

UNC Teacher Quality Research

Teacher Preparation Program Effectiveness: 2015 Program Report

University of North Carolina Asheville

August 2015

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EDUCATION POLICY
INITIATIVE *at* CAROLINA

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Teacher Preparation Program Effectiveness Report: University of North Carolina Asheville

Introduction

The University of North Carolina General Administration (UNCGA) established an agenda of research in 2009 to address the entry, persistence, and quality of teacher and school leader preparation in North Carolina. Since that time, the Teacher Quality Research Initiative has become an important component of the University system's efforts to prepare more, higher quality teachers and school leaders for North Carolina public schools. Results from this research agenda enable the leaders on UNC campuses to identify areas of strength, potential areas of weakness, and the areas where their graduates' performance is comparable to the performance of teachers from a variety of other sources. This research also contributes to state education policy makers' understanding of where their policies and investments are paying off and where they are not achieving intended purposes.

For this report, the research team at the Education Policy Initiative at Carolina (EPIC) compared the performance of teachers initially prepared by the University of North Carolina Asheville to the performance of all other teachers in the state based on the education and training that qualified them to enter the teaching profession. This is the fourth iteration of the Teacher Preparation Program Effectiveness Report. For each iteration we expand and update our analyses to offer more useful and timely information to assist the Deans of UNC system Schools/Colleges of Education in the evaluation and improvement of their programs. Consistent with past analyses, in this report we estimate the adjusted-average test score gains for North Carolina public school students taught by teachers initially prepared at UNC system institutions. In addition to the value-added models, we estimate adjusted-average evaluation ratings for UNC system institution initially prepared teachers. While value-added models can only be estimated for teachers in tested grades and subjects, evaluation ratings are available for a large percentage of teachers and measure important aspects of teaching—demonstrating leadership, establishing a respectful classroom environment, content knowledge, facilitating student learning, and reflecting on practice—that are not fully captured by student test score gains. Together, these two outcomes provide a more comprehensive view of teacher performance by offering a broader range of information about where a program's graduates may be performing well or less well. Detailed below are key features of these models, a summary of the findings, graphs of the results, and tables showing the teacher counts in each model.

Table 1: Teacher Preparation Category Abbreviations

| Teacher Preparation Category | Abbreviation |
|---|---------------------|
| Other UNC Institution Prepared | Other UNC |
| NC Private University Undergraduate Degree Prepared | NCPUG |
| NC Private University Graduate Degree Prepared | NCPMA |
| NC Private University Licensure Only | NCPLO |
| Out of State University Undergraduate Degree Prepared | OSUG |
| Out of State University Graduate Degree Prepared | OSMA |
| Out of State University Licensure Only | OSLO |
| Teach For America | TFA |
| Visiting International Faculty | VIF |
| Alternative Entry | AE |
| Unclassifiable | UNCLASS |

Value-Added Analyses

In order to best capture the effects of teacher preparation on student achievement, data for these analyses spanned the 2008-09 through 2012-13 school years and were limited to teachers with less than five years of experience. The performance of teachers initially prepared at the University of North Carolina Asheville is compared to the performance of all other teachers according to the training that qualified them to enter the teaching profession in North Carolina. We estimated 10 subject area/grade level value-added models with control variables for prior student achievement and demographic information, classroom and teacher indicators, including years of teaching experience and out-of-field teaching, and school level contextual factors. The subject area/grade level models are as follows: End-of-Grade (EOG) exams in elementary grades mathematics, reading (grades 4 and 5), and science (grade 5 only); EOG exams in middle grades mathematics, reading (grades 6-8), and science (grade 8 only); an End-of-Course (EOC) exam for algebra I taken in middle grades (grades 6-8); and EOC exams for high school algebra I, biology, and English I/II. Due to the elimination of several EOC exams in North Carolina, we no longer report value-added results for the following high school subject areas: algebra II, geometry, chemistry, physical science, physics, U.S. history, and civics. Supplementary models that limit comparisons to the performance of teachers in the same school (school fixed effects) are displayed in the appendix. Teacher preparation categories needed at least ten teachers in the grade-subject area for results to be reported.

Summary of Value-Added Results

The following key points summarize the value-added model results for initially-prepared teachers from the University of North Carolina Asheville.

University of North Carolina Asheville prepared teachers were significantly *more effective* than teachers from the following preparation categories:

- North Carolina Private University Undergraduate Degree in Elementary School Science
- Out of State University Undergraduate Degree in Elementary School Science
- Alternative Entry in Elementary School Science

University of North Carolina Asheville prepared teachers were significantly *less effective* than teachers from the following preparation categories:

- Other UNC in Elementary School Mathematics
- North Carolina Private University Undergraduate Degree in Elementary School Mathematics
- North Carolina Private University Graduate Degree in High School Biology
- North Carolina Private University Licensure Only in Elementary School Mathematics
- Out of State University Graduate Degree in Elementary School Mathematics and High School English
- Out of State University Licensure Only in Middle School Reading
- North Carolina Private University Graduate Degree in High School Biology
- Teach For America in Elementary School Mathematics, Middle School Mathematics, High School Algebra, and High School Biology
- Visiting International Faculty in Elementary School Mathematics, Elementary School Reading, and High School Algebra
- Unclassifiable in Elementary School Mathematics

Value-Added Graphs

The following figures present graphical results at the elementary, middle, and high school levels. For interpretation, four points are important:

- 1) The University of North Carolina Asheville is set to zero for all graphs and each plot represents the relative difference between the marked category and UNCA.
- 2) All model results have been multiplied by 100 to express findings as percentages of standard deviations in student achievement.
- 3) Significant results are expressed with black labels, diamond symbols and asterisks (* and ** indicate statistical significance at the 0.05 and 0.01 levels, respectively); non-significant results are grayed out with square symbols
- 4) Scaling for graphs differs depending on the magnitude of results.

Figure 1. Elementary School Value-Added Results: UNCA Prepared Teachers vs. All Other Preparation Categories

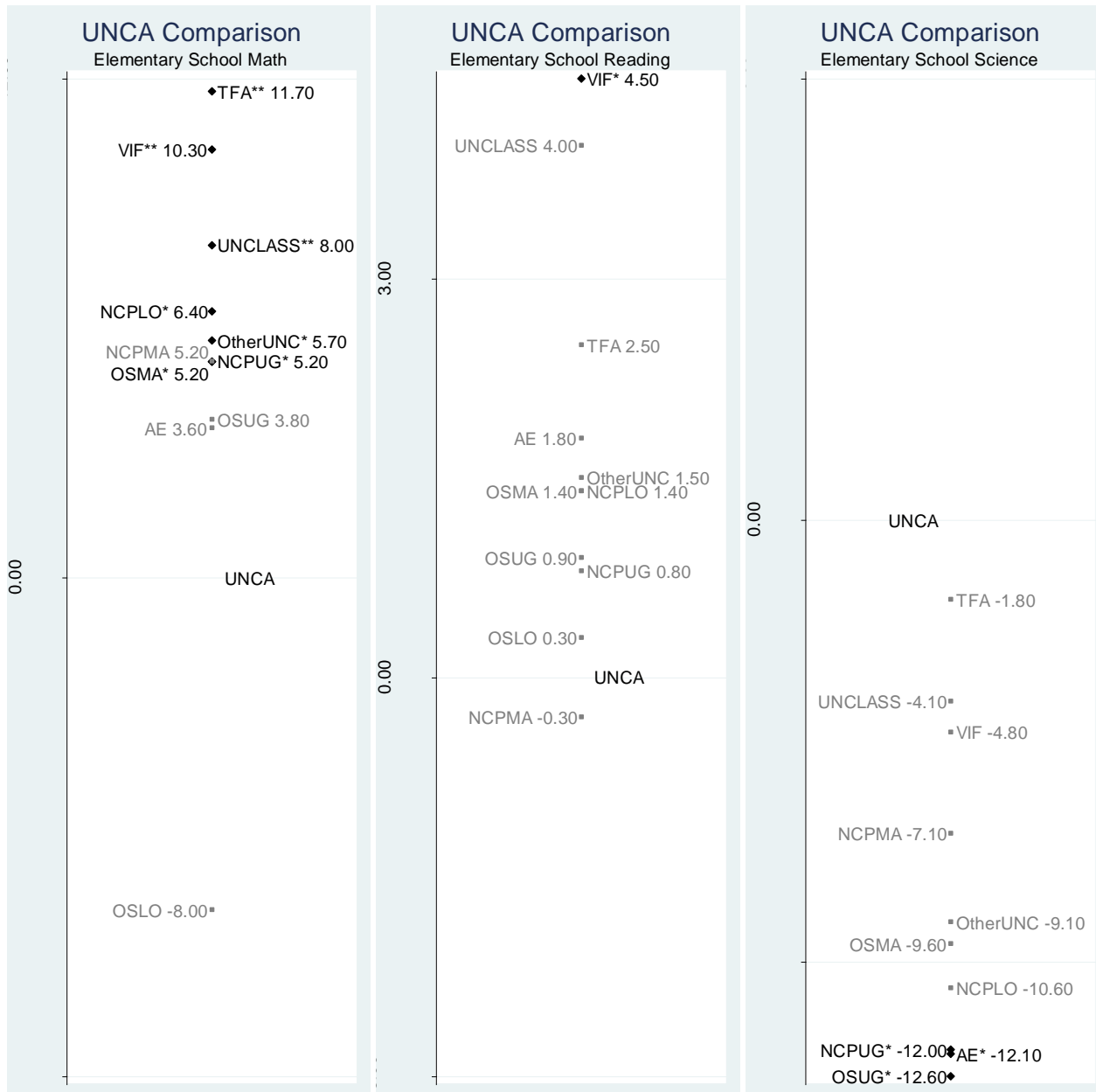


Figure 2. Middle School Value-Added Results: UNCA Prepared Teachers vs. All Other Preparation Categories

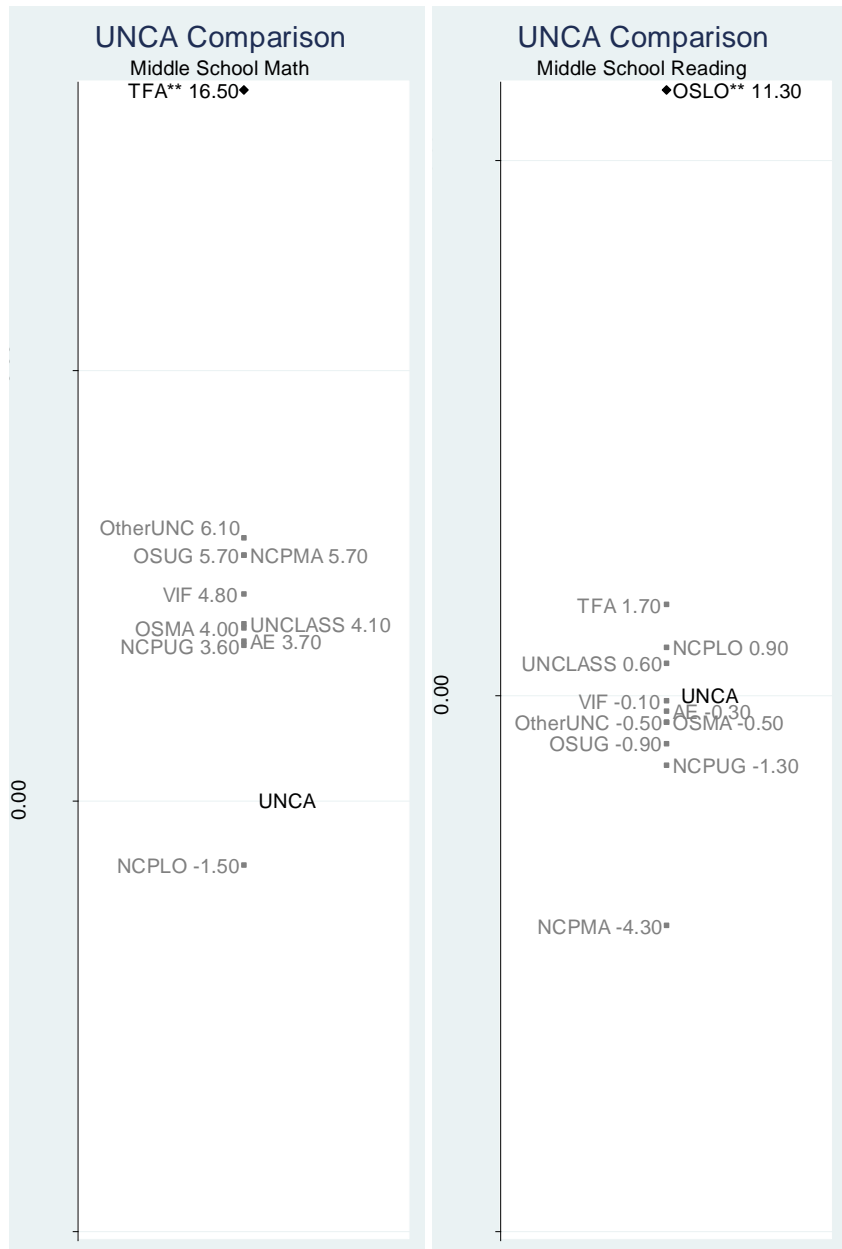


Figure 3. High School Value-Added Results: UNCA Prepared Teachers vs. All Other Preparation Categories



Table 2: Unique Teacher Counts in Value-Added Models by Preparation Category, Grade Level, and Subject

| Teacher Preparation Category (Abbreviation) | ES Math | ES Reading | ES Science | MS Math | MS Reading | MS Science | MS Algebra | HS Algebra | HS English | HS Biology |
|--|---------|------------|------------|---------|------------|------------|------------|------------|------------|------------|
| University of North Carolina Asheville (UNCA) | 56 | 56 | 28 | 13 | 30 | 5 | 6 | 19 | 18 | 15 |
| Other UNC Institution Prepared (Other UNC) | 3270 | 3267 | 1651 | 1141 | 1187 | 310 | 259 | 672 | 731 | 294 |
| NC Private University Undergraduate Degree Prepared (NCPUG) | 1060 | 1060 | 528 | 239 | 246 | 44 | 36 | 149 | 110 | 40 |
| NC Private University Graduate Degree Prepared (NCPMA) | 81 | 81 | 38 | 14 | 21 | 4 | 5 | 25 | 36 | 13 |
| NC Private University Licensure Only (NCPLO) | 95 | 95 | 49 | 13 | 23 | 3 | 2 | 1 | 9 | 3 |
| Out of State University Undergraduate Degree Prepared (OSUG) | 2166 | 2164 | 1121 | 794 | 784 | 258 | 146 | 286 | 300 | 157 |
| Out of State University Graduate Degree Prepared (OSMA) | 579 | 579 | 275 | 179 | 264 | 59 | 37 | 87 | 99 | 80 |
| Out of State University Licensure Only (OSLO) | 12 | 12 | 3 | 3 | 11 | 0 | 0 | 3 | 1 | 5 |
| Teach For America (TFA) | 119 | 119 | 61 | 129 | 135 | 61 | 25 | 90 | 77 | 67 |
| Visiting International Faculty (VIF) | 170 | 170 | 87 | 67 | 43 | 16 | 9 | 27 | 31 | 12 |
| Alternative Entry (AE) | 385 | 383 | 204 | 795 | 876 | 405 | 163 | 483 | 469 | 474 |
| Unclassifiable (UNCLASS) | 164 | 164 | 73 | 52 | 80 | 19 | 9 | 17 | 42 | 22 |

Note: Cells highlighted in grey have less than ten teachers and therefore do not have any results reported.

Evaluation Rating Analyses

For these analyses, we used North Carolina Educator Evaluation System (NCEES) data from 2010-11 through 2012-13. As with our value-added analyses, we limited these models to teachers with less than five years of experience during the study period. We report evaluation rating results for the five North Carolina Professional Teaching Standards (NCPTS) that are directly assessed by school administrators: teachers demonstrate leadership (Standard 1), teachers establish a respectful environment for a diverse group of students (Standard 2), teachers know the content they teach (Standard 3), teachers facilitate learning for their students (Standard 4), and teachers reflect on their practice (Standard 5). For each NCPTS, we specified an ordered logistic regression model with standard errors clustered at the school-by-year level and controls for teacher experience and school characteristics. We performed analyses for elementary, middle, and high schools, separately. These models compare the adjusted-average evaluation ratings of University of North Carolina Asheville initially-prepared teachers (reference group) with those of teachers from a variety of other preparation categories. Coefficients reflect the odds of being rated higher on the evaluation standard relative to UNCA initially-prepared teachers. To ease the interpretability of these results, we also display predicted probabilities for rating at Levels II-V (developing to distinguished) of the NCPTS.

Summary of Evaluation Rating Results

The following key points summarize the evaluation rating results for initially-prepared teachers from the University of North Carolina Asheville. Results are reported by grade level.

Elementary School

University of North Carolina Asheville prepared elementary school teachers had *significantly higher* evaluation ratings than teachers from the following preparation categories:

- Other UNC on Standard 1, Standard 3, and Standard 4
- North Carolina Private University Undergraduate Degree on Standard 1, Standard 3, and Standard 4
- North Carolina Private University Graduate Degree on Standard 4
- North Carolina Private University Licensure Only on Standard 3 and Standard 4
- Out of State University Undergraduate Degree on Standard 1, Standard 3, Standard 4, and Standard 5
- Out of State University Graduate Degree on Standard 1, Standard 3, and Standard 4
- Out of State University Licensure Only on Standard 1, Standard 4, and Standard 5
- Visiting International Faculty on Standard 1 and Standard 4
- Alternative Entry on Standard 1, Standard 2, Standard 3, Standard 4, and Standard 5
- Unclassifiable on Standard 1, Standard 2, Standard 3, Standard 4, and Standard 5

Middle School

University of North Carolina Asheville prepared middle school teachers had *significantly higher* evaluation ratings than teachers from the following preparation categories:

- Out of State University Licensure Only on Standard 3
- Alternative Entry on Standard 1 and Standard 4
- Unclassifiable on Standard 1 and Standard 4

High School

University of North Carolina Asheville prepared high school teachers had *significantly higher* evaluation ratings than teachers from the following preparation categories:

- Other UNC on Standard 1 and Standard 3
- North Carolina Private University Undergraduate Degree on Standard 3 and Standard 5
- Out of State University Undergraduate Degree on Standard 1, Standard 3, and Standard 5
- Out of State University Graduate Degree on Standard 5
- Out of State University Licensure Only on Standard 1 and Standard 5
- Visiting International Faculty on Standard 1 and Standard 5
- Alternative Entry on Standard 1, Standard 3, Standard 4, and Standard 5
- Unclassifiable on Standard 1, Standard 3, and Standard 5

Evaluation Rating Graphs

The following pages present graphical results at the elementary, middle, and high school levels. For interpretation, three points are important:

- 1) In the graphs on the left side of each page, the University of North Carolina Asheville is set to one and each plot represents the relative difference between the marked category and UNCA.
- 2) In the graphs on the left side of each page, significant results are expressed with black labels, diamond symbols and asterisks (* and ** indicate statistical significance at the 0.05 and 0.01 levels, respectively); non-significant results are grayed out with square symbols.
- 3) The graphs on the right side of each page display the predicted probabilities for rating at Levels II-V (developing to distinguished) for teachers from each preparation category.

Figure 4. Elementary School Evaluation Rating Results for Standard 1: UNCA Prepared vs. All Other Preparation Categories

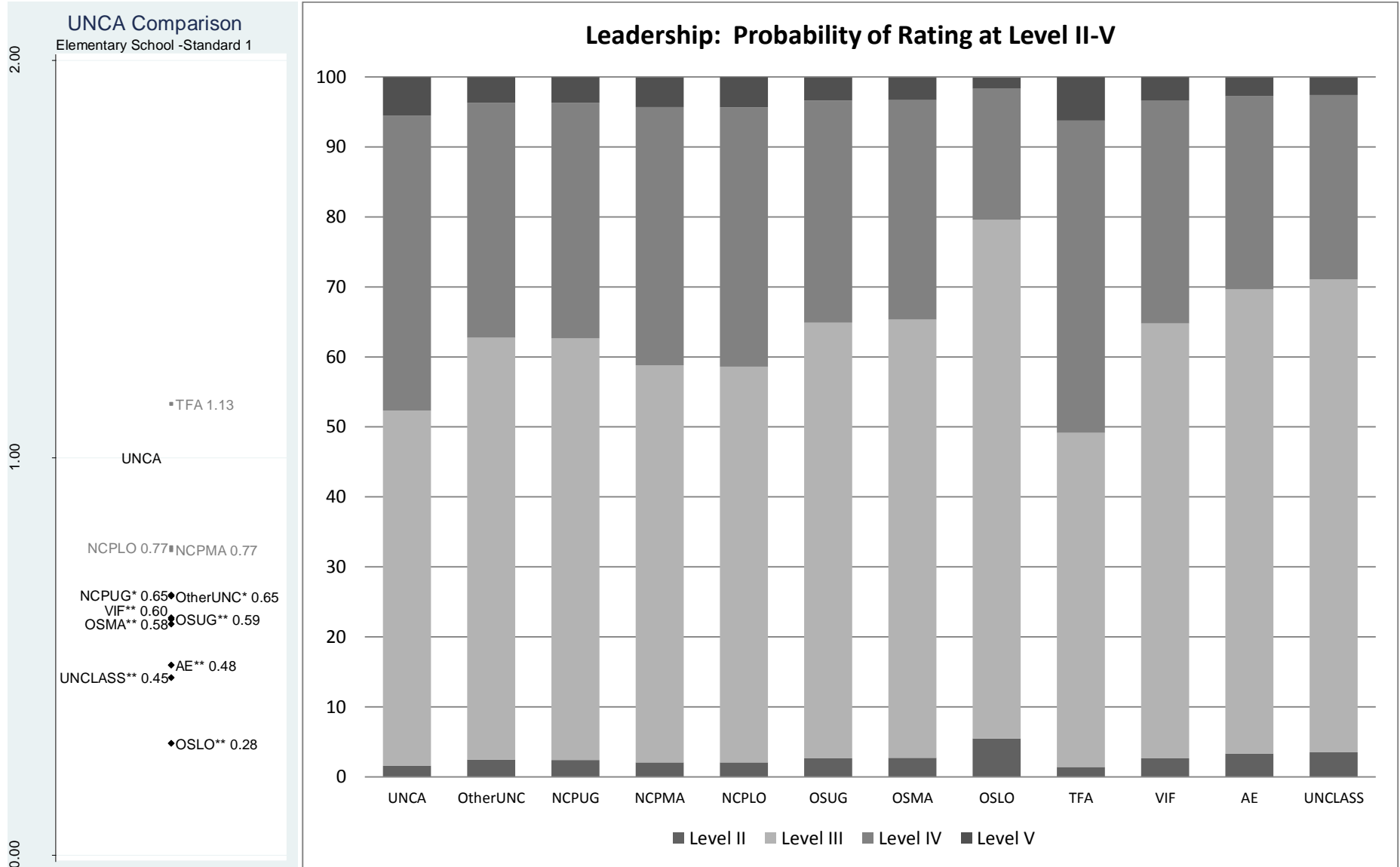


Figure 5. Elementary School Evaluation Rating Results for Standard 2: UNCA Prepared vs. All Other Preparation Categories

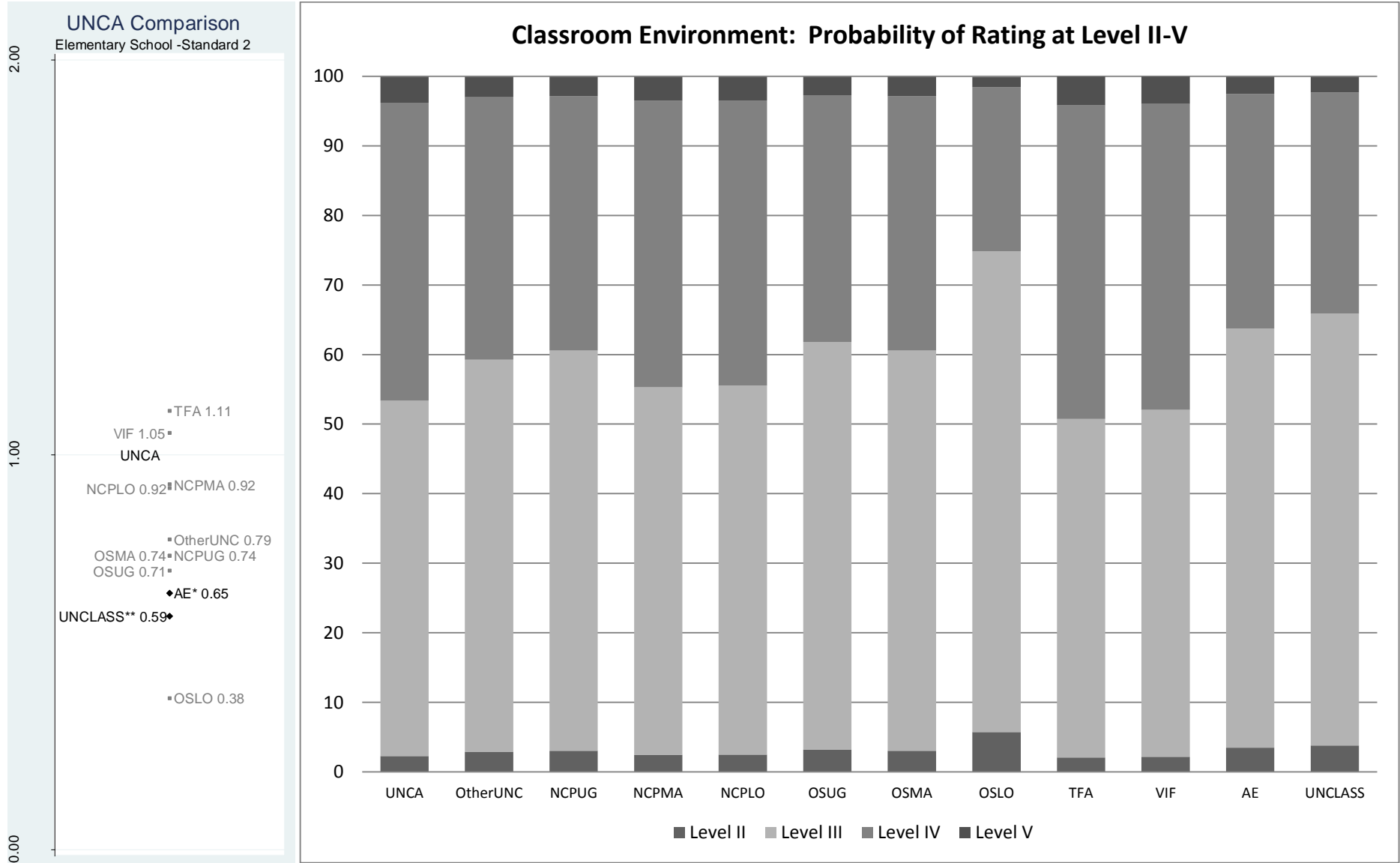


Figure 6. Elementary School Evaluation Rating Results for Standard 3: UNCA Prepared vs. All Other Preparation Categories

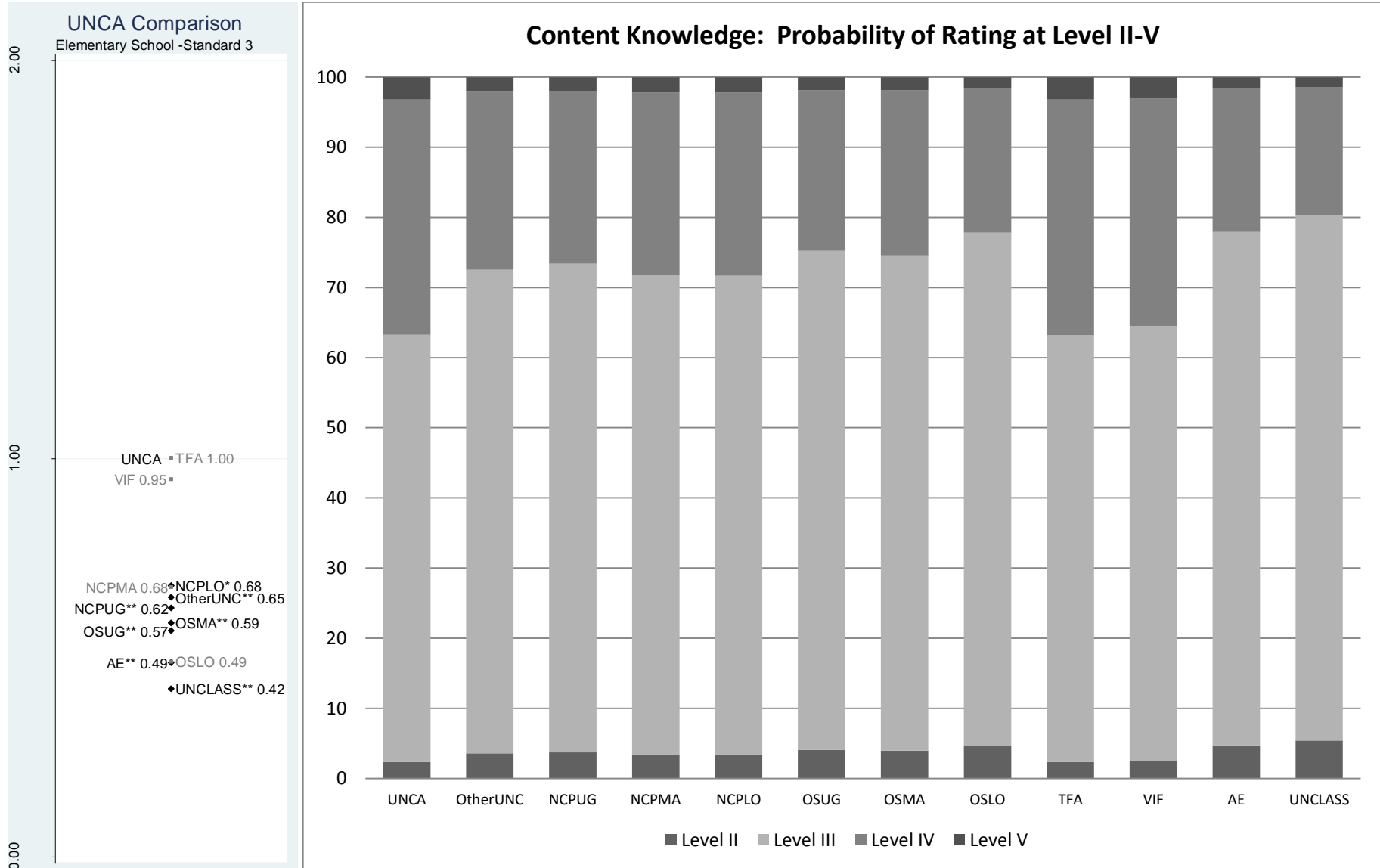


Figure 7. Elementary School Evaluation Rating Results for Standard 4: UNCA Prepared vs. All Other Preparation Categories

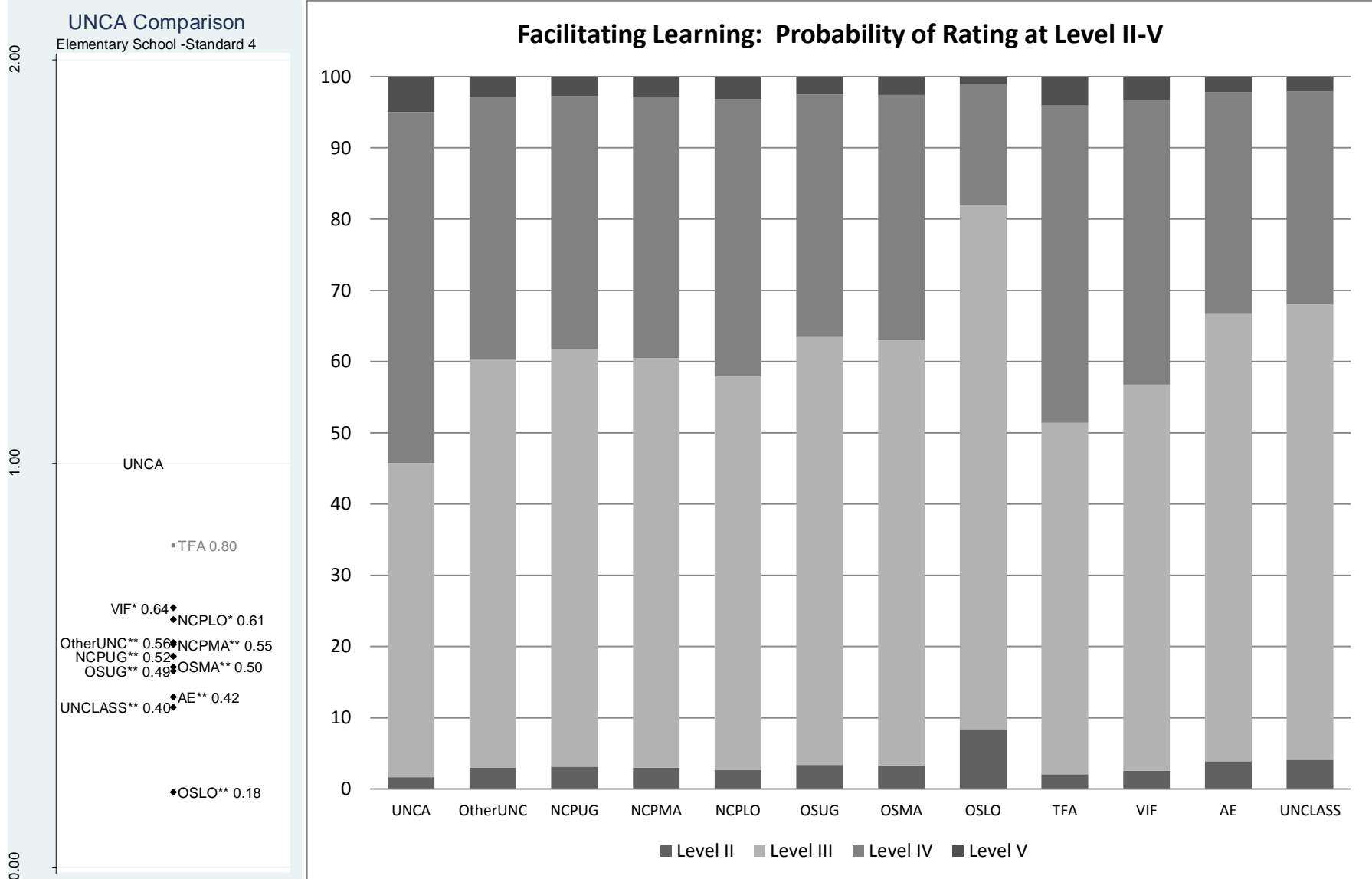


Figure 8. Elementary School Evaluation Rating Results for Standard 5: UNCA Prepared vs. All Other Preparation Categories

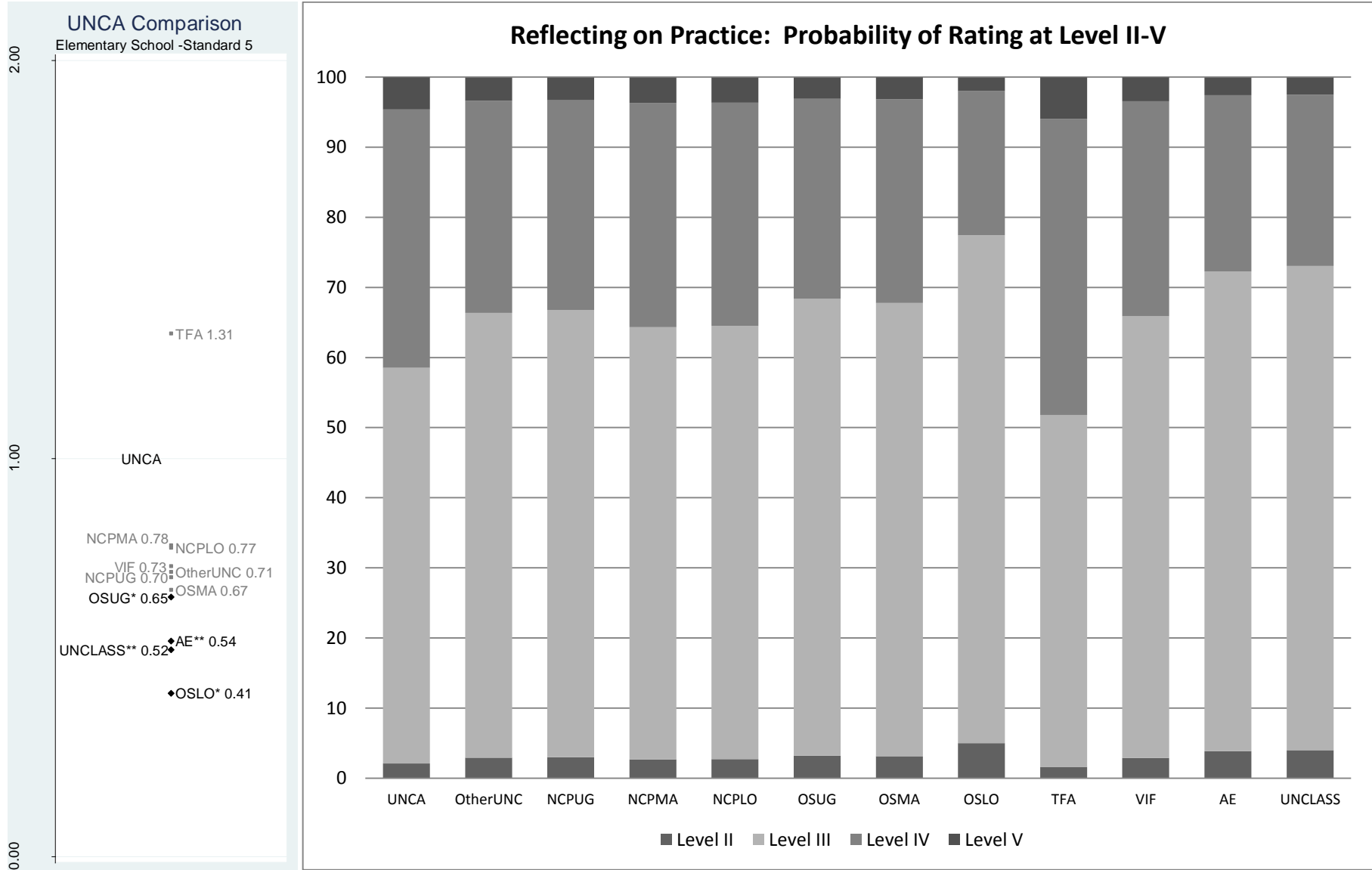


Figure 9. Middle School Evaluation Rating Results for Standard 1: UNCA Prepared vs. All Other Preparation Categories

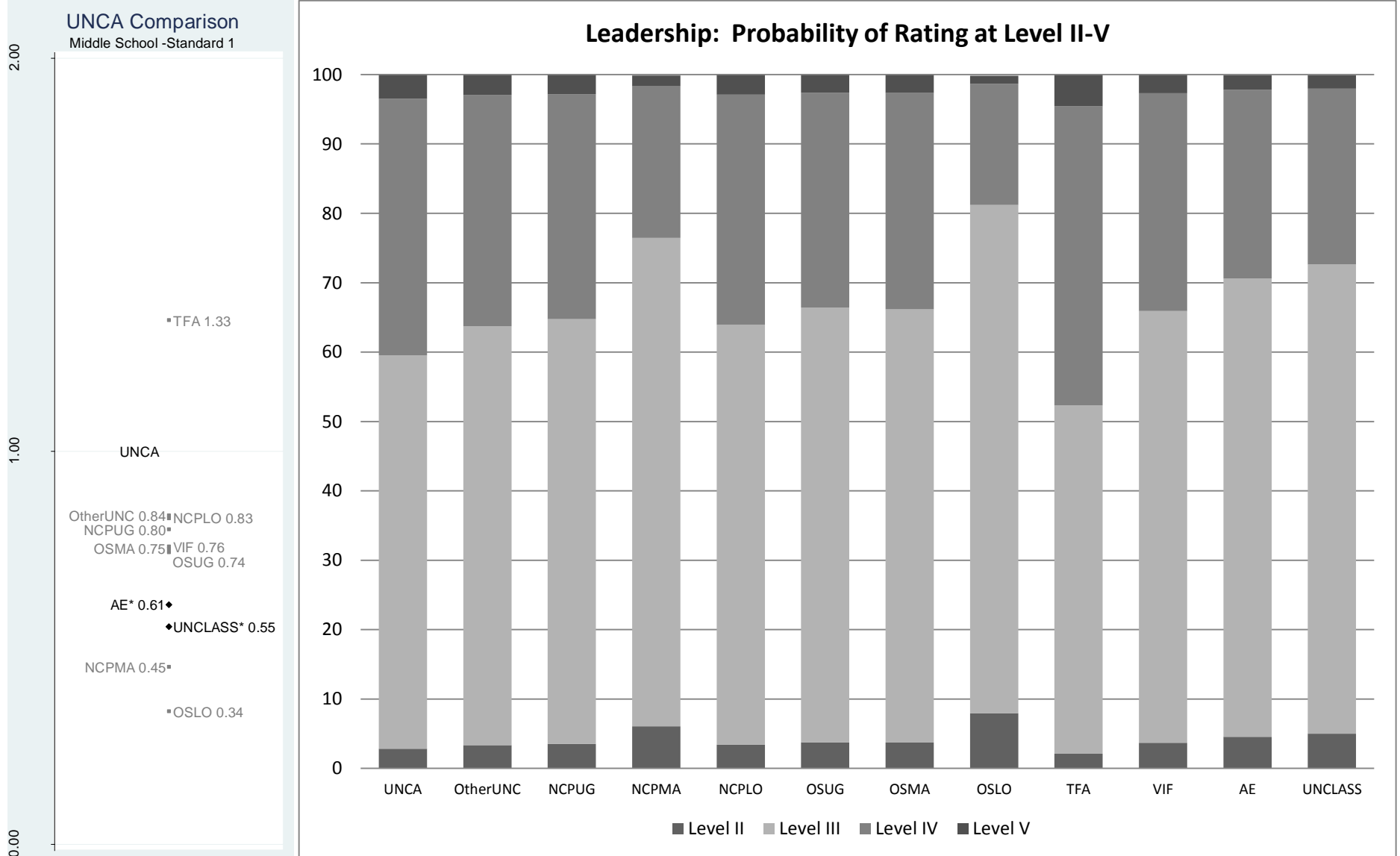


Figure 10. Middle School Evaluation Rating Results for Standard 2: UNCA Prepared vs. All Other Preparation Categories

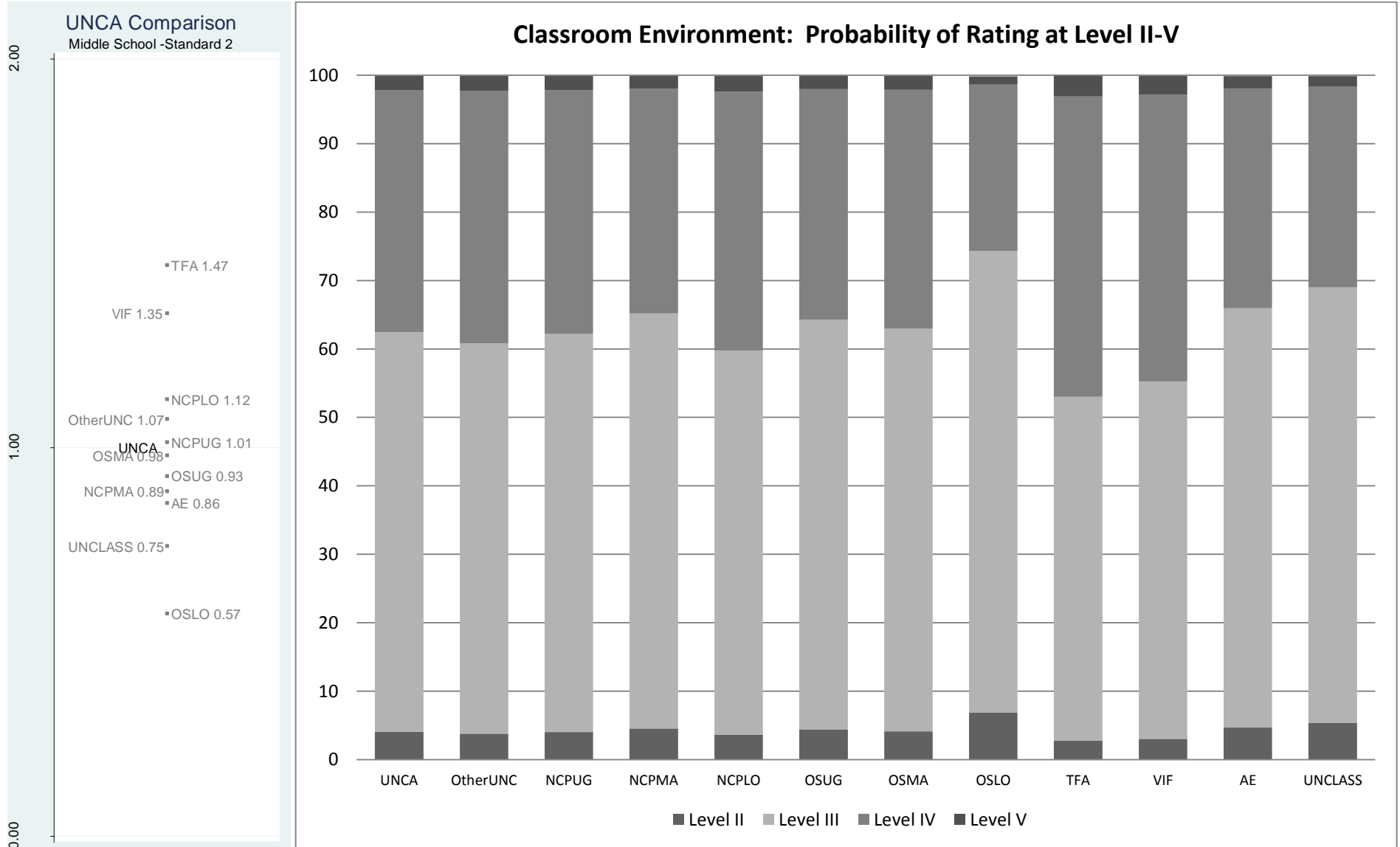


Figure 11. Middle School Evaluation Rating Results for Standard 3: UNCA Prepared vs. All Other Preparation Categories

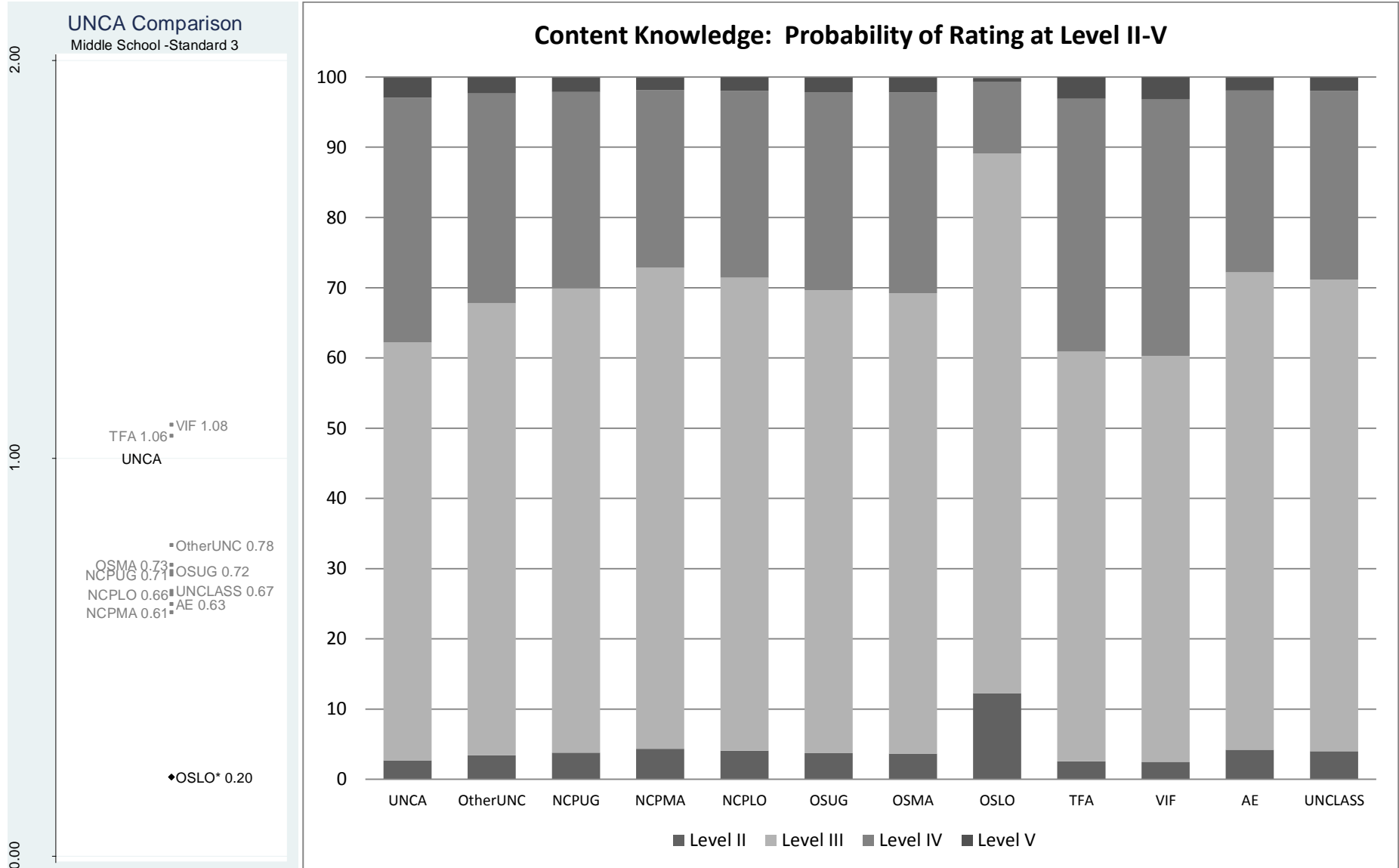


Figure 12. Middle School Evaluation Rating Results for Standard 4: UNCA Prepared vs. All Other Preparation Categories

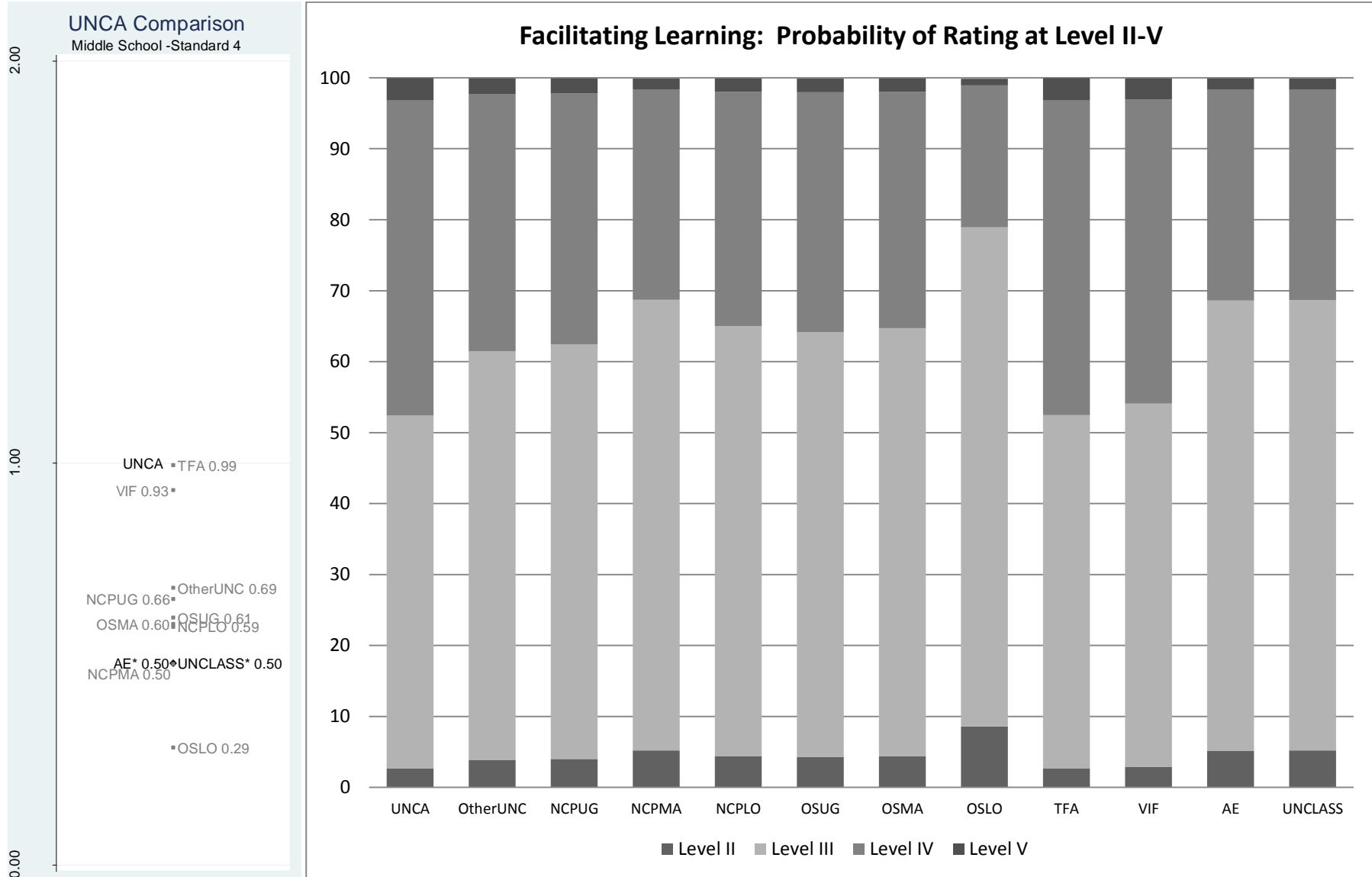


Figure 13. Middle School Evaluation Rating Results for Standard 5: UNCA Prepared vs. All Other Preparation Categories

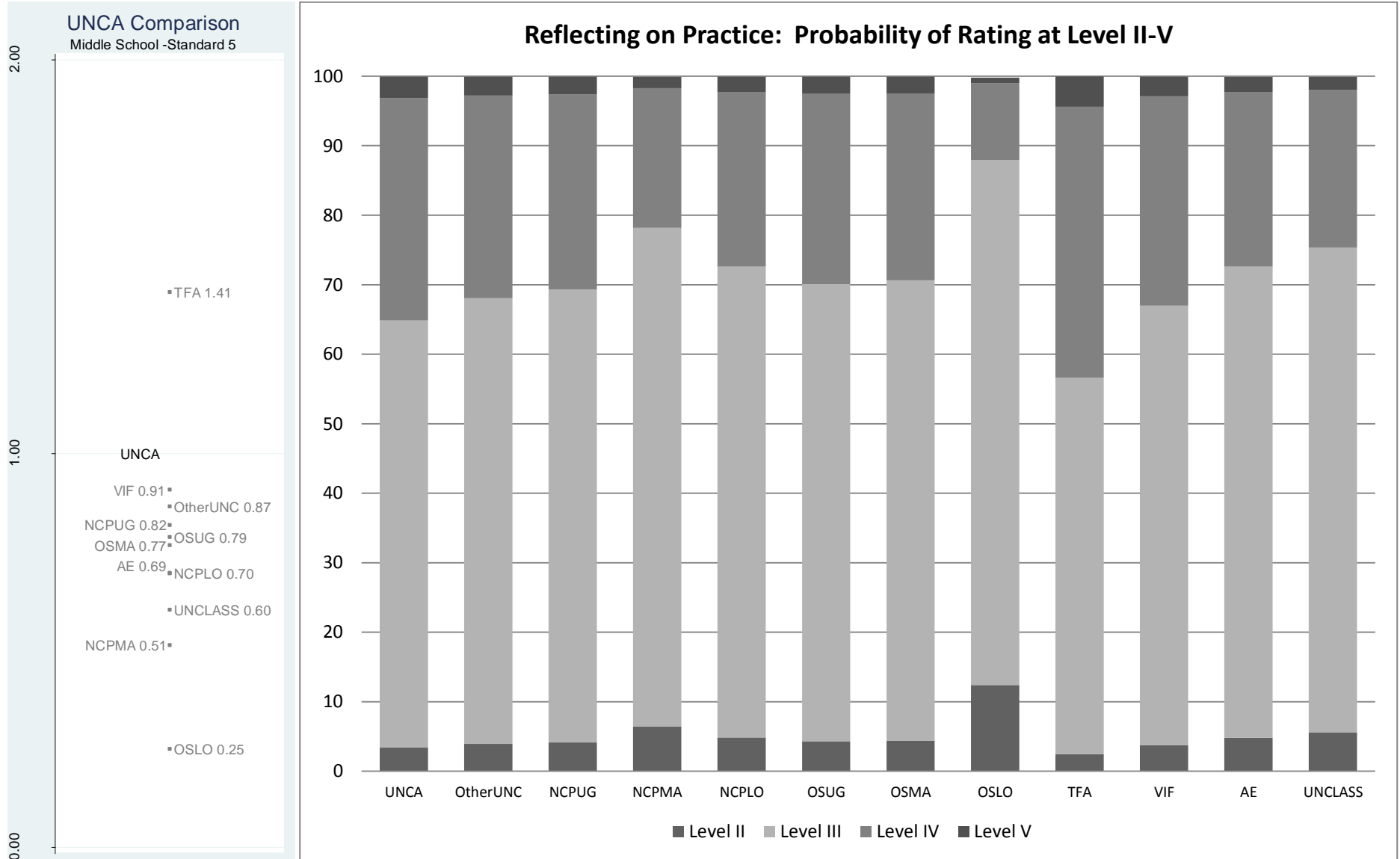


Figure 14. High School Evaluation Rating Results for Standard 1: UNCA Prepared vs. All Other Preparation Categories

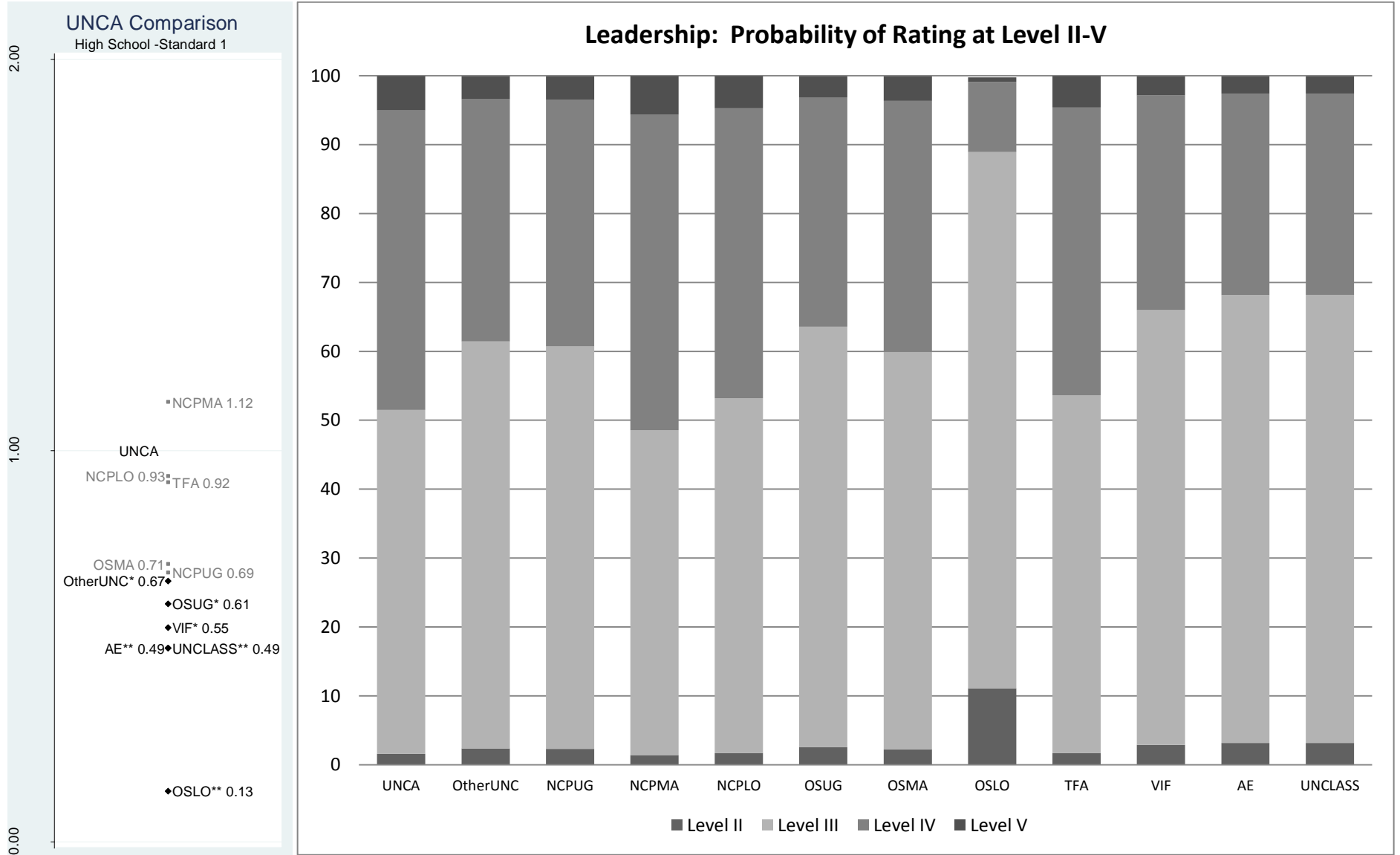


Figure 15. High School Evaluation Rating Results for Standard 2: UNCA Prepared vs. All Other Preparation Categories

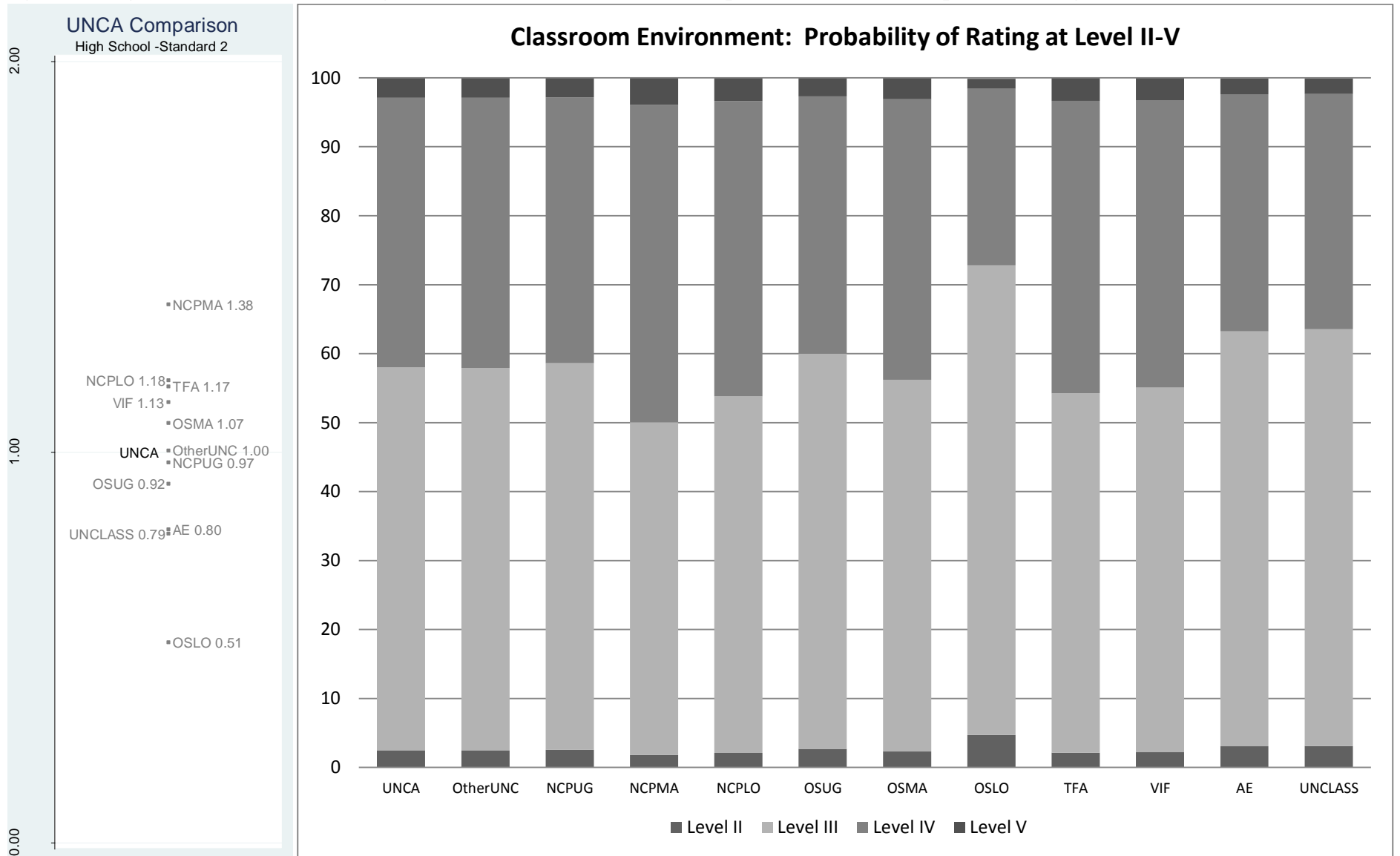


Figure 16. High School Evaluation Rating Results for Standard 3: UNCA Prepared vs. All Other Preparation Categories

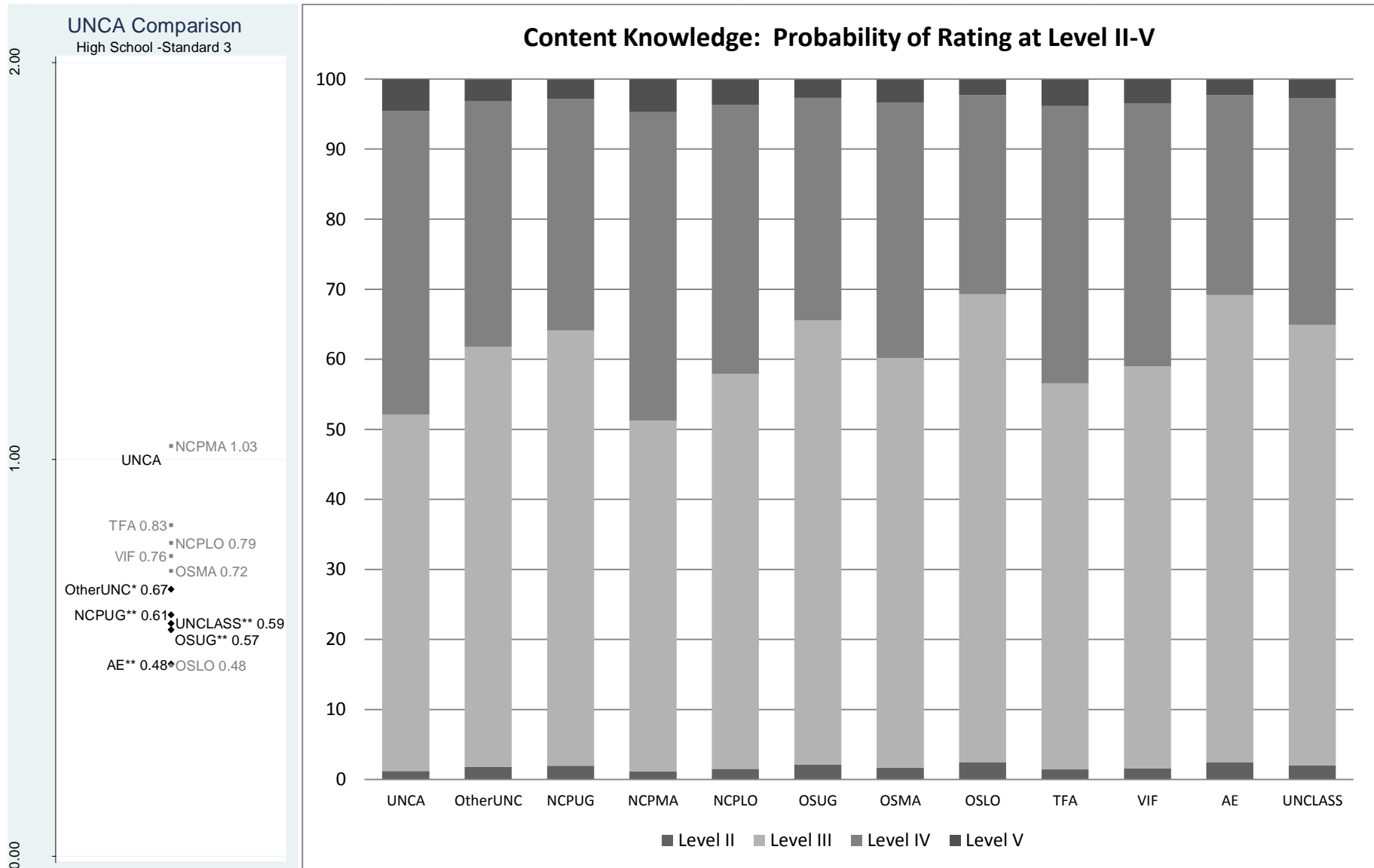


Figure 17. High School Evaluation Rating Results for Standard 4: UNCA Prepared vs. All Other Preparation Categories

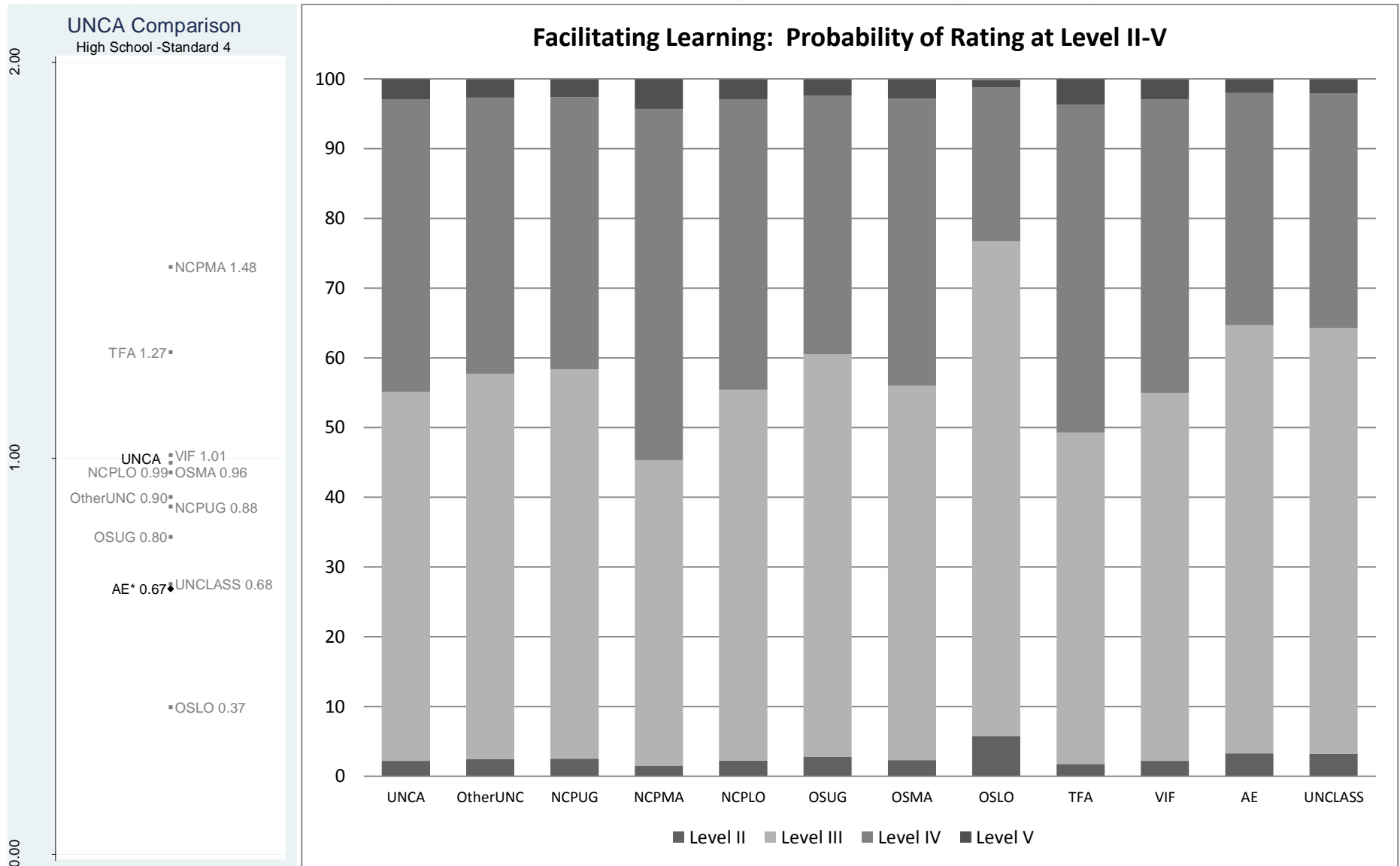


Figure 18. High School Evaluation Rating Results for Standard 5: UNCA Prepared vs. All Other Preparation Categories

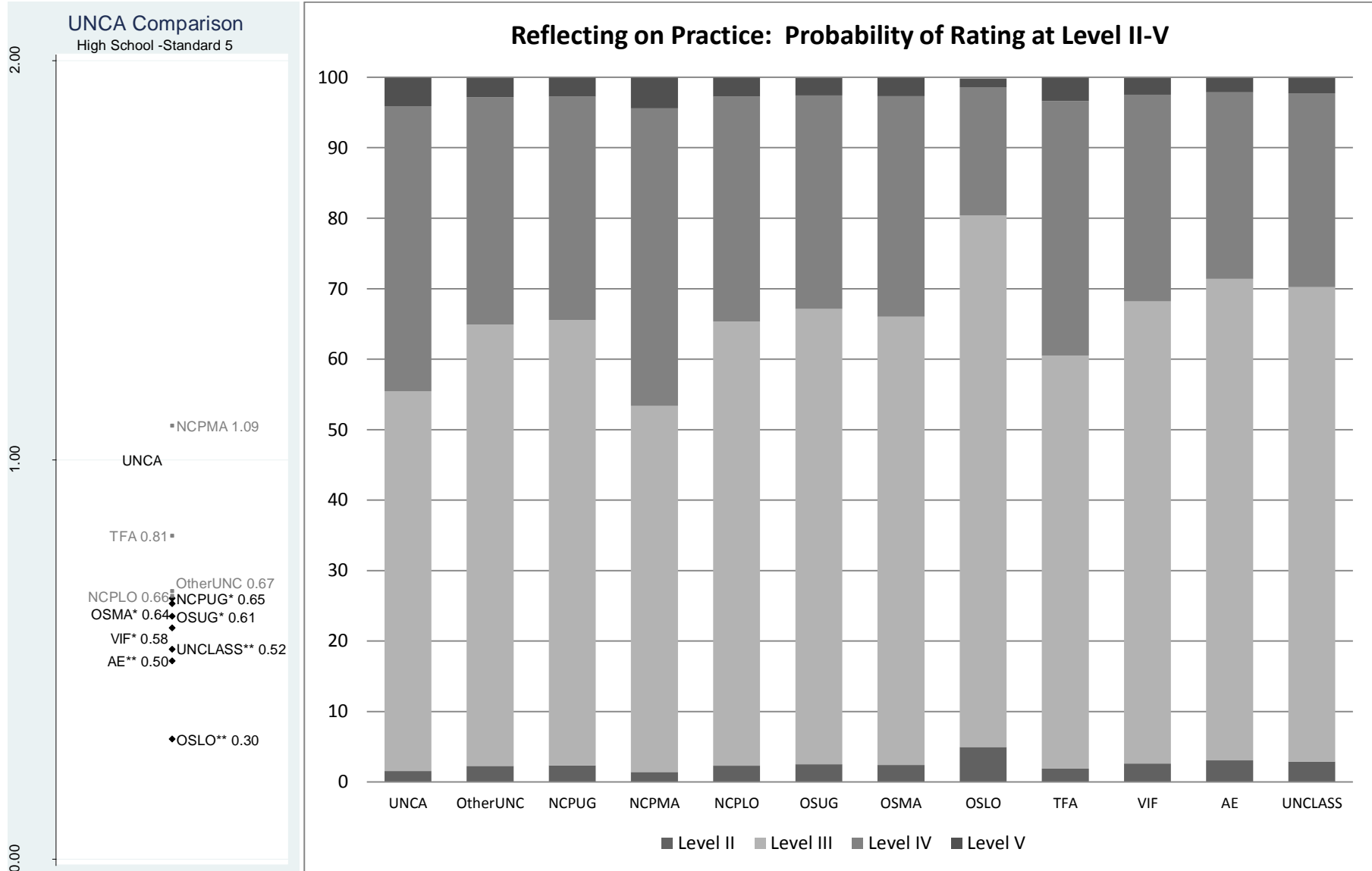


Table 3: Unique Teacher Counts in Evaluation Models by Preparation Category and Grade Level

| Teacher Preparation Category (Abbreviation) | Elementary School | Middle School | High School |
|--|--------------------------|----------------------|--------------------|
| University of North Carolina Asheville (UNCA) | 90 | 39 | 93 |
| Other UNC Institution Prepared (OtherUNC) | 7862 | 2686 | 3673 |
| NC Private University Undergraduate Degree Prepared (NCPUG) | 2101 | 576 | 630 |
| NC Private University Graduate Degree Prepared (NCPMA) | 177 | 41 | 136 |
| NC Private University Licensure Only (NCPLO) | 208 | 46 | 44 |
| Out of State University Undergraduate Degree Prepared (OSUG) | 3757 | 1560 | 1393 |
| Out of State University Graduate Degree Prepared (OSMA) | 1113 | 514 | 556 |
| Out of State University Licensure Only (OSLO) | 16 | 10 | 15 |
| Teach For America (TFA) | 229 | 280 | 351 |
| Visiting International Faculty (VIF) | 431 | 113 | 146 |
| Alternative Entry (AE) | 1250 | 1915 | 3001 |
| Unclassifiable (UNCLASS) | 450 | 181 | 389 |

Appendix:

University of North Carolina Asheville Initially-Prepared Teachers vs. All Other Preparation Categories with 5 Years' Experience or Less, Teaching in the Same School (2008-09 through 2012-13)

Compared to teachers in the same school, University of North Carolina Asheville prepared teachers were significantly *more effective* than teachers from the following preparation categories:

- Other UNC in Elementary School Science
- North Carolina Private University Undergraduate Degree in Elementary School Science
- North Carolina Private University Graduate Degree in Middle School Reading
- North Carolina Private University Licensure Only in Elementary School Science
- Out of State University Undergraduate Degree in Elementary School Science
- Out of State University Graduate Degree in Elementary School Science
- Out of State University Licensure Only in Elementary School Mathematics
- Alternative Entry in Elementary School Science

Compared to teachers in the same school, University of North Carolina Asheville prepared teachers were significantly *less effective* than teachers from the following preparation categories:

- Other UNC Institutions in Elementary School Mathematics
- North Carolina Private University Undergraduate Degree in Elementary School Mathematics
- North Carolina Private University Graduate Degree in High School Biology
- Out of State University Graduate Degree in Elementary School Mathematics
- Out of State University Licensure Only in Middle School Reading
- Teach For America in Elementary School Mathematics and High School Biology
- Visiting International Faculty in Elementary School Mathematics and Elementary School Reading
- Unclassifiable in Elementary School Mathematics and Elementary School Reading

The following pages show results from models which limit comparisons to teachers in the same schools. The University of North Carolina Asheville is set to zero for all tables and each value represents the relative difference between teachers prepared by the marked category and UNCA initially prepared teachers, in average student test scores (expressed in standard deviations).

Table: A.1: Elementary School: UNCA Prepared Teachers vs. All Other Teachers in the Same School with 5 Years' Experience or Less

| Teacher Preparation Category | Elementary School Math | Elementary School Reading | Elementary School Science |
|---|---------------------------|---------------------------|----------------------------|
| Other UNC Institution Prepared | 0.054* (0.024) | 0.027 (0.018) | -0.108* (0.049) |
| NC Private University Undergraduate Degree Prepared | 0.050* (0.024) | 0.018 (0.018) | -0.146** (0.049) |
| NC Private University Graduate Degree Prepared | 0.062 (0.033) | 0.014 (0.024) | -0.059 (0.064) |
| NC Private University Licensure Only | 0.043 (0.030) | 0.036 (0.023) | -0.123* (0.058) |
| Out of State University Undergraduate Degree Prepared | 0.039 (0.024) | 0.016 (0.018) | -0.151** (0.049) |
| Out of State University Graduate Degree Prepared | 0.050 (0.025) | 0.020 (0.019) | -0.120* (0.051) |
| Out of State University Licensure Only | -0.109* (0.054) | 0.013 (0.047) | NR |
| Teach For America | 0.111** (0.031) | 0.021 (0.023) | -0.024 (0.064) |
| Visiting International Faculty | 0.094** (0.029) | 0.061** (0.023) | -0.050 (0.061) |
| Alternative Entry | 0.034 (0.026) | 0.025 (0.020) | -0.144** (0.053) |
| Unclassifiable | 0.063* (0.029) | 0.044* (0.022) | -0.069 (0.058) |

Note: * and ** indicate statistical significance at the 0.05 and 0.01 levels, respectively. UNCA initially-prepared teachers are the reference category.

Table: A.2: Middle School: UNCA Prepared Teachers vs. All Other Teachers in the Same School with 5 Years' Experience or Less

| Teacher Preparation Category | Middle School Math | Middle School Reading |
|---|--------------------|---------------------------|
| Other UNC Institution Prepared | 0.061 (0.033) | -0.006 (0.013) |
| NC Private University Undergraduate Degree Prepared | 0.031 (0.033) | -0.013 (0.014) |
| NC Private University Graduate Degree Prepared | 0.051 (0.056) | -0.049* (0.023) |
| NC Private University Licensure Only | -0.028 (0.044) | 0.002 (0.023) |
| Out of State University Undergraduate Degree Prepared | 0.055 (0.033) | -0.009 (0.013) |
| Out of State University Graduate Degree Prepared | 0.049 (0.034) | -0.014 (0.014) |
| Out of State University Licensure Only | NR | 0.108** (0.039) |
| Teach For America | 0.163 (0.038) | 0.012 (0.016) |
| Visiting International Faculty | 0.054 (0.037) | -0.004 (0.029) |
| Alternative Entry | 0.040 (0.033) | -0.001 (0.013) |
| Unclassifiable | 0.045 (0.038) | -0.005 (0.016) |

Note: * and ** indicate statistical significance at the 0.05 and 0.01 levels, respectively. UNCA initially-prepared teachers are the reference category.

Table: A.3: High School: UNCA Prepared Teachers vs. All Other Teachers in the Same School with 5 Years' Experience or Less

| Teacher Preparation Category | High School Algebra | High School English | High School Biology |
|---|---------------------|---------------------|---------------------------|
| Other UNC Institution Prepared | 0.005 (0.057) | 0.026 (0.037) | 0.025 (0.064) |
| NC Private University Undergraduate Degree Prepared | -0.014 (0.058) | 0.035 (0.038) | 0.054 (0.068) |
| NC Private University Graduate Degree Prepared | -0.061 (0.064) | 0.034 (0.041) | 0.231* (0.077) |
| NC Private University Licensure Only | NR | NR | NR |
| Out of State University Undergraduate Degree Prepared | -0.006 (0.057) | 0.013 (0.037) | -0.022 (0.064) |
| Out of State University Graduate Degree Prepared | -0.027 (0.064) | 0.033 (0.039) | 0.001 (0.066) |
| Out of State University Licensure Only | NR | NR | NR |
| Teach For America | 0.041 (0.066) | 0.048 (0.041) | 0.205** (0.072) |
| Visiting International Faculty | -0.022 (0.072) | 0.071 (0.056) | -0.095 (0.087) |
| Alternative Entry | -0.021 (0.057) | 0.025 (0.037) | -0.001 (0.064) |
| Unclassifiable | 0.004 (0.075) | -0.023 (0.039) | 0.046 (0.067) |

Note: * and ** indicate statistical significance at the 0.05 and 0.01 levels, respectively. UNCA initially-prepared teachers are the reference category.