NIET Aspiring Teacher Rubric:
A Valid and Reliable Tool to Measure Aspiring Teacher Instruction

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The National Institute for Excellence in Teaching (NIET) has over 20 years of experience supporting educators, including work with over 75 institutions of higher education across the country. This work includes 1) adopting the NIET Aspiring Teacher Rubric, 2) training for faculty, clinical supervisors, mentor teachers, and aspiring teachers, 3) ensuring alignment from coursework through clinical experience, and 4) creating new or redesigned programs (i.e., residency and induction models, grow-your-own programs, and mentor teacher certificates). Additionally, NIET supports institutions of higher education with the NIET Portal for Raising Educator Preparation (NIET PREP), a subscription-based interactive web tool that provides 24-7 support and access to professional development, training, and certification resources. Additional information about NIET's work related to educator preparation can be found here.

The NIET Aspiring Teacher Rubric

Aspiring teachers must develop an in-depth understanding of high-quality instructional practices. In order to prepare, instruct, and coach aspiring teachers, the National Institute for Excellence in Teaching (NIET) has developed a the NIET Aspiring Teacher Rubric (ATR) based on principles of excellence in instruction.

This research brief summarizes measurement properties of the NIET ATR to assess aspiring teacher instruction during a classroom observation conducted by a trained and certified observer. Results of the analyses provide strong evidence that the NIET ATR is a valid and reliable tool to measure aspiring teacher instruction. Moreover, the NIET ATR is capable of distinguishing variation in aspiring teachers' performance, allowing for more specific and meaningful feedback for aspiring teachers.

The NIET ATR aligns with the standards published by the Interstate Teacher Assessment and Support Consortium's *Model Core Teaching Standards and Learning Progressions for Teachers*, which have been adopted by several states and are required for all programs seeking accreditation from the Council for the Accreditation of Educator Preparation (CAEP).

The NIET ATR includes 12 indicators:

1. Instructional Plans
2. Assessment
3. Standards and Objectives
4. Presenting Instructional Content
5. Activities and Materials
6. Questioning
7. Academic Feedback
8. Teacher Knowledge of Students
9. Thinking and Problem-Solving
10. Environment
11. Engaging Students and Managing Behavior
12. Professionalism and Ethical Behavior

For each of the 12 indicators, aspiring teachers can earn a rating of 1 (Improvement Needed), 2 (Developing), 3 (Proficient), 4 (Distinguished), or 5 (Exemplary). The NIET ATR includes descriptions of what each indicator looks like at each rating level, creating a common language among aspiring teachers, supervisors, mentors, and preparation faculty around instructional practices. Taken as a whole, the NIET ATR serves as a tool for supervisors, mentors, and preparation faculty to provide aspiring teachers with high-quality feedback about their strengths and areas of improvement on the path to becoming a teacher.

Evidence of Validity and Reliability

To assess whether aspiring teachers are developing the knowledge and skills for effective instruction, a valid and reliable instrument is needed to measure aspiring teacher instruction. An instrument is valid when it accurately measures what it intends to measure. An instrument is reliable when it is capable of producing consistent results when applied under the same circumstances. This section summarizes evidence for the validity and reliability of the NIET ATR using data from aspiring teachers observed twice using the NIET ATR during their clinical experience and a survey administered to educator preparation program members.

Evidence of Consequential and Structural Validity

Consequential validity refers to an instrument's ability to achieve the desired purpose (Jackson & Nietschke, 2018). The purpose of the NIET ATR is to measure aspiring teacher instruction and provide a common language for observation, feedback, and support. To achieve its purpose, the NIET ATR was developed to conform to characteristics of high-quality teacher observation instruments as informed by the research literature. These characteristics include 1) measuring observable teaching practices that are relevant to student outcomes, 2) setting high performance expectations for aspiring teachers, and 3) using clear language in describing each indicator and different levels of performance (Joe et al., 2013; Luczak & Frades, 2015; TNTP, 2011).

Analysis of survey data shows that the majority of educator preparation program respondents (89% to 96%) agree or strongly agree that the NIET ATR 1) includes indicators with descriptions that are easy to understand, 2) sets high performance expectations for aspiring teachers, 3) includes clear, precise, and specific performance expectations, and 4) measures elements of effective instruction that are observable and important to student learning outcomes (see Figure 1). Overall, these findings support the rubric's purpose of measuring aspiring teacher instruction using clear, common language of practice, and provide evidence of consequential validity of the NIET ATR.

Figure 1. Survey Respondents' Agreement with Statements Regarding Characteristics of the NIET ATR
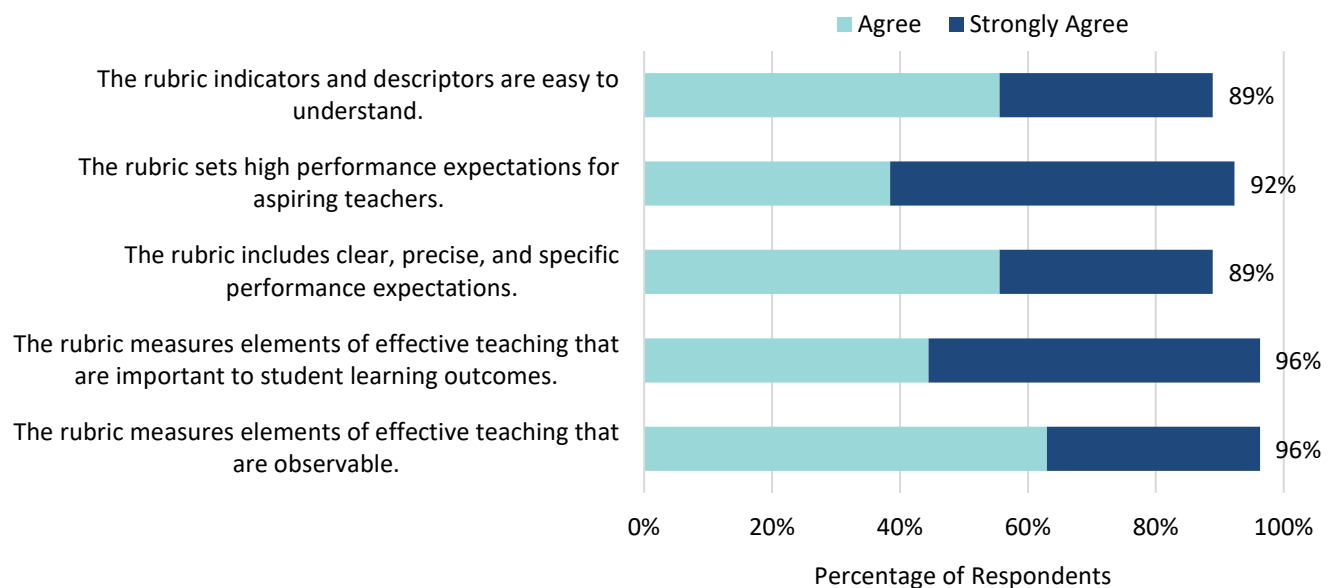
Note: Figure based on survey responses from 27 educator preparation program members across seven institutions of higher education. Ratings are on a 5-point response format: strongly disagree, disagree, neither agree nor disagree, agree, strongly agree.

Structural validity refers to the extent to which empirical data supports theorized patterns of an instrument (Jackson & Nietschke, 2018). The NIET ATR was designed to measure a single construct – aspiring teacher instruction – with no sub-components of that construct. Factor analysis was conducted using data from two classroom observations of 150 aspiring teachers that were examined separately to assess the stability of the findings.

Results from a factor analysis confirm that the 12 indicators of the NIET ATR relate to a single construct, as anticipated, across the two observations. The 12 indicators explain 68% of the total variance in the first observation and 62% of the total variance in the second observation. For factor analyses based on social science data, a factor solution that explains at least 60% of the total variance is considered acceptable (Hair et al., 2014). Overall, these results provide evidence of structural validity of the NIET ATR as an instrument that measures instruction for aspiring teachers.

Evidence of Internal Consistency and Test-Retest Reliability

Internal consistency reflects the extent to which items within an instrument measure various aspects of the same construct (Revicki, 2014). The 12 indicators of the NIET ATR are intended to measure different elements of aspiring teacher instruction that are related to one another. Internal consistency of the NIET ATR was examined using two reliability coefficients: 1) Cronbach's alpha and 2) the item-total correlation. Cronbach's alpha measures how closely related NIET ATR indicators are as a group for measuring aspiring teacher instruction. Cronbach's alpha ranges from 0 to 1, with a value above .90 considered excellent internal consistency (Taber, 2018). Using the two sets of observation data from 150 aspiring teachers, the Cronbach's alphas are .94 and .96 for the first and the second observations, respectively, indicating excellent internal consistency. The item-total correlation examines how each item correlates with the total score. Ideally, the item-total correlation should be greater than .30 (Brzoska & Razum, 2010; Maltby et al., 2007). The item-total correlations for each NIET ATR indicator exceeds this threshold, as they range from .72 to .82 for the first observation and from .79 to .86 for the second observation. Overall, these results demonstrate that the 12 NIET ATR indicators measure different elements of aspiring teacher instruction that are strongly related to one another, and provide evidence of internal consistency of the rubric.

Test-retest reliability refers to the stability of the scores obtained from the same individuals on two separate occasions (Vilagut, 2014). The NIET ATR is designed to generate consistent ratings for the same aspiring teachers who are observed on two different occasions. To analyze test-retest reliability, first, the average scores of all 12 NIET ATR indicators at each observation were computed (M = 2.82, SD = 0.61 for the first observation; M = 3.14, SD = 0.64 for the second observation). Then, a Pearson's correlation coefficient, which is a common measure used to assess test-retest reliability (Collins, 2007), was calculated to measure the strength of the association between the first and the second observation scores. Pearson's correlation coefficients range from -1 (a perfect, negative association) to 1 (a perfect, positive association), with a score of 0 indicating no association between the two observation scores. A strong positive correlation, which is generally indicated by a value greater than .80 (Samuel & Okey, 2015), is considered good evidence of test-retest reliability (Collins, 2007). The correlation between the first and second observation was .81 (t(148) = 16.79, p < .001). Overall, this result shows evidence of test-retest reliability of the NIET ATR as an instrument that measures aspiring teacher instruction in a consistent manner.

Overall, results from the validity and reliability analyses provide evidence that the NIET ATR measures aspiring teacher instruction during a classroom observation with consistency.

Ability to Distinguish Variation in Aspiring Teacher Performance

Examination of the distribution patterns of the observation scores reveals that the NIET ATR also measures instruction across performance levels. Figure 2 shows that the observational scores of aspiring teachers follow a bell-shaped distribution that uses the full range of possible scores. This result suggests that the NIET ATR can distinguish variation in aspiring teacher performance. The rubric's ability to capture and differentiate various levels of performance is crucial because it allows supervisors, mentors, and preparation faculty to provide meaningful feedback to aspiring teachers.

Figure 2. Aspiring Teachers' Observation Scores using the NIET ATR
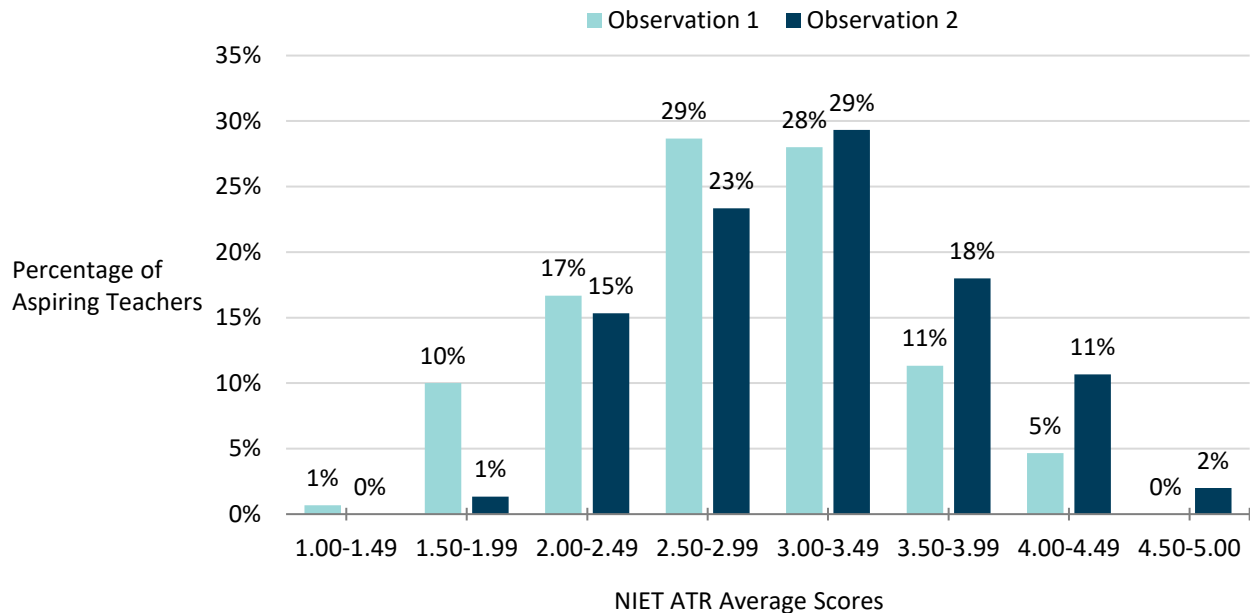
Note: Figure based on 150 aspiring teachers who were observed twice using the NIET ATR. The figure was created by taking the average score of all 12 indicators at each observation and grouping the resulting scores by 0.5 intervals. Aspiring teachers who receive ratings around the proficient level (3.0) have the skills and knowledge for delivering effective instruction. This is the level of performance aspiring teachers are expected to master by the time they complete their preparation programs. The figure above shows that that majority of aspiring teachers received ratings in the range of 2.5 and 3.5.

Conclusion

Overall, results from validity and reliability analyses show the NIET ATR to be a valid and reliable tool to measure aspiring teacher instruction during a classroom observation conducted by a trained and certified observer. Specifically, the results of the analyses provide evidence on two types of validity, consequential and structural validity, and two types of reliability, internal consistency and test-retest reliability. Additionally, the NIET ATR is capable of distinguishing variation in aspiring teacher performance, allowing for more specific and meaningful feedback for aspiring teachers. The findings presented in this research brief suggest that the NIET ATR is a valuable tool to assess and develop aspiring teacher performance.

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