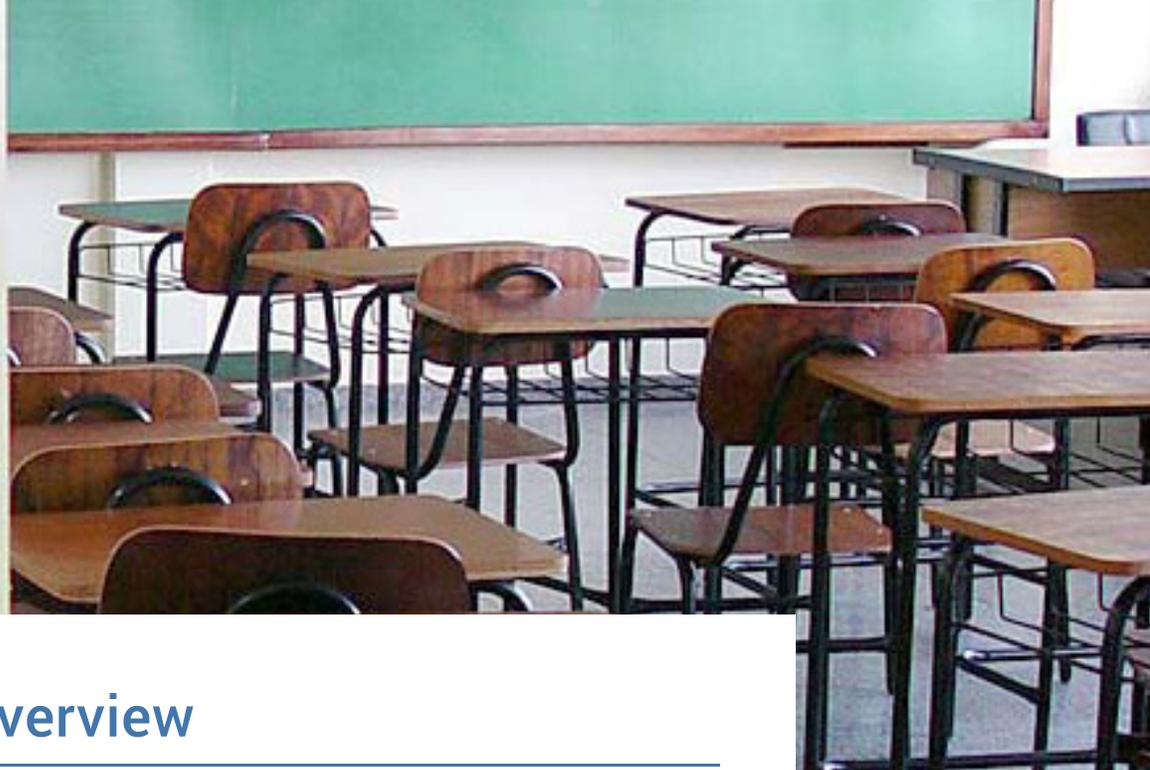# 2016
Technical Specifications

for the 2016 Delaware Educator Preparation Program Reports

Delaware Department of Education
Teacher & Leader Effectiveness Branch (TLEB)

Overview

Delaware's educator preparation program reports contain six (6) scored domains[1] – Recruitment, Candidate Performance, Placement, Retention, Graduate Performance, and Perceptions. Each domain is comprised of two (2) to four (4) metrics[2]. A program must generate a score on at least one metric within the Graduate Performance domain in order to generate a program report. Delaware's program reports consider the past five years of program data.

The absence of a program report denotes that a particular program has a small number of candidates enrolled in the program or extremely small numbers of graduates serving students in Delaware's public education system. It may also denote that a program has been recently discontinued or reconstituted by the provider and thus is no longer enrolling candidates. Additionally, an educator preparation program may have been recently approved by the state of Delaware and does not have sufficient performance history to-date. Since roughly two thirds of early career educators come from in-state colleges and universities[3], the thirty (30) programs generating program reports in 2016 represent the major contributors to educator preparation training and placement in Delaware.

2016 marks the second time that Delaware has publicly released this information. Whereas last year's reports were for information only, this year's reports will have formal regulatory consequences outlined in the Program Renewal Framework[4].

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[1] Domains are thematic groupings of related metrics.

[2] For the 2016 program reports, the Candidate Performance domain is comprised of only one metric (Content Readiness). Data were unavailable for the other metric (Performance Assessment) in this domain.

[3] From "The Set: A Spotlight on Early Career Educators and Institutions of Higher Education" (December 2014) and "The Set: Where are Delaware's Teachers Prepared for the Profession?" (March 2013).

[4] For more information see the Program Renewal Framework (October 2016).

List of Program Report Domains and Metrics

FIGURE 1: LIST OF PROGRAM REPORT DOMAINS AND METRICS

DOMAIN[5]	DOMAIN POINTS	METRIC	METRIC WEIGHT[6]	METRIC POINTS[7]	MINIMUM STANDARD[8]	STATE TARGET[9]
RECRUITMENT	10	Diversity of Candidate Class	50%	5.00	10%	40%
		Candidate Academic Strength	50%	5.00	174	185
CANDIDATE PERFORMANCE	10	Content Readiness	100%	10.00	0.4	1.5
		Performance Assessment[10]	0%	0.00	TBD	TBD
PLACEMENT	15	Placement Rate Overall	40%	6.00	30%	85%
		Placement Rate in Delaware	40%	6.00	25%	75%
		Placement Rate in Delaware High Needs Schools	20%	3.00	15%	35%
RETENTION	15	Retention Beyond Year One	50%	7.50	80%	95%
		Retention Beyond Year Three	50%	7.50	65%	85%
GRADUATE PERFORMANCE[11]	35	Student Improvement Component Ratings	40%	14.00	20%	70%
		Student Growth Outcomes	15%	5.25	-0.2	0.2
		Observation Scores	40%	14.00	2.7	3.3
		Overall Performance Evaluation Ratings	5%	1.75	20%	70%
PERCEPTIONS	15	Preparedness, Graduate Survey	50%	7.50	2.8	3.8
		Preparedness, Supervisor Survey	50%	7.50	2.8	3.9

[5] Domains are thematic groupings of related metrics.

[6] Each metric is assigned a weight within its domain.

[7] The number of points allocated to each metric is calculated by multiplying the domain points by the metric weight (e.g. 10 domain points * 50% weight = 5 metric points for the Diversity of Candidate Class metric). In 2016, all metric points available sum to 100.

[8] The minimum standard is the number at and below which a program receives zero points for a particular metric.

[9] The state target is the number at and above which a program receives the maximum number of points available for a particular metric.

[10] The Performance Assessment metric in the Candidate Performance domain is not calculated for the 2016 program report. Data are not yet available. In the future it will be weighted 50% of the Candidate Performance domain.

[11] For this year's program reports, the following metrics include only the most recent year of data: Placement Overall, Preparedness, Graduate Survey, and Preparedness, Supervisor Survey. All other metrics include as many years of data available, up to five years. For the specific years included in each metric calculation, please see the Universe section under each metric description.

Glossary of Terms

This section provides definitions for frequently used terms in the program reports. The following definitions apply for each term:

Term Name	Definition
The last five years / The past five years	This document references the last five years of data collected. To be more specific, "The last five years" or "The past five years" refers to the school years 2010-11 through 2014-15, inclusive.
Candidates	This document references Candidates, who are defined as anyone who entered a program in the school years 2010-11 through 2014-15, inclusive, whether or not they have completed that program. The year in which a student officially enters a program and becomes a Candidate is determined by the requirements of the particular program and/or institution. Candidates can also be thought of as program entrants.
Graduates	This document references Graduates, who are defined as anyone who completed a program in the school years 2010-11 through 2014-15, inclusive. Graduates can also be thought of as program completers. The definition of a graduate is a little different when it pertains to alternative routes programs. Please see the Alternative Route Educator Preparation Programs section on page 27.
Records	For the Graduate Performance metrics, the term Records is used to refer to each data point for an educator. This is to distinguish between the "number of individual educators" and the "number of records". The use of the term Records highlights that all evaluation records during the time period are used for each educator, and therefore an educator may be included multiple times in a metric calculation.
School Year	Throughout the program reports, School Year is defined as starting on July 1st and ending on June 30th of the following year.
State Average	The state averages calculated for each of the metrics in the tables below include only candidates and/or graduates from Delaware educator preparation programs between 2010-2011 to 2014-2015 and do not refer to the broader population of educators currently working in all Delaware schools.

Metric Detail and Business Rules

This section outlines which metrics are included in the program report and how those metrics are calculated. The following characteristics are described for each metric:

Metric Name	The label of each data point to be included in the program report.
Metric Description	The written text to accompany a given data point.
Minimum Standard	The number at and below which a program earns zero points for that particular metric.
State Target	The number at and above which a program earns the maximum points available for a particular metric.
State Performance	The average observed value as well as the 10th and 90th percentiles for all educators in the universe.
Description of Calculation	The process steps required to calculate a metric result for a given program.
Universe	The population of educators, including candidates and graduates to be included in a metric's calculation.
Exclusion Rules	Any special exclusions governing which data are included in a metric's calculation.
Minimum N	The minimum number of educators required in a metric calculation for that calculation to be displayed on a program report.
Average	A description of how institution and/or state averages are to be calculated for a metric, if applicable.
Example Calculation	A worked example of scoring fictional data for the metric, emphasizing exclusion rules.

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Recruitment Metrics

Diversity of Candidate Class

Metric Description	Reported here is the proportion of candidates who are non-white amongst those that have entered a given program in the past five years.
Minimum Standard	10%
State Target	40%
State Performance	Average = 21% 10th percentile = 5% 90th percentile = 75%
Description Of Calculation	Count the number of educators who entered a given preparation program in the past five years who had race data available and were indicated as being something other than White/Caucasian, including Black, Hispanic/Latino, American Indian, or Asian/Pacific Islander. Divide this by the number of educators who entered a given preparation program in the past five years and had available race data.
Universe	Each educator who entered a given preparation program in the past five years and had available race data.
Exclusion Rules	Excluded are educators for whom their race/ethnicity was not reported.[12]
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the rate for each institution or the state as a whole, respectively.
Example Calculation	An educator preparation program had 42 candidates who entered the program in the school years 2010-11 through 2014-15, inclusive. Of these, 22 are White/Caucasian, 15 are Black, 3 are Hispanic/Latino and 2 are missing data on their race/ethnicity. The 2 teachers missing data are excluded from all calculations, so the revised denominator is 40. The Diversity of Candidate Class then is (15+3)/40 = 18/40 = 45%. To calculate the percent of points earned based on this metric value, we subtract the Minimum Standard from the value and divide by the range between the Minimum Standard and State Target ([Value - Minimum Standard] / [Target - Standard]), unless the value is above or below the Target or Minimum, respectively. 45% is above the State Target of 40%, so this educator preparation program earns 100% of the available points for this metric.

[12] Due to inconsistencies in the use of the "other" category, for the 2016 program reports any candidate who was identified as "other" was excluded from the Diversity of Candidate Class metric calculations.

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A note about the minimum standard and state target for Diversity of Candidate Class:
The minimum standard and state target were established based on the school system's moral imperative to reflect the students that Delaware's educators serve, which in the 2014-15 school year were 53% "minority" or non-white[13]. By setting ambitious targets, Delaware is prioritizing the recruitment of a diverse and qualified candidate pool.

Candidate Academic Strength

Metric Description	Reported here is the average of the best available Praxis I reading, writing, and mathematics scores for candidates who entered a given program in the last five years.
Minimum Standard	174
State Target	185
State Performance	Average = 179 10th percentile = 175 90th percentile = 182
Description Of Calculation	First, take the average of each educator's best available Praxis I scores in math, reading, and writing. Then take the average of all educators' cross-subject Praxis I scores by program.
Universe	Included are educators who entered a given educator preparation program in the school years 2010-11 through 2014-15, inclusive.
Exclusion Rules	Educators who are missing all of the Praxis I subject scores (math, reading, and writing) are excluded from this analysis.
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but by aggregating directly to institutions from the cross-subject educator-specific Praxis I score.

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[13] For a comparison of the demographics of Delaware's students and their educators, see "The Set: Racial Diversity in DE's Teacher and School Leader Workforce" (February 2015) in either text format or an interactive version.

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Candidate Academic Strength continued...

Example Calculation	An educator preparation program has 33 candidates who entered the program in school years 2010-11 through 2014-15, inclusive. Of these, 30 candidates have at least one Praxis I subtest score (math, reading, or writing). For each of the 30 teachers, the best available math, reading and writing subtest scores are averaged. If a candidate has only one Praxis I subtest score, then that is used as the candidate's average Praxis I score. If a candidate has two Praxis I subtest scores, then the average of the two scores is used as the candidate's average Praxis I score. If a candidate has all three Praxis I subtest scores, then an average of the three subtest scores is used as the candidate's average Praxis I score. For example, a single teacher's Praxis I subtest scores of 183, 185, and 180 in math, reading and writing, respectively, would be averaged as follows: (183 + 185 + 180) / 3 = 182.66. The average scores of these 30 teachers are then averaged again, across teachers, to produce an average score for each program. If this program's average score were, for example, 180.5, the program would earn 59.1% of the available points for this metric, or (180.5 - 174) / (185 - 174) using the formula ([Value - Minimum Standard] / [Target - Standard]).

A note about the minimum standard for Candidate Academic Strength: The minimum standard was set to the minimum passing Praxis I score for educator licensure in Delaware, as established by Delaware's Professional Standards Board (an average of 174 out of 190 across all three sections).

Candidate Performance Metrics

Content Readiness

Metric Description	Reported here is the measure of candidates' content knowledge for the subject(s) in which they will be/are certified to teach.
Minimum Standard	0.4
State Target	1.5
State Performance	Average = 1.2 10th percentile = -0.2 90th percentile = 1.6

Content Readiness continued...

Description Of Calculation	First, standardize each educator's best available Praxis II subject score(s) for the content area(s) in which they are/will be certified to teach. If a candidate is/will be certified to teach in more than one content area, then an average is taken of the candidate's standardized Praxis II scores in the subject tests aligned to those content areas. Then, average all educators' cross-subject standardized Praxis II scores by program.
Universe	Included are educators who entered an educator preparation program in the school years 2010-11 through 2014-15, inclusive.
Exclusion Rules	Educators who are missing scores for the Praxis II subject test(s) in the content area(s) they are/will be certified to teach are excluded from this analysis.
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but by aggregating directly to institutions from the cross-subject educator-specific standardized Praxis II scores.
Example Calculation	An educator preparation program has 30 candidates who started the program in the school years 2010-11 through 2014-15, inclusive. Of these, 28 have available content knowledge (Praxis II) scores in the subject area(s) in which they are/will be certified to teach. For each of these 28 teachers, a standardized score is calculated using Delaware's cut score[14] and the historical population standard deviation[15] on that particular assessment. More specifically, the standardized score for each candidate is calculated as follows: Candidate's standardized score = (Candidate's best available score on the Praxis II subject test for which s/he will be/are certified to teach - Delaware's cut score on that assessment) / (Historical population standard deviation on that assessment). As an example, an educator who plans to teach Physical Education took the Physical Education: Content Knowledge Praxis II subject test and scored 163. This educator's standardized Praxis II score would then be 1.26 using the calculation (163 - 152) / (8.7). The standardized scores of the 28 teachers are then averaged across teachers to produce an average score for Content Readiness. If this program's average score were, for example, 0.59, the program would earn 17.3% of the available points for this metric, or (0.59 - 0.4) / (1.5 - 0.4) using the formula ([Value - Minimum Standard] / [Target - Standard]).

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[14] Retrieved from "Delaware Test Requirements" (2016).

[15] Retrieved from "Technical Manual for the Praxis Series and Related Assessments" (2015, pp. 53-59)

Performance Assessment

Metric Description	Reported here are the average performance assessment score(s) for all graduates. This metric is not calculated for the 2016 program reports. Data are not yet available.

Placement Metrics

Placement Rate Overall

Metric Description	Reported here is the rate at which graduates begin working as a teacher or specialist within one year of graduation.
Minimum Standard	30%
State Target	85%
State Performance	Average = 71% 10th percentile = 53% 90th percentile = 100%
Description Of Calculation	First, educator preparation programs reported the number of students who graduated in school year 2014-15 and were subsequently employed as an educator outside of Delaware. Then, Delaware's administrative records were used to count the graduates who graduated in school year 2014-15 and were subsequently employed in public education in Delaware in any capacity or location in the 2015-16 school year. The number of graduates placed overall for each program is calculated by taking the sum of graduates employed as an educator outside Delaware and those employed as an educator in Delaware. Then to calculate the placement rate overall, the total number of graduates placed overall is divided by the number of graduates reported for the 2014-15 school year.
Universe	Included are educators who graduated from an educator preparation program in the 2014-15 school year and entered the education profession in the 2015-16 school year.
Exclusion Rules	None

Placement Rate Overall continued...

Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the rate for each institution or the state as a whole, respectively.
Example Calculation	An educator preparation program reports to the Delaware Department of Education that 100 teachers completed its program in the 2014-15 school year and that 30 of those graduates were placed in education roles outside of Delaware within one year of completing the program. Additionally, the Delaware Department of Education has record of 15 of the program's 2014-15 graduates entering the public education workforce in Delaware within one year of completing the program. Therefore, the total number of placed graduates for this program is 30 + 15 = 45. Placement Rate Overall is calculated as the number of placed graduates divided by the total number of graduates and is therefore 45 / 100 = 45%. This program would earn 27.3% of the points available for this metric, or (45% - 30%) / (85% - 30%) using the formula ([Value - Minimum Standard] / [Target - Standard]).

Placement Rate in Delaware

Metric Description	Reported here is the rate at which graduates begin working as a teacher or specialist in public schools in Delaware within one year of graduation.
Minimum Standard	25%
State Target	75%
State Performance	Average = 48% 10th percentile = 26% 90th percentile = 100%

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Placement Rate in Delaware continued...

Description Of Calculation	First, educator preparation programs reported their number of graduates for the 2010-11 through 2014-15 school years. Then, Delaware's administrative records were used to determine how many of these graduates were employed in public education in Delaware in any capacity or location by the subsequent fall following their graduation (e.g. a student who graduated in the 2011-12 and began teaching by the fall of 2013 would be considered placed)[16]. To calculate the rate of placement in Delaware, divide the number of graduates placed in Delaware by the total number of graduates.
Universe	Included are educators who graduated from an identified educator preparation program in the 2010-11 through 2014-15 school years and entered the education profession in Delaware within one year of graduation.
Exclusion Rules	None
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the rate for each institution or the state as a whole, respectively.
Example Calculation	An educator preparation program reports to the Delaware Department of Education that 250 teachers completed its program in the 2010-11 through 2014-15 school years. The Delaware Department of Education has record of 95 graduates of that program entering the public education workforce in Delaware within one year of graduation. The placement rate in Delaware is therefore 95 / 250 = 38%. This program would earn 28.9% of the points available for this metric, or (38% - 25%) / (75% - 30%) using the formula ([Value - Minimum Standard] / [Target - Standard]).

Placement Rate in Delaware High Needs Schools

Metric Description	Reported here is the proportion of graduates who begin working as a teacher or specialist in Delaware in a state-identified high needs school within one year of graduation.
Minimum Standard	15%

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[16] Due to data limitations, there is an exception for those who graduated in 2014-15 in that only those who were employed in public education in Delaware in any capacity or location by the fall of 2015 are counted as placed.

PLACEMENT METRICS

Placement Rate in Delaware High Needs Schools continued...

State Target	35%
State Performance	Average = 25% 10th percentile = 0% 90th percentile = 36%
Description of Calculation	First, educator preparation programs reported their number of graduates for the 2010-11 through 2014-15 school years. Then, Delaware's administrative records were used to determine the number of graduates placed in Delaware, that is, how many of these graduates were employed in public education in Delaware in any capacity or location by the subsequent fall following their graduation (e.g. a student who graduated in the 2011-12 and begun teaching by the fall of 2013 would be considered placed). Then, Delaware's administrative records were used to determine how many of these graduates placed in Delaware were employed in any capacity in a high needs school in Delaware. To calculate the rate of placement in Delaware high needs school, the number of graduates placed in a high needs school is divided by the number of graduates placed in Delaware.
Universe	Included are educators who graduated from an identified educator preparation program in the 2010-11 through 2014-15 school years and entered the education profession in Delaware within one year of graduation.
Exclusion Rules	None
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the rate for each institution or the state as a whole, respectively.
Example Calculation	An educator preparation program reports to the Delaware Department of Education that 250 teachers completed its program in the 2010-11 through 2014-15 school years, inclusive. The Delaware Department of Education has record of 95 graduates of that program entering the public education workforce in Delaware within one year of graduation. Of these 95, 20 were first employed by a state-identified high needs school. The rate of Placement in Delaware High Needs Schools is therefore 20 / 95 = 21%. This program would earn 30% of the points available for this metric, or (21% - 15%) / (35% - 15%) using the formula ([Value - Minimum Standard] / [Target - Standard]).

Retention Metrics

Retention Beyond Year One

Metric Description	Reported here is the proportion of graduates placed in Delaware who continue working in public education in Delaware beyond their first year of employment.
Minimum Standard	80%
State Target	95%
State Performance	Average = 98% 10th percentile = 96% 90th percentile = 100%
Description Of Calculation	First, identify graduates of a program whose first year of teaching in Delaware was in the 2010-11 through 2014-15 school years (t). Then, to assess beyond year one retention rate, identify if the educator was present, in any employment capacity or location in Delaware, in the following fall's snapshot[17] (t+1).
Universe	Included are educators who graduated from an identified educator preparation program in the 2010-11 through 2014-15 school years, inclusive.
Exclusion Rules	None
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the rate for each institution or the state as a whole, respectively.
Example Calculation	An educator preparation program graduates 30 students between 2010-11 through 2014-15, inclusive, and 25 (83%) continue working in public education in Delaware the school year after the school year in which they are first employed in or after the year of their graduation. This program would earn 20.0% of the available points for this metric, or (83% - 80%) / (95% - 80%) using the formula ([Value - Minimum Standard] / [Target - Standard]).

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[17] The snapshot is taken from Delaware's statewide human resources data system, PHRST. This snapshot is taken each year in October or November and identifies all educators employed in the state at that point in time.

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Retention Beyond Year Three

Metric Description	Reported here is the proportion of graduates placed in Delaware who continue working in public education in Delaware beyond their third year of employment.
Minimum Standard	65%
State Target	85%
State Performance	Average = 79% 10th percentile = 69% 90th percentile = 100%
Description Of Calculation	First, identify graduates of a program whose first year of teaching in Delaware was in the 2010-11 through 2012-13 school years (t). Then, to assess beyond year three retention rate, identify if the educator was present, in any employment capacity or location in Delaware, in the following fall's snapshot[17] (t+1), as well as if the educator was consecutively present for the following two fall snapshots (t+2 and t+3).
Universe	Included are educators who graduated from an identified educator preparation program in the 2010-11 through 2012-13 school years, inclusive.
Exclusion Rules	None
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the rate for each institution or the state as a whole, respectively.
Example Calculation	An educator preparation program graduates 20 students between 2010-11 through 2012-13, inclusive, and 15 (75%) continue working in public education in Delaware the school year after the school year in which they are first employed in or after the year of their graduation and for three consecutive years after that. This program would earn 50% of the available points for this metric, or (75% - 65%) / (85% - 65%) using the formula ([Value - Minimum Standard] / [Target - Standard]).

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[17] The snapshot is taken from Delaware's statewide human resources data system, PHRST. This snapshot is taken each year in October or November and identifies all educators employed in the state at that point in time.

Graduate Performance Metrics

Student Improvement Component Ratings

Metric Description	Reported here is the performance of graduates on the Student Improvement Component of their evaluation using multiple measures of student growth.
Minimum Standard	20%
State Target	70%
State Performance	Average = 48% 15th percentile = 0% 95th percentile = 67%
Description Of Calculation	First, each educator's performance level is identified using the Student Improvement Component of all available DPAS-II[18] evaluations. Then, the marginal effect of each program on educators' odds of being rated "Exceeds" on this component is modeled in a multilevel, mixed effects logistic regression. This model adjusts for differences in educator experience, grade-level taught, DPAS-II educator group[19] and school demographics. The model also includes a school effect to mitigate systematic differences in ratings across schools. Results are reported as predicted probabilities for educators in each program with 0-2 years of experience, in educator group 2[20], in middle grades, in classrooms with average levels of poverty, students with disabilities, English language learners, and white students. Specifically, the distributions of teachers' DPAS-II Student Improvement Component results were compared by pathway using multi-level ordinal regression for C ordered categories with the form: $$Y_{tjc} = X'_{tjc}\beta + T'_{jc}\tau + \lambda_{tc} + \varepsilon_{tjc}$$ Where Y_{tjc} is the average DPAS-II Student Improvement Component score at time t for teacher j in school c, X'_{tjc} is a vector of fixed effects for the average demographic characteristics of students taught at time t by teacher j in school c multiplied by a vector of regression coefficients β, T'_{jc} is a vector of fixed effects for teacher experience, placement and evaluation characteristics for teacher j in school c multiplied by a vector of regression coefficients τ, λ_{tc} is a random school effect distributed as $N(0,\Lambda)$ where Λ reflects an unstructured correlation for repeated measures, and ε_{tjc} is a teacher residual term distributed as $N(0,\Sigma)$ where Σ is an error matrix.

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[18] DPAS-II is Delaware's educator evaluation system. More information can be found by visiting the following website.

[19] Educator group determines applicable measures that can be used to set goals in the Student Improvement Component. More information can be found by visiting the following website.

[20] Educator group 2 includes any educator who generally reports student grades for at least 10 students in any subject or grade where state assessments in reading and mathematics are not administered and/or a Measure B assessment is available.

Student Improvement Component Ratings continued...

Universe	Included are educators who graduated from an identified educator preparation program in school years 2011-12 through 2013-14. DPAS-II Student Improvement Component measures include all available evaluation records for graduates in this time frame.
Exclusion Rules	Excluded are graduates who took teaching positions outside of Delaware, as they would not have DPAS-II evaluations.
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the predicted value for each institution or the conditional mean for the state as a whole, respectively.
Example Calculation	An educator preparation program graduates 30 students between 2011-12 and 2013-14, inclusively. These 30 graduates have a total of 72 evaluation records, and 55% of these records are estimated to be rated as "Exceeds" on the Student Improvement Component after adjusting for differences in the percent of students in poverty and with disabilities, as well as the percent that are English Language Learners and white, and the teachers' years of experience, grade level taught and DPAS-II educator group. Thus, this program would earn 70% of the available points for this metric, or (55% - 20%) / (70% - 20%) using the formula ([Value - Minimum Standard] / [Target - Standard]).

Student Growth Outcomes

Metric Description	Reported here is the average impact of graduates on the growth of their students in English and/or math.
Minimum Standard	-0.2
State Target	0.2
State Performance	Average = 0[21] 10th percentile = -0.14 90th percentile = 0.18

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[21] The state average for the Student Growth Outcomes metric is by definition 0 since teacher effectiveness scores for this metric are calculated to have an average of 0.

Student Growth Outcomes continued...

Description of Calculation	First, each teacher's yearly "value-added" scores are averaged within subject (math, ELA). Then, a cross-subject teacher-specific value-added composite score is calculated by weighting each subject-specific value-added score by its variance among all teachers in Delaware. Composite, cross-subject value-added scores are then calculated for each program by taking the average within program. The "value-added" measures of teacher effectiveness in these reports were computed using longitudinal student assessment data linked to individual classroom teachers through administrative data linked to individual classroom teachers provided by the Delaware Department of Education. These analyses took two forms, a multilevel model and a value-added calculation. Teachers' effects on student achievement were estimated using a multilevel mixed model, also known as hierarchical linear model (HLM). This approach examined the relationship between teacher pathway and student outcomes, adjusting for relevant factors at various levels, prior student achievement, teachers' years of experience, school composition and student characteristics such as race, ethnicity, and Special Education status. Importantly, this estimation strategy mitigates nested or clustered data, such as when students are clustered within teachers and observations are not independent. The final model used for teacher value-added calculations took the form: $$Y_{ticj} = \theta_t (Y_{(t-1)i}) + X'_i \beta + P'_c \varphi + T'_j \tau + \lambda_j + \varepsilon_{ticj}$$ Where Y_{ticj} is the standardized test score from year t for student i in school c under teacher j. θ_t is the regression slope for the standardized prior achievement $Y_{(t-1)i}$ in year t-1 for student i, X'_i is a vector of fixed effects for demographic characteristics of student i multiplied by a vector of regression coefficients β, P'_c is a vector of fixed effects for the composition of school c multiplied by a vector of regression coefficients φ, T'_j is a vector of fixed effects for the characteristics of teacher j multiplied by a vector of regression coefficients τ. λ_j is a random teacher effect distributed as $N(0,\psi)$, and ε_{ticj} is a year by student residual term. Estimates were then averaged within teachers using the process described above.
Universe	Included are teachers with DCAS or Smarter tested students in school years 2010-11 through 2014-15 in math and ELA. Teachers must be assigned to a "regular" (non-administrative) job type in Delaware administrative data. Only students tested in their Full Academic Year school are included in calculations. Teacher-student links with fewer than 5 associations within a subject area are excluded. Value added results are used for all teachers graduating from an identified preparation program between years 2010-11 through 2014-15. All available years' value-added scores are used for those teachers.

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Student Growth Outcomes continued...

Exclusion Rules	Excluded are teachers without a "regular" job type within Delaware's administrative records.
Minimum N	10
Average	Institution averages are calculated in the same manner as above, but by aggregating directly to institutions from the cross-subject teacher-specific composite value-added scores. The state average is by definition 0.
Example Calculation	An educator preparation program has 20 teachers with individual-level value-added results in any subject. When averaged together over time and again across-subject with a variance weight within each teacher, the value-added scores are averaged across teachers in the program and result in a value of 0.01. This program would earn 52.5% of the available points for this metric, or (0.01 - -0.2) / (0.2 - -0.2) using the formula ([Value - Minimum Standard] / [Target - Standard]).

Observation Scores

Metric Description	Reported here are the average observation scores earned by graduates.
Minimum Standard	2.7
State Target	3.3
State Performance	Average = 3.0 10th percentile = 2.9 90th percentile = 3.2

Observation Scores continued...

Description of Calculation	First, each educator's available DPAS-II observational scores on each criterion are averaged to create a calculated criteria score. Then, the marginal effect of each program on educators' mean criteria score is modeled in a multilevel, mixed effects regression. This model adjusts for differences in educator experience, grade-level taught, DPAS-II educator group and school demographics. The model also includes a school effect to mitigate systematic differences in ratings across schools. Results are reported as conditional means for educators in each program with 0-2 years of experience, in educator group 2, in middle grades, in classrooms with average levels of poverty, students with disabilities, English language learners, and white students. Specifically, teachers' average DPAS-II observation scores were compared by pathway using a model taking the form: $$Y_{jc} = X'_{jc}\beta + T'_{jc}\tau + \lambda_c + \varepsilon_{jc}$$ Where Y_{jc} is the average DPAS component score for teacher j in school c. X'_{jc} is a vector of fixed effects for the average demographic characteristics of students taught by teacher j in school c multiplied by a vector of regression coefficients β. T'_{jc} is a vector of fixed effects for teacher experience, placement and evaluation characteristics for teacher j in school c multiplied by a vector of regression coefficients τ. λ_c is a random school effect distributed as $N(0,\varphi)$, and ε_{jc} is a teacher residual term.
Universe	Included are educators graduating from an identified educator preparation program between years 2010-11 through 2013-14. DPAS-II criterion measures include all available evaluation records for graduates in this time frame.
Exclusion Rules	Any record for an educator that does not have at least 13 out of the 18 possible criteria scored is excluded.
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the conditional mean for each institution or the state as a whole, respectively.
Example Calculation	An educator preparation program graduates 15 students between 2010-11 through 2013-14, inclusively. Together these graduates have 33 DPAS-II criteria scores that are averaged together within, and then across, teachers, resulting in a conditional average of 2.9 after adjusting for differences in the percent of students in poverty and with disabilities, as well as the percent that are English Language Learners and white, and the teacher's year of experience, grade level taught and educator evaluation group. This program would earn 33.3% of the available points for this metric, or (2.9 - 2.7) / (3.3 - 2.7) using the formula ([Value - Minimum Standard] / [Target - Standard]).

Overall Performance Evaluation Ratings

Metric Description	Reported here is the proportion of graduates that earn the highest possible rating ("Highly Effective") on their overall evaluation, consisting of observation scores and student growth measures.
Minimum Standard	20%
State Target	70%
State Performance	Average = 43% 10th percentile = 18% 90th percentile = 60%
Description Of Calculation	First, all available summative ratings for graduates from the 2010-11 through 2014-15 are identified. Then, the marginal effect of each program on educators' odds of being rated "Highly Effective" overall is modeled in a multilevel, mixed effects logistic regression. This model adjusts for differences in educator experience, grade-level taught, DPAS-II educator group and school demographics. The model also includes a school effect to mitigate systematic differences in ratings across schools. Results are reported as predicted probabilities for educators in each program with 0-2 years of experience, in educator group 2, in middle grades, in classrooms with average levels of poverty, students with disabilities. English language learners, and white students. Specifically, the distributions of teachers' DPAS-II results were compared by pathway using multi-level ordinal regression for C ordered categories with the form: $$Y_{tjc} = X'_{tjc}\,\beta + T'_{jc}\,\tau + \lambda_{tc} + \varepsilon_{tjc}$$ Where Y_{tjc} is the average DPAS-II Overall Performance Evaluation Ratings score at time t for teacher j in school c, X'_{tjc} is a vector of fixed effects for the average demographic characteristics of students taught at time t by teacher j in school c multiplied by a vector of regression coefficients β, T'_{jc} is a vector of fixed effects for teacher experience, placement and evaluation characteristics for teacher j in school c multiplied by a vector of regression coefficients τ, λ_{tc} is a random school effect distributed as $N(0,\Lambda)$ where Λ reflects an unstructured correlation for repeated measures, and ε_{tjc} is a teacher residual term distributed as $N(0,\Sigma)$ where Σ is an error matrix.
Universe	Included are educators graduating from an identified educator preparation program between years 2010-11 through 2014-15, inclusive. All available DPAS-II summative records from this time period are included.
Exclusion Rules	Excluded are educators who took teaching positions outside of Delaware.

Overall Performance Evaluation Ratings continued...

Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the predicted value for each institution or the conditional mean for the state as a whole, respectively.
Example Calculation	An educator preparation program graduates 30 students between 2010-11 through 2014-15, inclusively. These 30 students have 70 DPAS-II summative evaluations. Of these evaluations 74% are estimated to be "Highly Effective" after adjusting for differences in the percent of students in poverty and with disabilities, as well as the percent that are English Language Learners and white, and the teacher's years of experience, grade level taught and DPAS-II educator group. This program would earn 100% of the available points for this metric, since 74% is above the state target of 70%.

Perceptions Metrics

Preparedness, Graduate Survey

Metric Description	Reported here is an index of the perceptions that recent graduates have regarding how well their educator preparation program prepared them for their roles as educators.
Minimum Standard	2.8
State Target	3.8
Historical Performance	Average = 3.3 10th percentile = 3.1 90th percentile = 3.4
Description of Calculation	First, answer choices on the survey were given a numerical value with 1 being the lowest level of agreement and 4 being the highest level of agreement. Then, an average of each graduate's responses on the survey is calculated. Next, the median of the graduates' averaged responses is taken by program.
Universe	Included are educators graduating from an identified educator preparation program in school year 2014-15.

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Preparedness, Graduate Surveys continued...

Exclusion Rules	Scores were not calculated for programs that had fewer than 10 recent graduates respond or had less than a 30% response rate.
Minimum N	10
Average	Institution and state averages are calculated in the same manner as above, but represent the rate for each institution or the state as a whole, respectively.
Example Calculation	An educator preparation program has 12 recent graduates. 11 responded to the survey. First, the average of the responses is calculated for each of the 11 respondents. Then, the median of the average responses is taken for this program. If, for example, the median of the average responses is 3.3, this program would earn 50.0% of the available points for this metric, or (3.3 - 2.8) / (3.8 - 2.8) using the formula ([Value - Minimum Standard] / [Target - Standard]).

Preparedness, Supervisor Survey

Metric Description	Reported here is an index of the perceptions that supervisors have regarding the preparedness level of the recent graduates they supervised.
Minimum Standard	2.8
State Target	3.9
Historical Performance	Average = 3.35 10th percentile = 3.2 90th percentile = 3.4
Description of Calculation	First answer choices on the survey are given a numerical value with 1 being the lowest level of agreement and 4 being the highest level of agreement. Then, an average of each supervisor's responses on the survey for a given recent graduate is calculated. Next, the median of the supervisors' averaged responses for each recent graduate is taken by program.
Universe	Included are educators graduating from an identified educator preparation program in school year 2014-15.
Exclusion Rules	Scores were not calculated for programs that had fewer than 10 recent graduates respond or had less than a 30% response rate.
Minimum N	10

PERCEPTIONS METRICS

Preparedness, Supervisor Surveys continued...

Average	Institution and state averages are calculated in the same manner as above, but represent the rate for each institution or the state as a whole, respectively.
Example Calculation	An educator preparation program has 20 recent graduates. A supervisor completed a survey for 15 of these recent graduates. The median of the supervisor perception scores for these 15 recent graduates is 3.5. Thus, this program would earn 63.6% of the available points for this metric, or (3.5 - 2.8) / (3.9 - 2.8) using the formula ([Value - Minimum Standard] / [Target - Standard]).

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Classifying Educator Preparation Programs

All programs generating program reports earn a point value which corresponds with one of four summary performance tiers. Tier 1 represents top-performing programs. Programs are assigned to tiers based on the total percentage of points earned by a program with the following summative state targets:

TIER 1

Programs rated as Tier 1 have earned 70 percent or more of available points, for the highest classification as it pertains to recruiting and preparing educators to serve students and schools, particularly in Delaware.

TIER 2

Programs rated as Tier 2 have earned between 55 and 69 percent of available points, for the second highest classification as it pertains to recruiting and preparing educators to serve students and schools, particularly in Delaware.

TIER 3

Programs rated as Tier 3 have earned between 40 and 54 percent of available points, for the second lowest classification as it pertains to recruiting and preparing educators to serve students and schools, particularly in Delaware.

TIER 4

Programs rated as Tier 4 have earned fewer than 40 percent of available points, for the lowest classification as it pertains to recruiting and preparing educators to serve students and schools, particularly in Delaware.

The total points possible equals 100. In certain cases, some programs had insufficient candidates or graduates to calculate one or more metrics, so the total points a program could possibly earn would be less than 100 points. In these cases, a program's score is determined by dividing its earned points by the total possible points.

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Unavailable Data And Non-Applicable Metrics

Much of the data required to calculate the score for a program are collected directly and continuously by the Department of Education. Failure of a program to provide data can result in state actions. However, when data for a particular metric is not available due to issues of data collection, data quality, or inapplicability, or there are small sample sizes where the n-size for a given metric is less than ten (10), the following business rules apply:

- If a program does not have any scored metrics in the Graduate Performance domain, the program does not generate a program report.

- If a domain other than the Graduate Performance domain does not have any scored metrics, the entire domain is unscored and the domain points are removed from the program reports' possible points.

- Within each domain, if a program does not have data for a particular metric, that metric's possible point value is distributed proportionately across the other metrics within that domain.

- If a program does not have any data for the Student Growth Outcomes metric, the points possible for that metric are added to the points possible for the Student Improvement Component Ratings metric.

All source data and metrics are rounded to the nearest whole number. Values displayed on the report are rounded to the nearest whole number with the following exceptions:

- The value displayed for Percent of Points Earned is truncated to display the whole number, with no rounding (page 1 of the program report).

- The value displayed for the Observation Scores metric is rounded to the nearest hundredth (page 4 of the program report).

- The value displayed for the Student Growth Outcomes metric is rounded to the nearest hundredth (page 4 of the program report).

A final note on the rounding of values: due to rounding, programs may have the same value displayed for a given metric, with different point allocations. This is due to the fact that, for example, different point allocations would lead to a program earning 85.5% versus 86.4%. Yet, these would both round to, and would be displayed as, 86%.

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Attributing Educators To Programs

Educators are only included in 2016 metric calculations if the year in which they entered or completed a program is in the school years 2010-11 through 2014-15, inclusive. The specific school years in which data are attributable to educators vary by metric and are outlined in the Universe portion of the Metric Detail and Business Rules section above.

Educators are assigned to preparation programs and their related institutions using a roster produced by the Delaware Department of Education and verified by the institution. Educators are assigned a graduation school year based on their most recent graduation date in Bachelor's and Master's programs, respectively. Educators graduating from both a Bachelor's program and a Master's program are included in calculations for each program. Educators completing multiple educator preparation programs (whether via traditional or alternative routes) are included in calculations for each program as long as they graduated from each program during the timeframe outlined above. Ph.D. and school leadership program graduates are not included.

The State Summary Table

The 4+1 tracks offer students an accelerated pathway to earning a Master's degree. In this track, a student may complete an additional year (+1) after earning a Bachelor's degree in order to also earn a Master's degree. Because of the unique nature of these tracks, there are a number of caveats that must be kept in mind for interpreting the metrics in these specific cases. One caveat is that while a student is completing the +1 portion of the program, they are not included in any of the Placement metrics of their Bachelor's program. When they have completed the entire 5 years, they then count for both their Bachelor's and Master's program.

Additionally, graduates who are part of a 4+1 program have additional year to show up in the Delaware's administrative records system in their initial graduating programs (e.g. 2013-2014 graduate of a Bachelor's in Elementary Teacher Education/Special Education and a 2014-2015 graduate of a 4+1 Masters in Exceptional Children and Youth program will have a chance to show up in Delaware's administrative records by 2015-2016 school year).

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Alternative Educator Preparation Programs

Since the mid-1990's Delaware has authorized several alternative licensure and certification programs to place teachers into high needs schools and hard-to-staff subject areas. These alternative route programs differ in their selection models, program missions, and program length. Although alternative route programs account for a small proportion (approximately 10%) of novice educators prepared in Delaware, they serve an important role in district and school staffing.

These alternative route programs were evaluated alongside "traditional" preparation programs. Due to their unique structure, there were slight methodological differences in calculating a number of the metrics, described here.

Because alternative route candidates tend to enter the classroom at the onset of their preparation program, the "candidates" in these programs are almost always immediately serving students. Thus, "candidates" (program entrants), in addition to "graduates" (program completers), are used to calculate the scored metrics when applicable. Instead of being assigned a cohort year based on when a student completes the program, educators prepared by alternative-route programs are categorized by when they entered the program and, by extension, the classroom.

Thus, given the lexicon employed in the reports when discussing alternative route programs, data reporting for their domains/metrics may not be intuitive for all readers. Take, for instance, the calculation of the metric "Beyond Year Three Retention Rate". This metric involves evaluating employment in Delaware's public schools beyond three consecutive years, beginning in or after the school year the educator graduated from the preparation program. For educators prepared by an alternative route program, their first year of employment is also their first year in the preparation program. Therefore, their three consecutive years begin accumulating upon entry to the program, and by definition entry into the classroom, rather than when they complete the program.

Adjusting For Differences In School Context

Several metrics in the program report use a technique called "covariate adjustment" to better assess the efficacy of preparation programs. Instead of identifying an average score on a metric for a program, covariate adjustment computes a "conditional average" which can be adjusted to reflect differences in the prior achievement of educators' students, the demographic population of educators' schools, or the general school-to-school variation in outcomes that is not attributable to educator preparation programs.

The metrics that account for differences in school context include:

- Student Improvement Component Ratings – Graduate Performance Domain

- Student Growth Outcomes – Graduate Performance Domain

- Observation Scores – Graduate Performance Domain

- Overall Performance Evaluation Ratings – Graduate Performance Domain

The specific statistical adjustments made for each of these measures are outlined in the Metric Detail and Business Rules section above.

The State Summary Table

Individual educator preparation program reports are released alongside a summary document that lists all programs by their institution/provider in a state summary table. In addition to each program's overall rating, it includes their ratings on individual domains. This summary also includes programs offered by an institution/provider that may not have generated a program report.

For programs that have not generated a program report, the Department created three different classifications under which a program did not generate a program report. These are:

- The program did not generate a program report due to low enrollment in the program, limited hiring of graduates in Delaware, or a combination of both factors.

- The program did not generate a program report as it is either no longer enrolling new candidates, or it is no longer being offered by the institution/provider.

- The program did not generate a program report as it was recently established by the institution/provider and thus does not have sufficient performance history.

Programs with fewer than five graduating cohorts were eligible to be categorized as "recently established." Other programs were asked to identify the status of their program, specifying whether or not the program was enrolling new candidates, which would determine which of the remaining two scenarios best applied to them.

Note: These scenarios were only ascribed to programs that did not generate a program report. Programs could be either "recently established" or no longer enrolling new candidates, yet still have sufficient data to merit a program report.

Which programs appear on the State Summary Table?

In 2016, not all programs that prepare educators are included in the State Summary Table. As previously mentioned, Ph.D. and school leader preparation programs are not included.

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Appendix

FIGURE 2: PROGRAM SCORE DISTRIBUTION BY METRIC

METRIC	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION	10TH PERCENTILE	25TH PERCENTILE	50TH PERCENTILE	75TH PERCENTILE	90TH PERCENTILE
Diversity of Candidate Class	0%	100%	21%	29%	5%	11%	19%	47%	75%
Candidate Academic Strength	173	184	179	3	175	177	179	181	182
Content Readiness	-1.35	1.83	1.16	0.72	-0.16	0.41	0.86	1.41	1.58
Placement Rate Overall	0%	100%	71%	26%	53%	68%	84%	100%	100%
Placement Rate in Delaware	0%	100%	48%	29%	26%	42%	68%	100%	100%
Placement Rate in Delaware High Needs Schools	0%	72%	25%	16%	0%	0%	14%	22%	36%
Retention Beyond Year One	75%	100%	98%	5%	96%	98%	100%	100%	100%
Retention Beyond Year Three	32%	100%	79%	15%	69%	77%	90%	100%	100%
Student Improvement Component Ratings	0%	99%	48%	23%	0%	38%	48%	53%	67%
Student Growth Outcomes	-0.39	0.23	0.00	0.15	-0.14	-0.08	0.01	0.07	0.18
Observation Scores	2.67	3.44	3.05	0.12	2.95	3.00	3.03	3.10	3.17
Overall Performance Evaluation Ratings	0%	99%	43%	19%	18%	35%	43%	50%	60%
Preparedness, Graduate Survey	3.02	3.41	3.30	0.13	3.13	3.23	3.30	3.36	3.40
Preparedness, Supervisor Survey	3.17	3.46	3.35	0.21	3.20	3.24	3.32	3.39	3.43

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