REPORT 0.pdf](https://learningpolicyinstitute.org/sites/default/files/product-files/Diversifying_Teaching_Profession_REPORT_0.pdf)
- Cochran-Smith, M. (2004). Ask a different question, get a different answer: The research base for teacher education. *Journal of Teacher Education*, 55(2), 111–115. <https://doi.org/10.1177/0022487104262971>

- Cost Analysis Standards Project (2021). *Standards for the economic evaluation of educational and social programs*. American Institutes for Research.
<https://www.air.org/sites/default/files/Standards-for-the-Economic-Evaluation-of-Educational-and-Social-Programs-CASP-May-2021.pdf>
- Gist, C. D., Bianco, M., & Lynn, M. (2019). Examining Grow-Your-Own programs across the teacher development continuum: Mining research on teachers of color and nontraditional educator pipelines. *Journal of Teacher Education*, 70(1), 13–25.
<https://doi.org/10.1177/0022487118787504>
- Goldhaber, D., Quince, V., & Theobald, R. (2017). Has it always been this way? Tracing the evolution of teacher quality gaps in U.S. public schools. *American Education Research Journal*, 55(1), 171–201. <https://doi.org/10.3102/0002831217733445>
- Grossman, P. (2008). Responding to our critics: From crisis to opportunity in research on teacher education. *Journal of Teacher Education*, 59(1), 10–23.
<https://doi.org/10.1177/0022487107310748>
- Levin, H. M., McEwan, P. J., Belfield, C. R., Bowden, A. B., & Shand, R. D. (2017). *Economic evaluation in education: Cost-effectiveness and benefit-cost analysis*. Sage.
- Mancenido, Z. (2023). Impact evaluations of teacher preparation practices: Challenges and opportunities for more rigorous research. *Review of Educational Research*, 0(0).
<https://doi.org/10.3102/00346543231174413>
- Menter, I., Hulme, M., Murray, J., Campbell, A., Hextall, I., Jones, M., Mahony, P., Procter, R., & Wall, K. (2010). Teacher education research in the UK: The state of the art. *Swiss Journal of Educational Research*, 32(1), 121–142. <https://doi.org/10.24452/sjer.32.1.4829>
- Papay, J. P., West, M. R., Fullerton, J. B., & Kane, T. J. (2012). Does an urban teacher residency increase student achievement? Early evidence from Boston. *Educational Evaluation and Policy Analysis*, 34(4), 413–434.
- Partelow, L. (2019, December 3). *What to make of declining enrollment in teacher preparation programs*. Center for American Progress. <https://www.americanprogress.org/issues/education-k12/reports/2019/12/03/477311/make-declining-enrollment-teacher-preparation-programs/>
- U.S. Department of Education. (2023, July 27). *Education, Labor Departments announce new efforts to advance teacher preparation programs and expand registered apprenticeships for educators*. <https://www.ed.gov/news/press-releases/education-labor-departments-announce-new-efforts-to-advance-teacher-preparation-programs-and-expand-registered-apprenticeships-educators>

Zeichner, K. M. (2005). A research agenda for teacher education. In M. Cochran-Smith & K. M. Zeichner (Eds.), *Studying teacher education: The report of the AERA Panel on Research and Teacher Education* (pp. 737–759). American Educational Research Association.

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