Teacher effectiveness has consistently been shown to be the most important in-school factor in student academic achievement. While each U.S. state has different requirements to become a teacher, consistently all teachers must complete a preparation program and pass a licensing assessment. Ensuring that new teachers are ready to be effective from day one has fallen to teacher preparation pathways which fall into two main categories: traditional preparation programs and alternative route to licensure (ARL) programs. Additionally, teacher candidates either must pass a series of licensure exams (e.g., PRAXIS) or successfully complete a portfolio assessment (e.g., edTPA). These procedures are intended to guarantee that only teachers that meet minimum standards are licensed and qualified to teach.

State policies have allowed for preparation programs to design both traditional and ARL programs. Many researchers have attempted to examine which type of program produces the most effective teachers. Research has concluded that excellent teachers can be produced by either traditional or ARL programs equally well. Online programs can also be effective as long as they include excellent field placements. Decades of research on teacher preparation suggests that effective preparation programs—both traditional and ARL—include these key qualities.

The six key qualities of effective teacher preparation programs

1. Clear vision of effective teaching through all learning experiences.
2. Clear standards of professional practice.
3. A curriculum that includes practice, knowledge of child development, social and cultural contexts, and other considerations.
4. Field placements integrated with course content.
5. Performance assessments that apply course content to problems of practice.
Research on Preparation Pathways

Teacher preparation programs can vary from state to state and from program to program; however, these programs generally fall into two distinct categories. First, traditional programs are almost exclusively university-based undergraduate programs that lead to a bachelor’s degree, and teacher licensure. Second, ARL programs can vary greatly (Zeichner & Hutchinson, 2008). These programs also lead to teacher licensure but may or may not also lead to a degree. Generally, these programs are designed for individuals who hold a bachelor’s degree, and they offer a “fast-track” path to licensure. These programs typically support individuals to take up full-time teaching positions prior to completing their teacher preparation programs and can be operated by universities as well as other organizations, including private foundations and school districts. Even prior to the COVID-19 pandemic, there has also been a growth in online aspects within teacher preparation programs, which can be either traditional or ARL, but will be examined separately.

“...Teachers that have completed traditional or ARL programs are more effective than their peers that are teaching with no license or training.”

Traditional and ARL Programs

Research comparing the outcomes of traditional teacher preparation programs versus ARL programs is difficult to decipher. This is largely due to differences in program construction, entry requirements, and state regulations across different states. (See Table 1) This is especially true in ARL programs which show significant variation in requirements and student demographics. Empirical research attempting to determine which pathway produces more effective teachers is decidedly inconclusive (Wiens, 2012). A plethora of empirical research has used student achievement data to examine if traditional versus ARL teachers were more effective. These studies have failed to show any pattern of difference in effectiveness among these teachers (Whitford, et al., 2018). However, research does indicate that teachers that have completed traditional or ARL programs are more effective than their peers that are teaching with no license or training (Kane, et al., 2006). There is some evidence that teachers prepared through ARL programs may feel less well-prepared than traditionally prepared teachers (Kee, 2012).

There are other important differences in these pathways to teaching. Research has shown that traditionally prepared teachers tend to stay in the profession longer than ARL teachers (Van Overschelde & Wissing, 2020). On the other hand, there is some evidence that ARL programs attract more diverse teacher candidates (Redding & Smith, 2016). Teacher candidates that are white and wealthier are more likely to complete traditional teacher preparation programs. The main impediment for less-wealthy candidates appears to be the unpaid student teaching requirement (Van Overschelde & Burgard, 2018), which typically does not exist in ARL programs.
Online Teacher Education

There has been a large growth in online, or distance, teacher preparation programs (Hurlbut, 2018). There is little research on the outcomes of fully online teacher preparation programs, perhaps due to the fact that these are rare. Research does indicate that individual components of teacher preparation programs, such as individual classes, can be successfully moved to an online format (Mollenkopf, et al., 2017; Watkins & Portsmore, 2022). However, there is no evidence that online learning experiences can replace field placements for teacher candidates in real pre–K – 12 classrooms. These real-world, guided teaching experiences have been shown to be an indispensable component of teacher preparation (Boyd, et al., 2009) because teacher candidates are able to blend their theory in practice in an environment similar to where they will teach in the future (Darling-Hammond, 2014).

Testing and Entry Requirements

In nearly all states, teacher candidates must meet entry requirements to become teachers. These can take the form of passing licensure exams (e.g., PRAXIS tests) or portfolio assessments (e.g., edTPA). Theoretically, raising these requirements ensures more effective teachers. In terms of licensure exams, research does not support this view (See Table 2). While there is evidence that these exams help to ensure only teachers that meet minimum quality standards are licensed (Goldhaber, 2007), the setting of specific cut scores is difficult. Raising test cut scores may serve to remove effective prospective teachers from the field while simultaneously reducing the number of teachers of color (Shuls, 2018).

Many states have turned to portfolio assessments in lieu of licensure exams. These assessments, such as the edTPA, require candidates to create teaching videos with reflections and other artifacts that are scored by trained raters based on standardized rubrics. At $300, the edTPA is costly for candidates and has been highly controversial. The idea behind these assessments is that candidates should demonstrate the act of teaching at a minimally effective level in order to obtain licensure. There is evidence that success on the edTPA is predictive of teaching effectiveness; however, the edTPA has also been shown to be a barrier to candidates of color (Goldhaber, et al., 2017). There have also been critiques of the edTPA's validity and reliability as a licensure requirement (Gitomer, et al., 2021). Defenders of portfolio assessments point out that they provide formative feedback to candidates and teacher preparation programs and are a more realistic assessment of teaching ability than traditional exams (Whittaker, et al., 2018).
Policy Recommendations

The primary consideration for policy makers in regard to teacher preparation is the need for high-quality teachers in every classroom. Children deserve no less than an excellent teacher. Policy makers need to balance the need for highly capable, well-prepared teachers with the demands of school districts that are struggling with teacher shortages. This is particularly true in large, urban districts with higher percentages of students of color and lower income families. Research supports states to have gateway assessments (e.g., PRAXIS exams and edTPA), but policy makers need to carefully select cut scores on these assessments in order not to deter effective teachers and teachers of color from joining the teaching force. Secondly, these assessments are a financial burden for teacher candidates, so states can consider ways to assist with the costs of these assessments as a way to remove a barrier to teaching.

Finally, policy makers should be encouraging multiple pathways to teaching. Research has shown that both traditional and ARL programs can produce excellent teachers. The number of credits or the structure of the program is less important than the learning experiences to which teacher candidates are exposed. With the growing national need for more teachers, multiple pathways to teaching through excellent teacher preparation programs is vitally important. Traditional programs produce teachers that tend to persist longer in the program; however, these candidates are less diverse and do not match the growing diversity of the student population. States can encourage innovative preparation programs that reduce barriers to teaching such as the high costs of tuition, test fees, and entrance requirements. On the other hand, ARL programs draw more diverse candidates, but have lower retention rates. States need to work with school districts to support empirically and theoretically supported early-career induction programs such as teacher mentoring and on-boarding to encourage these teachers to stay in the profession.
### Table 1. Comparing ARL and Traditional Teacher Preparation Pathways

<table>
<thead>
<tr>
<th>AUTHORS</th>
<th>SAMPLE</th>
<th>MEASURES</th>
<th>FINDINGS</th>
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</thead>
</table>
| Clotfelter, et al., 2007 | North Carolina students in grades 3 – 8 for 10 years | Student achievement data in math and English | - Teachers without standard teaching credentials were less effective  
- Teacher licensure test scores were predictive of effectiveness |
| Boyd, et al., 2006 | 65,030 teachers in New York City with students in grades 4 – 8 | Student achievement data in math and English | - Teacher preparation pathways produce insignificant differences in student achievement |
| Kee, 2012 | 40,000+ first-year teachers from the Schools and Staffing Survey | Survey questions | - Teachers from ARL programs feel less prepared  
- Fewer types of coursework and shorter field experiences linked to feeling less prepared |
| Henry, et al., 2014 | 29,934 North Carolina public school teachers with less than 5 years of experience | Student achievement data in multiple subjects | - Some ARL-programs outperformed traditional preparation programs while others underperformed in high school math and science  
- International teachers were effective in elementary grades |
| Shuls & Trivitt, 2015 | Arkansas public school teachers (2004 – 2008) | Student achievement data in math and English | - Licensure exams, particularly the PRAXIS II, are predictive of teacher effectiveness  
- Teacher certification route made no difference in student achievement |
| Constantine, et al., 2009 | 87 traditionally trained teachers and 87 ARL teachers | Student achievement data, teacher practices, and teacher characteristics | - There was no difference in student achievement between ARL and traditional teachers |
| Darling-Hammond, et al., 2005 | 15,344 teachers in Houston Independent School District | Student achievement data | - Fully certified teachers were more effective than uncertified teachers  
- Nearly all TFA teachers left teaching within 3 years |
| Glazerman, et al., 2006 | 100 classrooms across 6 US regions | Student achievement data | - Compared to non-TFA teachers, TFA teachers had a positive impact on math and no difference in English achievement |
| Ronfeldt, et al., 2014 | 3,145 teachers from the Schools and Staffing Survey | Survey questions | - Teachers who completed more methods coursework and field experience were more likely to remain in teaching |
### RESEARCH ON TEACHER RETENTION BASED ON PATHWAY

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Sample Description</th>
<th>Type of Analysis</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redding &amp; Smith, 2016</td>
<td>Schools and Staffing Survey</td>
<td>Survey questions</td>
<td>- ARL teachers left the profession at higher rates than traditionally prepared teachers</td>
</tr>
<tr>
<td>Boyd, et al., 2012</td>
<td>New York City teachers</td>
<td>Retention rates</td>
<td>- ARL teachers left the profession at higher rates than traditionally prepared teachers</td>
</tr>
<tr>
<td>Redding &amp; Henry, 2019</td>
<td>13,665 teachers in North Carolina</td>
<td>Retention rates</td>
<td>- Traditionally prepared teachers are more likely to change schools and ARL teachers are more likely to leave the profession</td>
</tr>
</tbody>
</table>

### RESEARCH SHOWING DIFFERENCES IN DEMOGRAPHICS OF TEACHERS BY PATHWAY

<table>
<thead>
<tr>
<th>Source</th>
<th>Data Description</th>
<th>Analysis Type</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>The New Teacher Project, 2020</td>
<td>National data</td>
<td>Pre-service teacher demographics</td>
<td>- ARL programs are more racially diverse than traditional programs</td>
</tr>
<tr>
<td>US Department of Education, 2016</td>
<td>National data</td>
<td>Demographic data</td>
<td>- ARL programs are more racially diverse than traditional programs</td>
</tr>
<tr>
<td>AUTHORS</td>
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<tr>
<td>Goldhaber, Gratz, &amp; Theobald, 2017</td>
<td>Washington state teacher preparation program graduates</td>
<td>Washington Educator Skills Test-Endorsements and student achievement data in math and science</td>
<td>• Licensure tests predictive of achievement in high school biology and less so in middle school</td>
</tr>
<tr>
<td>Clotfelter, et al., 2007</td>
<td>North Carolina students in grades 3 – 8 for 10 years</td>
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<td>Arkansas public school teachers (2004 – 2008)</td>
<td>Student achievement data in math and English</td>
<td>• Licensure exams, particularly the PRAXIS II, are predictive of teacher effectiveness • Teacher certification route made no difference in student achievement</td>
</tr>
<tr>
<td>Wilson, et al., 2014</td>
<td>Connecticut elementary teachers</td>
<td>BEST Portfolio data, PRAXIS exams, student achievement data</td>
<td>• BEST portfolio scores do indeed distinguish among teachers who were more and less successful in enhancing their students’ achievement • An additional analysis indicated that the BEST portfolios add information that is not contained in the PRAXIS tests and are more powerful predictors of teachers’ contributions to student achievement gains</td>
</tr>
<tr>
<td>Goldhaber, et al., 2017</td>
<td>Washington state new teachers</td>
<td>edTPA, student achievement data</td>
<td>• Continuous edTPA scores are a significant predictor of student mathematics achievement in some specifications • Hispanic candidates in Washington were more than 3 times more likely to fail the edTPA</td>
</tr>
</tbody>
</table>

Table 2. Entry Requirements and Teacher Quality

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References


