Evaluation of Delaware's Alternative Routes to Teacher Certification

Presentation to the State Board of Education
February 2015

TEMBO

RESEARCH QUESTIONS

Section 1265b of Title 14, Chapter 12, Subchapter VI of the Delaware Code outlines the basic components for this evaluation, which can be categorized along the following dimensions:

1) Teacher supply

- What are the alternative pathways to teacher certification and how do they differ in design?
- What are the differences in teachers' background characteristics across pathways?
- How are novice teachers distributed to classrooms and schools by pathway? What types of students are alternative route teachers most likely to teach?

2) Effectiveness in the classroom

- Are alternative route teachers more or less effective than traditionally certified teachers?
- Do these patterns persist when adjusting for teachers' years of experience and school context?

3) Retention in the profession

- How do rates of teacher mobility (across schools and districts) vary by pathway?
- How does pathway affect the likelihood of leaving the Delaware public education system?

EXECUTIVE SUMMARY

Taken together, the findings from this report suggest that:

- Alternative route teachers are filling critical vacancies in the state
- Although there are few overall differences in average effectiveness of alternate route teachers compared to traditional teachers in similar grades and classroom, there is some evidence that effectiveness varies by grade level and subject between alternate route and traditional teachers.
    - Many alternate route teachers do not teach in tested grades and subjects and were not part of the effectiveness analysis
    - There were also few overall differences on teacher annual evaluation ratings, with differences observed on only 7 of 18 observational items.
- Novice Teach For America (TFA) and University of Delaware Alternative Routes To Certification (UD ARTC) teachers persist to the 2nd year of teaching at rates similar to traditional novice teachers, and UD ARTC teachers stay in the profession at the same rate as novice traditional teachers over the long-run.

Note: All comparisons to traditional teachers account for teacher experience, school assignment, and student characteristics.

What did we learn?

Alternate Routes to Teacher Certification in Delaware: Program Characteristics

	Teach For America (TFA)	Alternative Routes to Certification (UD ARTC)	Masters Plus (MPCP)	DE Transition to Teaching Partnership (DT3P)
Origin	• Started in 2009-10 • National program; Delaware office opened in 2011	• Started in 1997-98 • Operated by the University of Delaware	• Started in 2005-06 • Part of M.Ed. In Exceptional Children & Youth at University of Delaware	• Started in 2012-13 • 5-year federally funded demonstration program

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Cohort Size and Program Length			
• Approx. 27 new corps members each year • 2-year certification program	• 50-70 new teachers per year • 2-year certification program	• 8-10 new teachers per year • 2-year certification program; + 2 years of teaching after certification	• 3-5 new teachers per year • 4-year total commitment

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Selection and Placement	• Highly selective model (15% national acceptance rate). • Placed in high needs schools.	• Selection criteria defined by Delaware state legislation. • Placed in high needs grades/subjects	• Program admission same as ARTC, but specific to special educators	• Selective admission; placed in high needs secondary schools, based on federal definition of high needs

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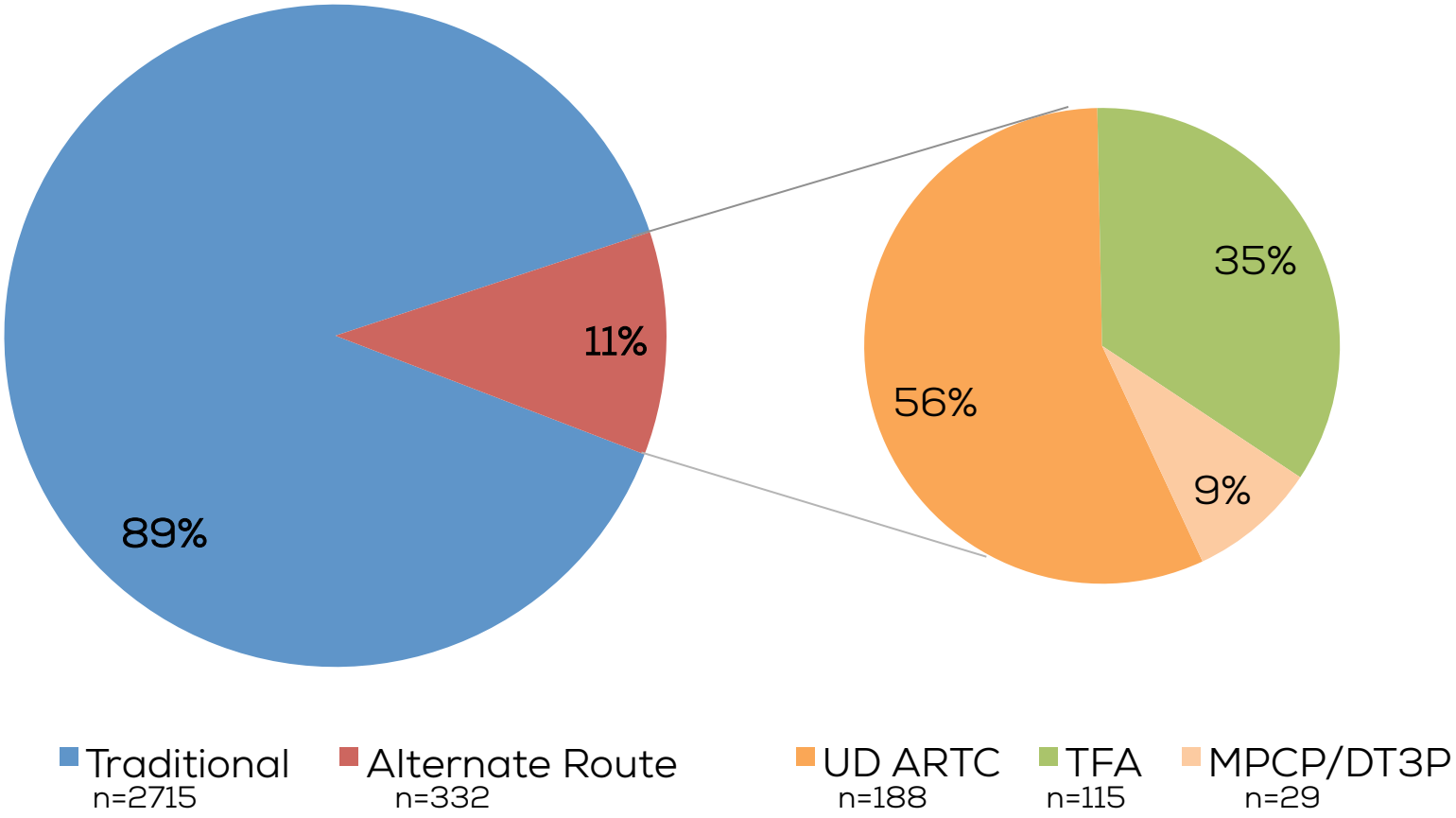
Overall, 80% of teachers associated with alternative routes in 2010-2014 were included in one or more of the analyses in this evaluation

Alternative routes account for 1 in 10 novice teachers entering the classroom between 2010 and 2014.

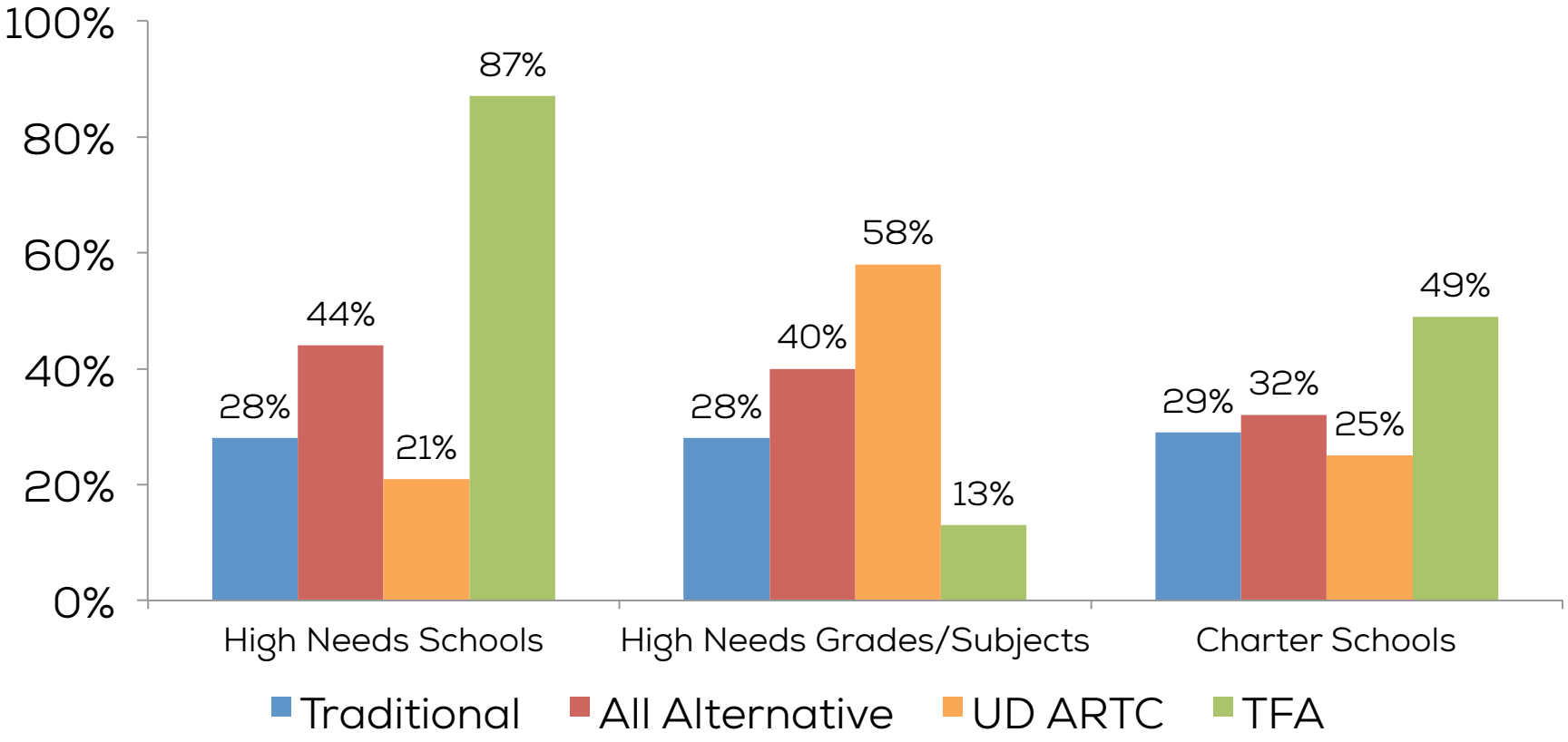
Half of these teachers come from UD ARTC and the remainder from smaller pathways, including Teach For America.



This table includes data on all first placements between 2009-10 and 2013-14. Teacher job type derived from DE DOE job code. "Novice" teachers are those who are first observed in the Delaware teacher data in the years 2010 through 2014 and have 3 or fewer years of experience.

Alternative route teachers are filling critical vacancies in High Needs Schools and High Needs Grades and Subject Areas.

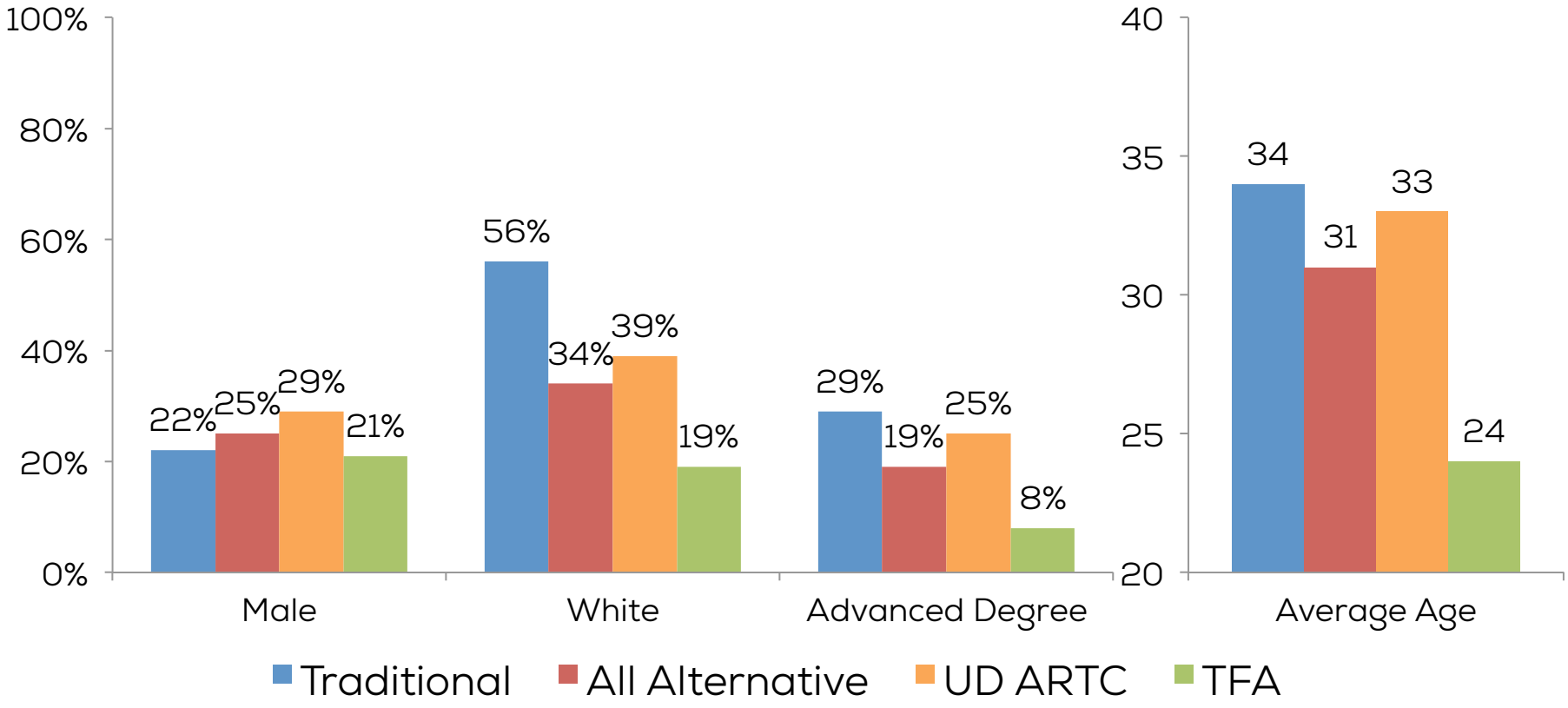
TFA teachers primarily teach in high needs schools and in charter schools. UD ARTC teachers serve in high needs grades and subject areas.



Note: Grade/subject need defined by the "Delaware Teacher and Administrator Supply and Demand Survey Analysis Report" (Sherretz, Kelly, and Matos, 2013) and the DE Department of Education TLEU. Data is based on all first placements for teachers who were first observed in the Delaware teacher data in the years 2010 through 2014 and had 3 or fewer years of experience. Results not shown for MPCP and DT3P because of small number of teachers entering via these pathways.

Novice alternative route teachers are younger and more racially diverse than novice traditional teachers.

Alternate route teachers are less likely to have an advanced degree at the time of their initial placement, however all programs lead to Masters Degree in Education.



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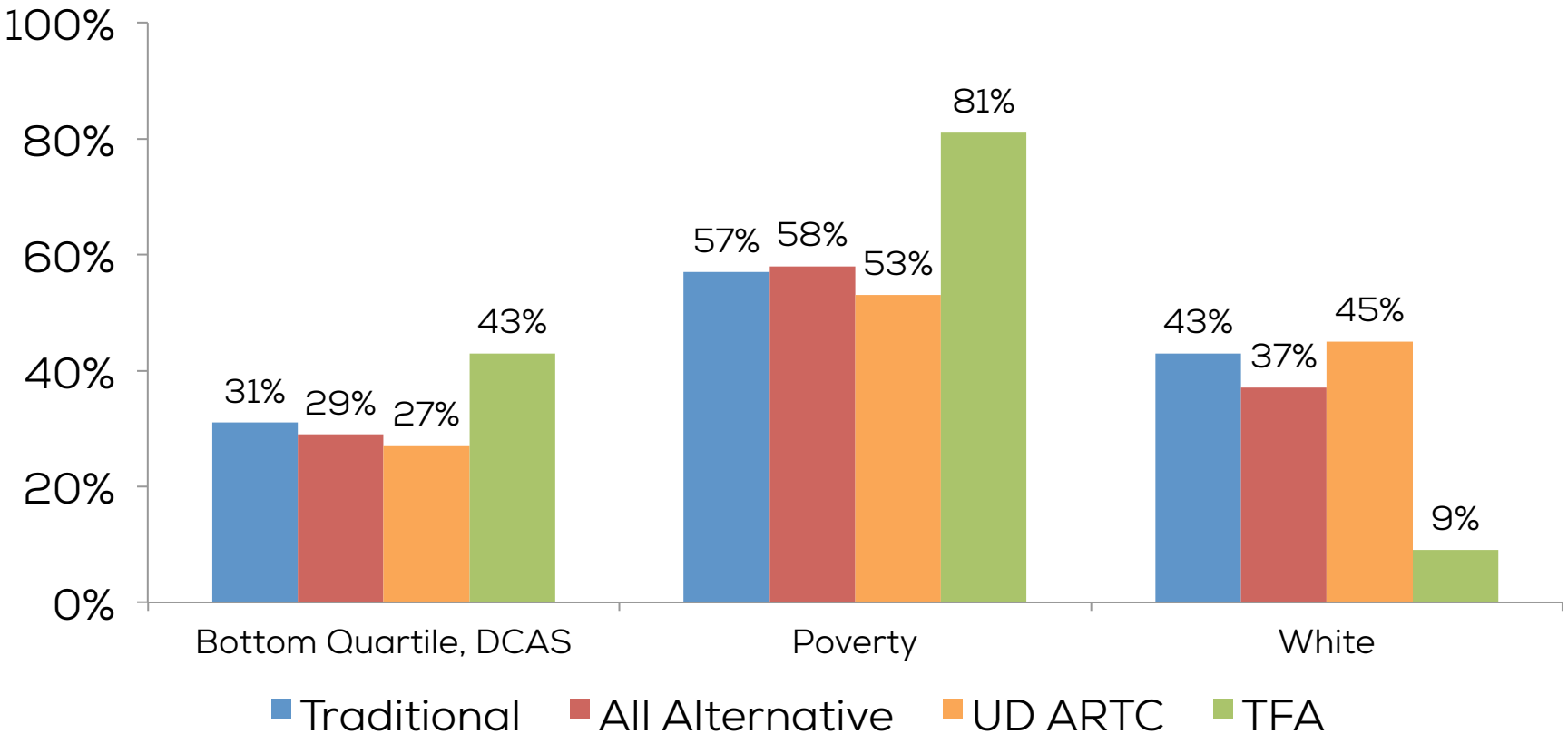
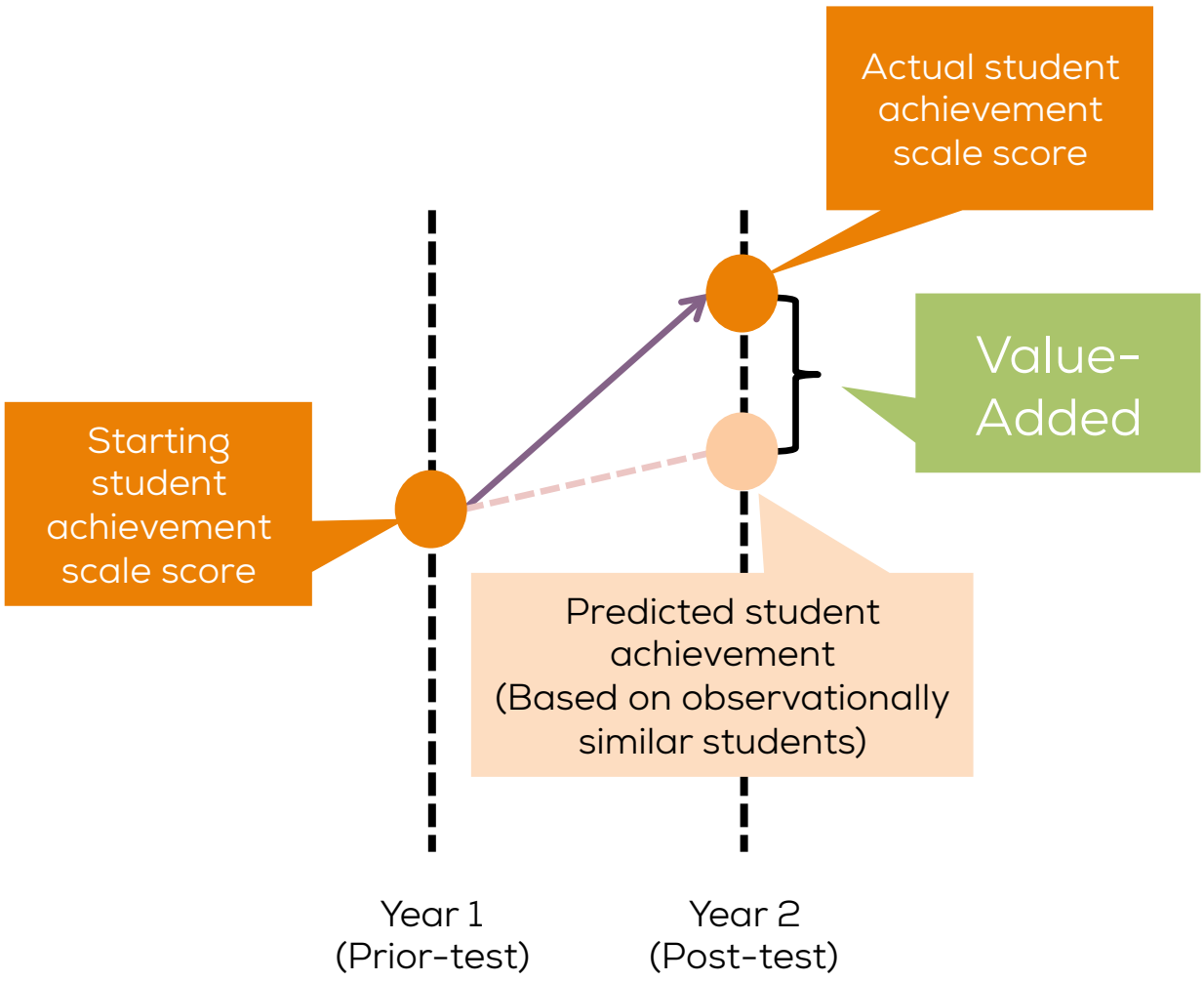
There are also significant differences in the characteristics of students taught by novice teachers across alternative and traditional pathways.

Novice TFA teachers are significantly more likely to teach students in the bottom quartile, students in poverty and students of color.



Note: Results not shown for MPCP and DT3P because of small number of teachers entering via these pathways. DCAS quartiles are students' prior-year spring scores the percentages for bottom quartile students were the same for ELA and Mathematics.

Value Added: A Visual Representation



In the following slides, boxplots show differences in value-added scores at different parts of the effectiveness distribution

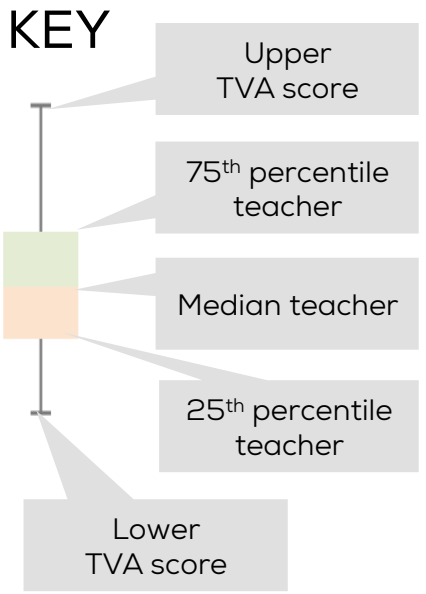
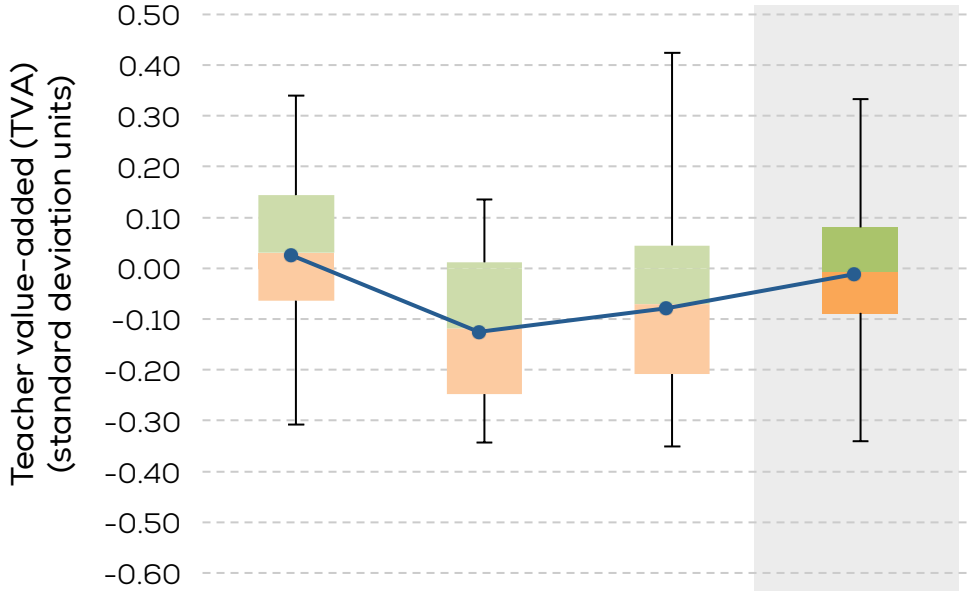


Illustration from Meyer, R. H. (2012) *Introduction to Value-Added* [PowerPoint slides]. Retrieved from http://education.state.mn.us/mdeprod/idcplg?IdcService=GET_FILE&dDocName=047992&RevisionSelectionMethod=latestReleased&Rendition=primary

Value-Added Results: English Language Arts (ELA)

After accounting for variation in student and school characteristics, some differences exist in the average effectiveness of alternative route teachers in ELA, relative to traditional teachers in similar schools and classrooms.

English Language Arts (ELA)
(grades 3-10)



	UD ARTC	MPCP	TFA	Traditional
75th Percentile	0.14	0.01	0.04	0.08
Median	0.03	-0.12	-0.07	-0.01
Mean	0.03	-0.11	-0.04	0.00
25th Percentile	-0.06	-0.25	-0.21	-0.09
# Teachers	67	10	28	3264

After separating value-added scores by grade level, the slightly higher value-added scores for ARTC teachers in ELA are consistent across middle and high school, but there are no significant differences across grade levels.

Notes: Estimates computed from multilevel model detailed in the technical appendix. Data from school years 2010-2014 are included. TFA alumni transferring-in from out of state are excluded. Includes only teachers with students linked in their Full Academic Year school. Staff with "support" job types are excluded. Omitted from all value-added results are DT3P teachers, as fewer than 10 had enough linked students in any subject to compute a value-added score. "Upper" and "Lower" TVA scores represent the upper and lower adjacent values in the distribution. Differences in variability tested using Levene's F statistic.

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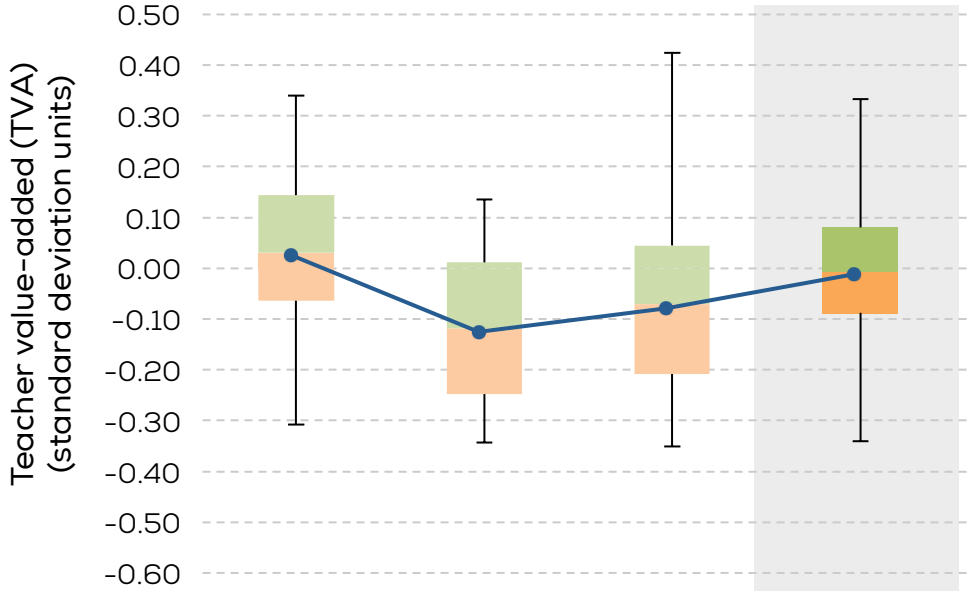

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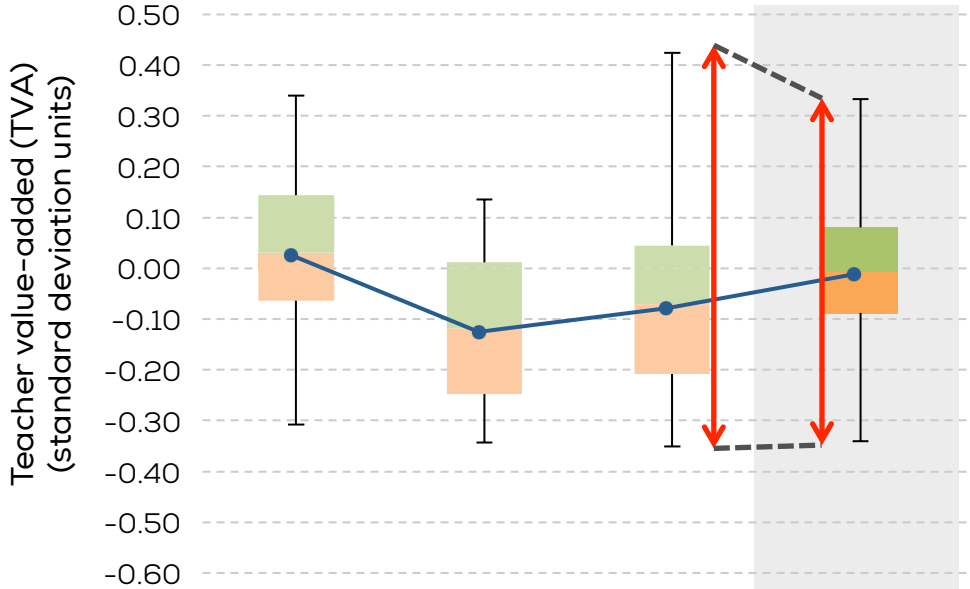

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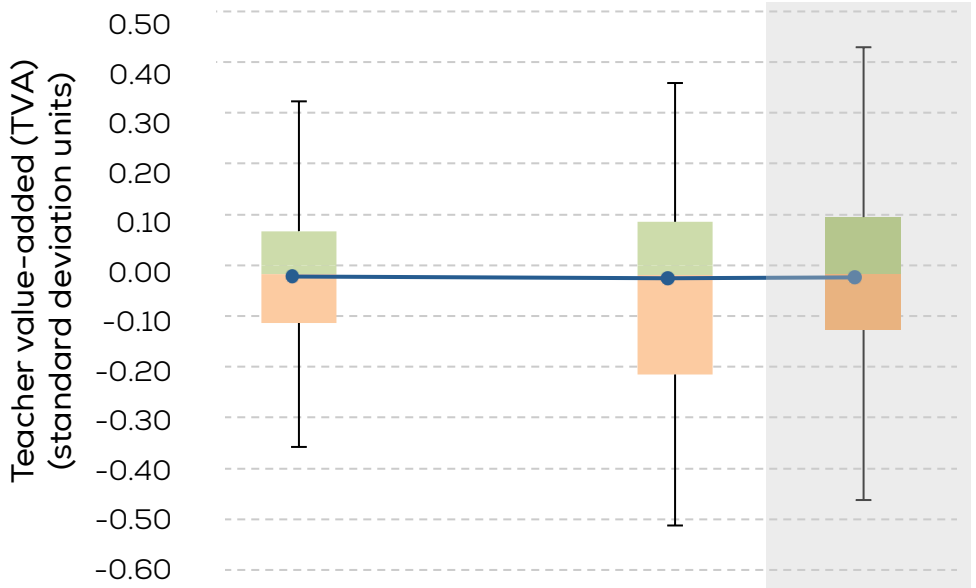
Value-Added Results: Mathematics

While there are overall no differences in effectiveness in mathematics between alternative route and traditional teachers, there are some differences by grade level.

Mathematics
(grades 3-10)



	UD ARTC	MPCP	TFA	Traditional
75th Percentile	0.07		0.08	0.09
Median	-0.02	N<10	-0.02	-0.02
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25th Percentile	-0.11		-0.22	-0.13
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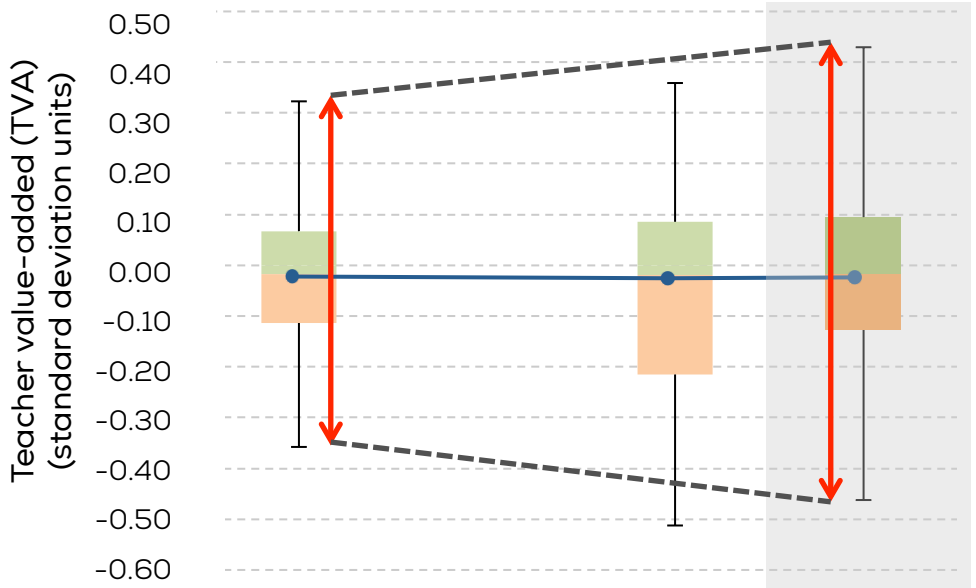

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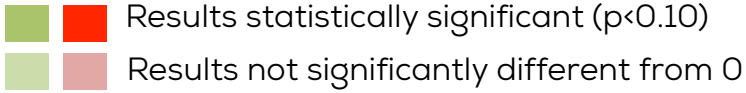
Value-Added Results: Mathematics

TFA teachers are less effective than traditional teachers in Elementary Mathematics.
UD ARTC teachers are less effective in middle school Mathematics.

Mathematics
(grades 3-10, by grade span)

	Pathway	Novice	Career	# Teachers
Mathematics				
Elementary	TFA	-0.09	-0.10	(n=22,24)
Middle	ARTC		-0.07	(n=19)
High	ARTC	0.00	0.01	(n=13,64)



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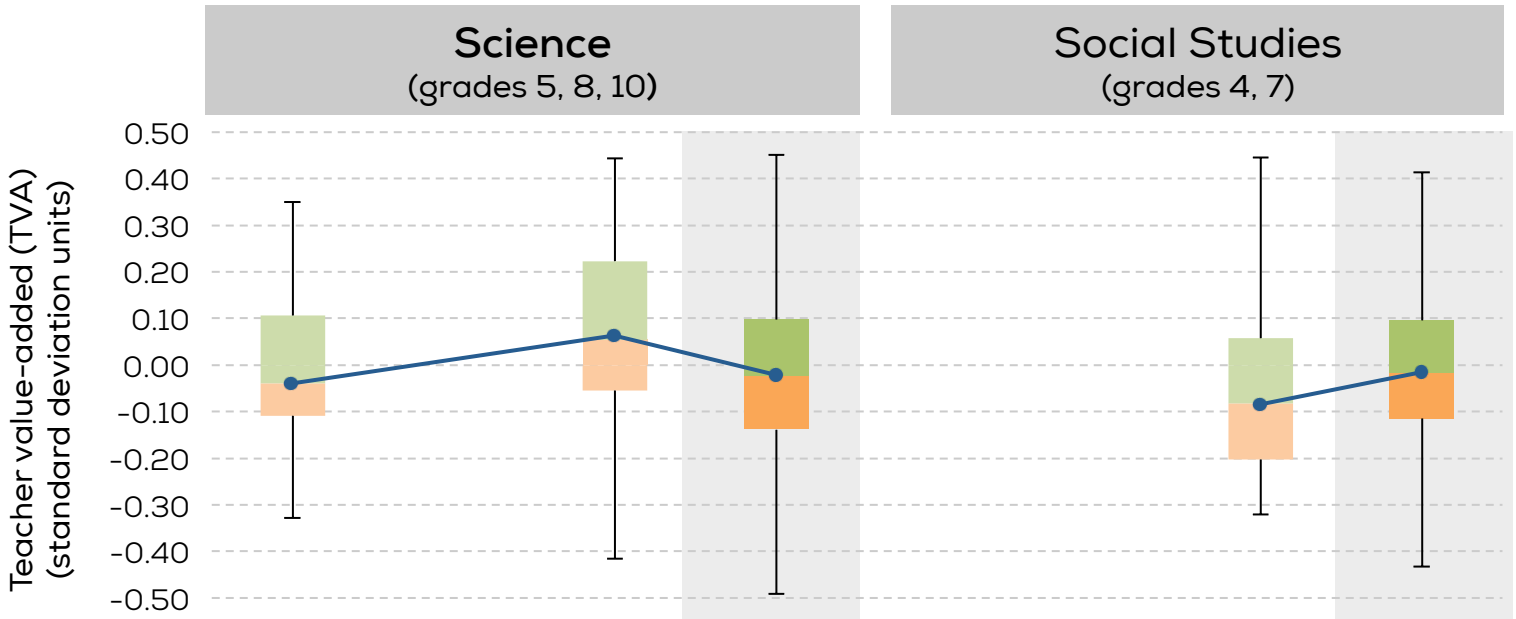
Value-Added Results: Science & Social Studies

There were no differences in teachers' effectiveness in Science or Social Studies by pathway, either overall or in particular grades.



	Science (grades 5, 8, 10)				Social Studies (grades 4, 7)			
	UD ARTC	MPCP	TFA	Traditional	UD ARTC	MPCP	TFA	Traditional
75th Percentile	0.11		0.22	0.10			0.06	0.10
Median	-0.04	N<10	0.05	-0.02	N<10	N<10	-0.08	-0.02
Mean	-0.01		0.05	-0.01			-0.02	-0.01
25th Percentile	-0.11		-0.05	-0.14			-0.20	-0.12
# Teachers	98		12	1243			11	842

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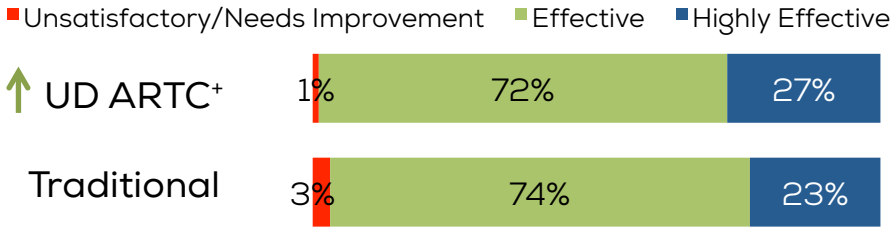
Teacher effectiveness as measured by annual evaluations: Delaware Performance Appraisal System (DPAS-II)

The Five Components of Delaware's Framework and DPAS II for Teachers

1. Planning and Preparation
   a. Selecting Instructional Goals
   b. Designing Coherent Instruction
   c. Knowledge of Content & Pedagogy
   d. Demonstrating Knowledge of Students
   e. Designing Student Assessments
2. Classroom Environment
   a. Managing Classroom Procedures
   b. Create Environment to Support Learning
   c. Organizing Physical Space
3. Instruction
   a. Engaging Students in Learning
   b. Demonstrating Flexibility
   c. Communicate Clearly & Articulately
   d. Using Questioning Techniques
   e. Using Assessments in Instruction
4. Professional Responsibilities
   a. Communicating with Family
   b. Recording Data in a Student Record System
   c. Growing & Developing Professionally
   d. Reflecting on Professional Practice
5. Student Improvement

Adjusted DPAS-II Performance: Components I-V
(all teachers rated in 2013 or 2014)



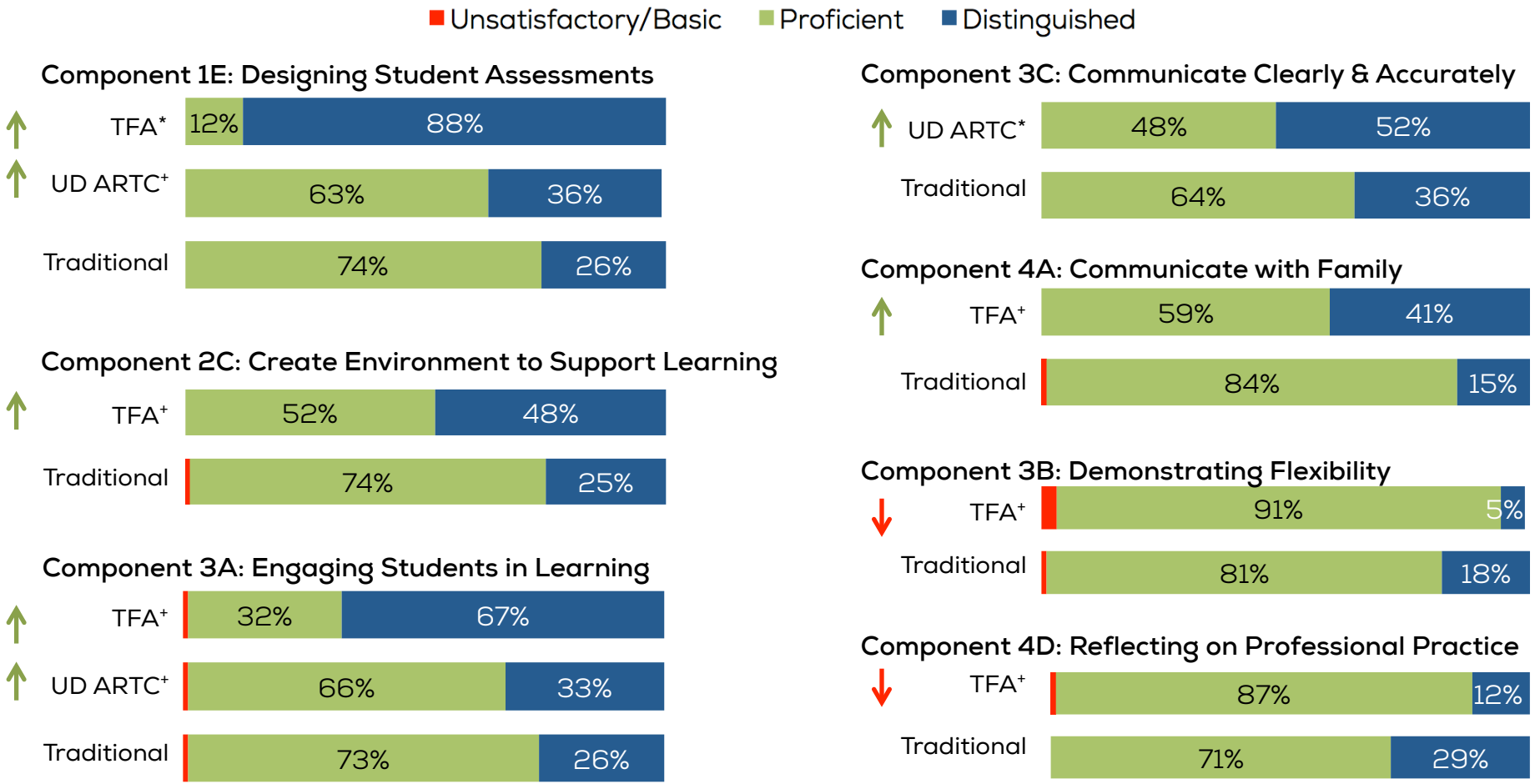
Other than UD ARTC, there were no significant differences in teachers' overall ratings for alternate route and traditional teachers.

Note: Overall DPAS-II Performance analysis utilized teachers' most recent rating, either from 2013 or 2014. Results shown are predicted probabilities for teachers in each group with 0-2 years of experience, in middle grades, in classrooms with average levels of poverty, students with disabilities, English language learners, and white students. Overall results also control for Measure Group and are reported as predicted probabilities for Group 2. All results are estimated in a multilevel model which includes a school effect to mitigate systematic differences in ratings across schools. $^{+}p \leq .10$; $^{*}p < .05$

DPAS-II 2014 Classroom Observation Ratings

On 5 of the 18 dimensions observed, UD ARTC and/or TFA were rated higher than traditional teachers. TFA was rated lower than traditional teachers on 2 dimensions.

Adjusted DPAS-II 2014 Criteria Ratings



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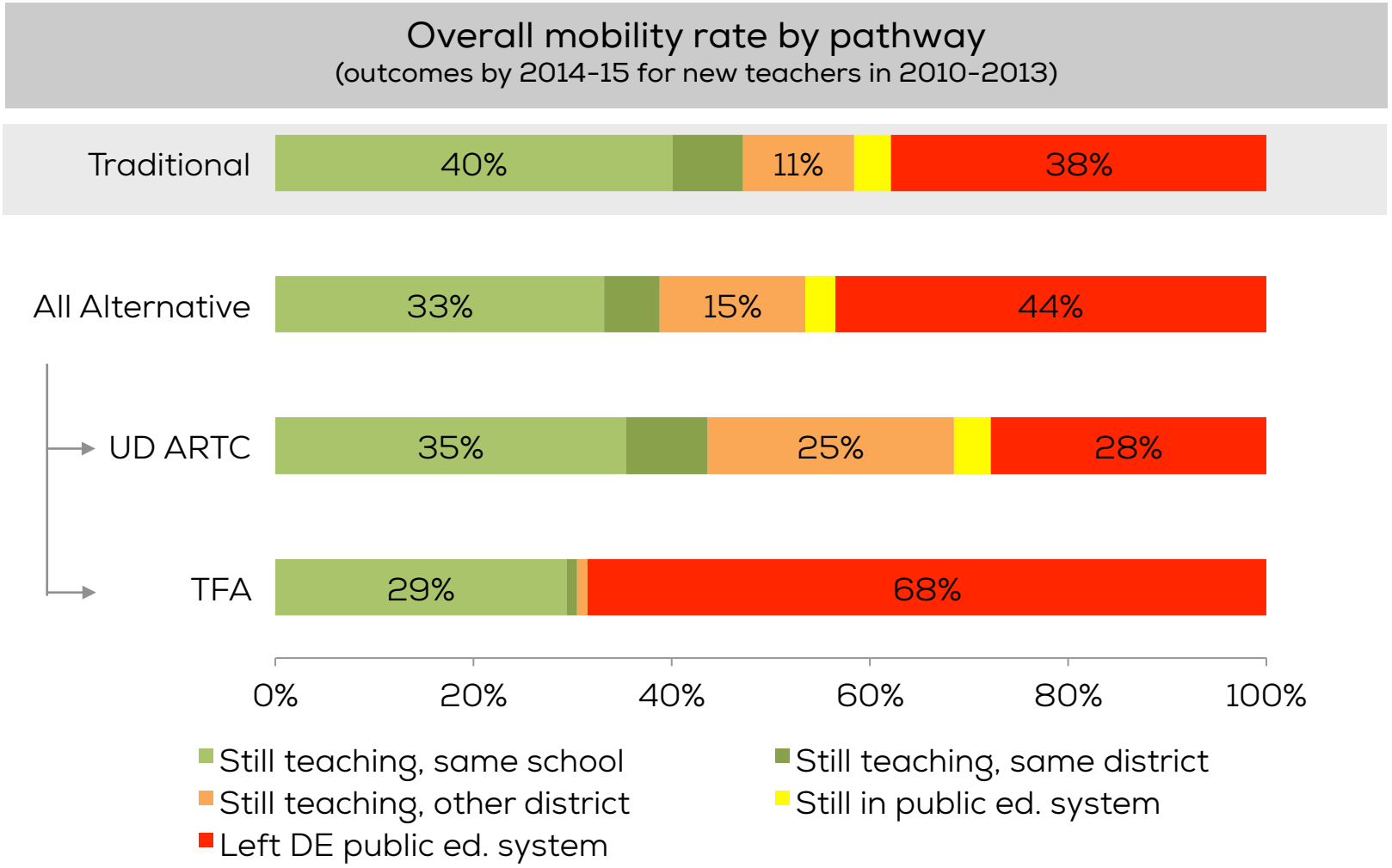
Mobility of novice teachers: Descriptive Results

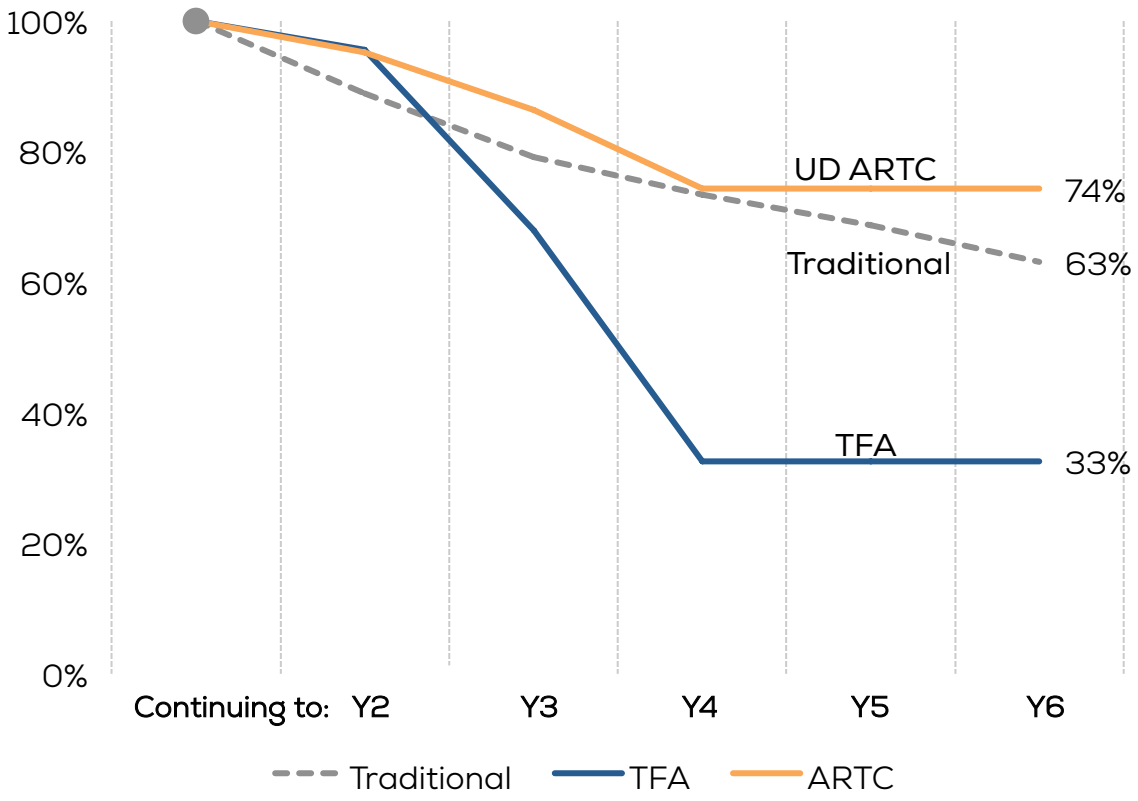


Notes: TFA alumni transferring-in from out of state are excluded. Teachers with "support" job types are excluded. Results for DT3P and MPCP teachers are represented only in the All Alternative group because each had fewer than 10 novice teachers included in the analysis. And while a significant number of new MPCP participants (22) entered schools since 2010, only a few were designated as teachers. "Still in public ed. system" refers to teachers who remain employees of a DE public school or the Delaware DOE. Cohorts entering teaching after 2013 were excluded to capture mobility after the end of the 2nd year of program participation.

Retention of Novice Teachers: Predicted Probability of Persistence by Pathway

All together, TFA teachers are more likely to exit the DE public education system and ARTC teachers persist at rates not statistically different from traditional teachers.

Adjusted yearly probability of persisting by pathway
(new teachers 2010-2014)



Notes: TFA alumni transferring-in from out of state are excluded. Teachers with "support" job types are excluded. Results for DT3P and MPCP teachers are excluded because each had fewer than 10 novice teachers included in the analysis. Adjusted yearly persistence rates are estimated in a multilevel binomial logistic regression and predicted probabilities are for a middle grades teacher with average percentages of students with disabilities, in poverty, English Language Learners and white. The percentage of white students and students with disabilities in a school is significantly associated with higher likelihoods of teacher exit ($p<0.01$, $p<0.05$).

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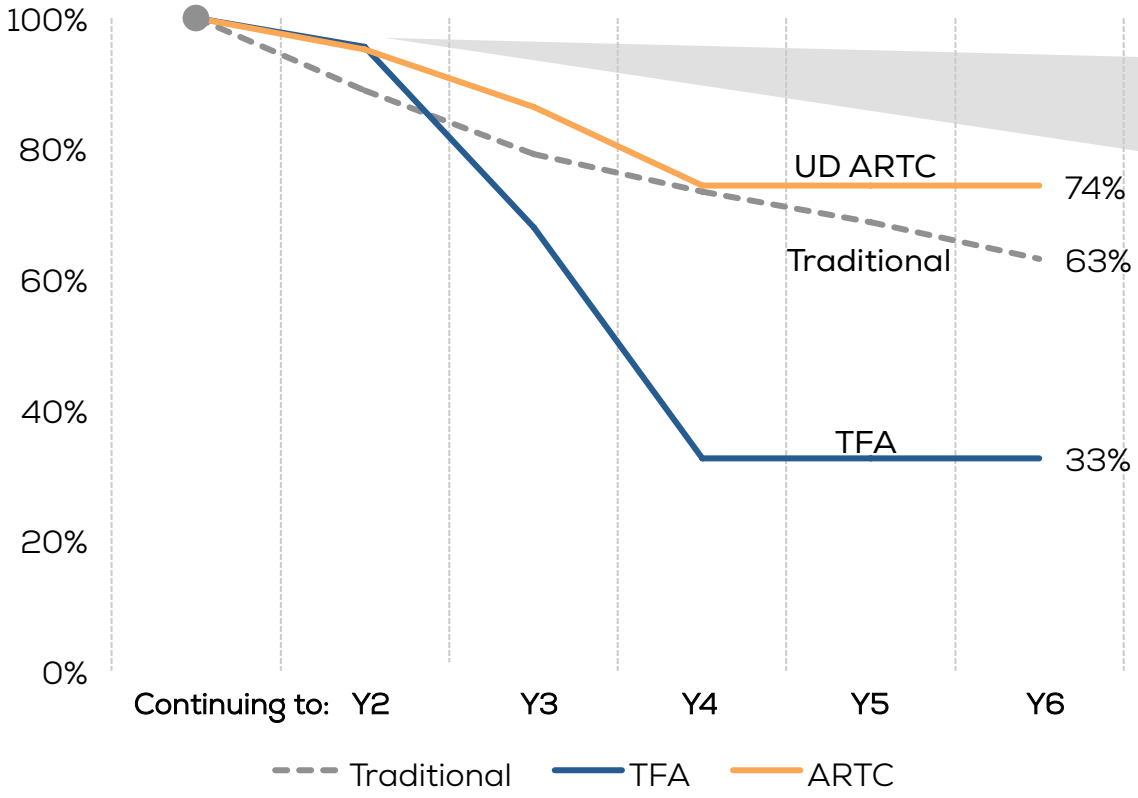

Y2

Alternative route teachers persist to the 2nd year of teaching at a higher rate than traditional teachers, but this difference is not statistically significant.

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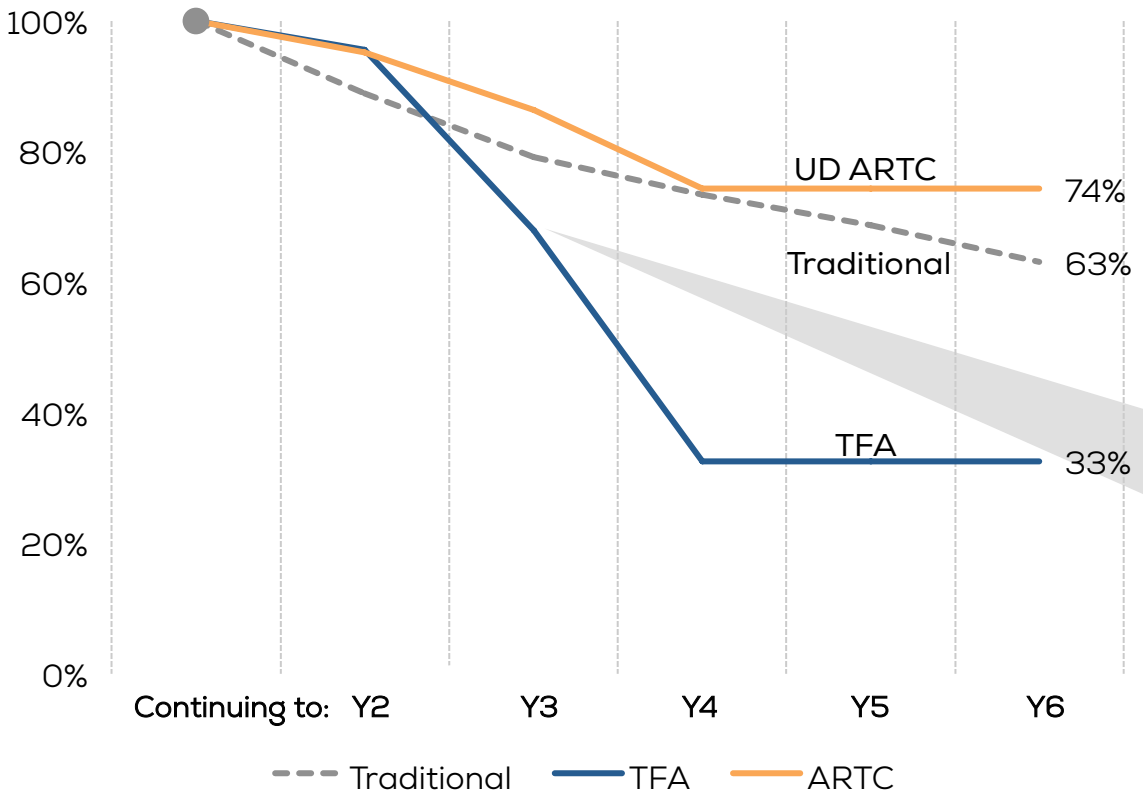

Y3

At the end of their 2-year commitment, 2 in 3 corps members are expected to stay in the public education system ($p<0.05$).

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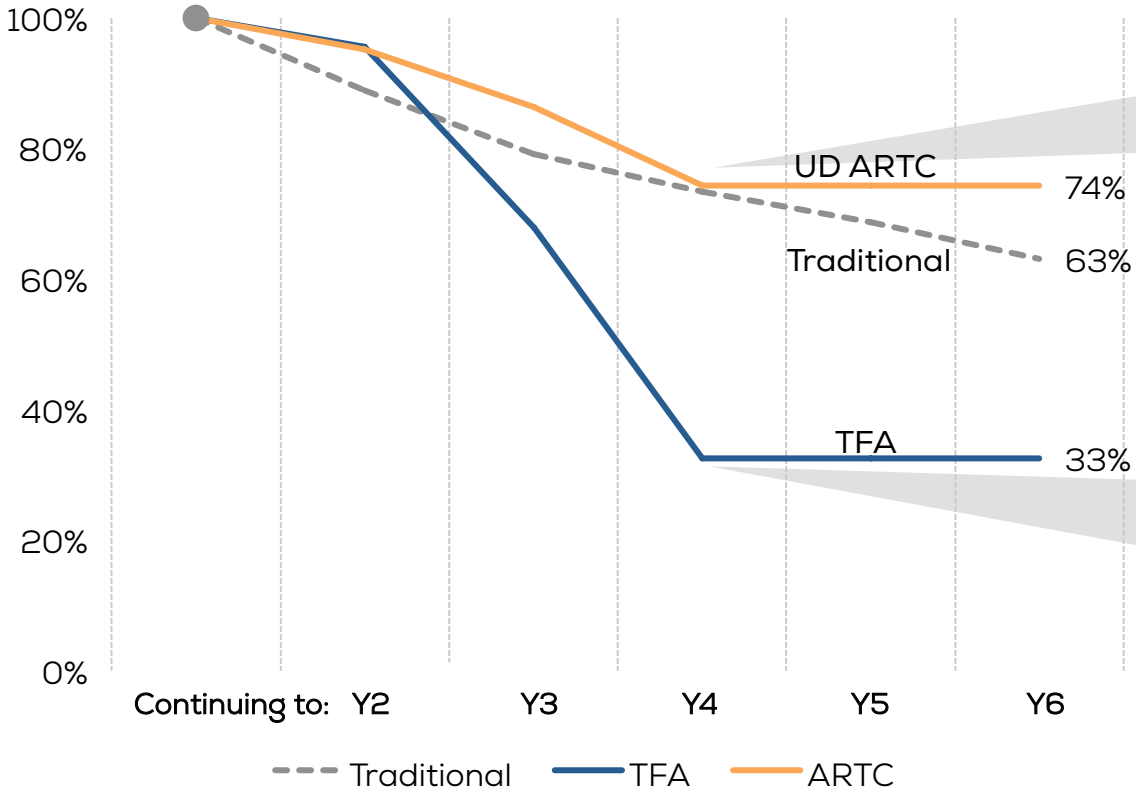
Retention of Novice Teachers: Predicted Probability of Persistence by Pathway

All together, TFA teachers are more likely to exit the DE public education system and ARTC teachers persist at rates not statistically different from traditional teachers.

Adjusted yearly probability of persisting by pathway
(new teachers 2010-2014)



After year 3, another 12% of ARTC teachers leave the public education system ($p<0.05$)

Y4

On average, one third of corps members persist to year 4 ($p<0.01$). These teachers are likely to stay at least to year 6.

Notes: TFA alumni transferring-in from out of state are excluded. Teachers with "support" job types are excluded. Results for DT3P and MPCP teachers are excluded because each had fewer than 10 novice teachers included in the analysis. Adjusted yearly persistence rates are estimated in a multilevel binomial logistic regression and predicted probabilities are for a middle grades teacher with average percentages of students with disabilities, in poverty, English Language Learners and white. The percentage of white students and students with disabilities in a school is significantly associated with higher likelihoods of teacher exit ($p<0.01$, $p<0.05$).