

Reliability and Validity of the Summative Instrument

Conclusions

1. The instrument is reliable and moderate evidence for validity exists.
2. We need to examine whether the instrument measures something different than does the edTPA and is thus worth continuing
3. We need to find a way to work with cooperating teachers on use of the *Summative* instrument.

Context/Background

The *performance-Based/ Summative* data are collected during student teaching. The instrument is designed around the old set of INTASC principles, also reflecting the current Minnesota Standards of Effective Practice. The 11th item on the instrument describes performance on professional disposition, not tied strictly speaking to either INTASC principles or SEP standards. The members of the committee that redesigned the instrument in 2007 believed that this items needed to be added.

During the most recent iteration of the study (Chen & Hoover, 2014), we looked critically at the reliability and validity of the instrument.

Considering that neither faculty members (University Supervisors) or Cooperating Teachers have been trained on the instrument, the most recent iteration shows some evidence for reliability and validity of the instrument. Reliability in the sense of internal consistency of the 11 items ($\alpha = .93$, university supervisors and .91. cooperating teachers, see Table 1). The instrument may be slightly too internally consistent to pick up reliability at the level of items.

The rank order data demonstrate again a sense of validity—despite slightly different means, the two groups of raters were seeing the candidates similarly in terms of their performance. The rank order correlation between the two groups proved statistically significant; we estimated that a significant differences in rankings occurred only twice in 11 categories (see Table 2).

These data reflect the three academic years of the report. In addition, all inter-group rating correlations were statistically significant, suggesting a moderate level of validity in that both parties were “seeing” candidate performance similarly. The ratings were based on 622 observations, essentially the number of ratings-by-candidate over the two academic years. These data were disaggregated and provided to departments and programs.

Occasionally, two members of a rater group both rated a candidate within a semester; this occurred in about 1 in 10 cases for university supervisors and about 1 in 5 cases for cooperating teachers. Table 3 shows these “with group” reliabilities. Despite a lack of formal training, the correlations ran from .61 to .23 and all proved statistically significant at the $p = .01$ level, despite the relatively small numbers. The reliabilities proved higher for university supervisors than for cooperating teachers. Note, however, that the cooperating teachers were seeing the candidates within semesters but across settings.

Table 1. Correlations of university supervisor and cooperating teacher ratings (2011-2013).

Principles and Standards (Inter-rater Reliabilities)	
Principle 1: Subject Matter:	The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students ($r_{XY} = .33, p < .001$).
Principle 2: Student Learning:	The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social and personal development ($r_{XY} = .29, p < .001$).
Principle 3: Diverse Learners:	The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners ($r_{XY} = .33, p < .001$).
Principle 4: Instructional Strategies:	The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills ($r_{XY} = .31, p < .001$).
Principle 5: Learning Environment:	The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation ($r_{XY} = .37, p < .001$).
Principle 6: Communication:	The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom ($r_{XY} = .35, p < .001$).
Principle 7: Planning Instruction:	The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals ($r_{XY} = .36, p < .001$).
Principle 8: Assessment:	The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner ($r_{XY} = .27, p < .001$).
Principle 9: Reflection & Professional Development:	The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally ($r_{XY} = .29, p < .001$).
Principle 10: Partnerships:	The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being ($r_{XY} = .30, p < .001$).
Standard 11: Professional Dispositions:	The teacher demonstrates enthusiasm, reliability, responsibility, flexibility, initiative, sensitivity to student needs and other disposition related to professional standing ($r_{XY} = .42, p < .001$).
Total Across Variables Internal Consistency Reliability = .93 (USs) and .91 (Cooperating Teachers)	

Table 2. Rank order comparison of University Supervisor and Cooperating Teacher ratings (2012-2013 by maximum points (“% “4”)).

Ratings by University Supervisors			Ratings by Cooperating Teachers			<u>Does a between-group difference in rank order exist?</u> ¹
Rank	% “4”	Principles	Rank	% “4”	Principles	
1	60.3	Standard 11: Professional Dispositions.	1	61.6	Principle 11: Professional Dispositions	NO
2	45.0	Principle 9: Reflection & Professional Development:	2	61.2	Principle 9: Reflection & Professional Development	NO
3	34.4	Principle 10: Partnerships:	3	41.0	Principle 10: Partnerships	NO

Table 2, Continued

Ratings by University Supervisors			Ratings by Cooperating Teachers			
Rank	% “4”	Principles	Rank	% “4”	Principles	Does a between-group difference in rank order exist?¹
4	29.0	Principle 4: Instructional Strategies:	4	36.9	Principle 5: Learning Environment	YES: University Supervisors rated INTASC/SEP 4 substantially higher than did Cooperating Teachers
5	28.0	Principle 2: Student Learning:	5	36.9	Principle 6: Communication	NO
6	27.5	Principle 5: Learning Environment:	6	36.4	Principle 7: Planning Instruction	NO
7	26.2	Principle 1: Subject Matter: The	7	33.7	Principle 2: Student Learning	NO
8	24.4	Principle 7: Planning Instruction: The	8	32.6	Principle 1: Subject Matter	NO
9	22.1	Principle 6: Communication:	9	32.5	Principle 4: Instructional Strategies	YES: University Supervisors rated INTASC/SEP 6 lower than did Cooperating Teachers
10	19.8	Principle 3: Diverse Learners: The	10	24.9	Principle 3: Diverse Learners	NO
11	13.5	Principle 8: Assessment:	11	20.4	Principle 8: Assessment	NO

¹Comparisons conducted from left to right, that is, starting with ratings by University Supervisors. If a rank is within two levels it is considered equal. Note that for 9 of the 11 categories (82%), the ratings proved similar. This also stands as evidence for validity of the ratings.

Table 3. Within-group inter-rater reliabilities (2012-2013).

Principles and Standards (Inter-rater Reliabilities)	University Supervisors		Cooperating Teachers	
	R_{xy}	p	R_{xy}	p
Principle 1: Subject Matter: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students ($r_{XY} = .33, p < .001$).	.60	<.001	.27	<.001
Principle 2: Student Learning: The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social and personal development ($r_{XY} = .29, p < .001$).	.61	<.001	.30	<.001
Principle 3: Diverse Learners: The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.	.47	<.001	.30	<.001
Principle 4: Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills ($r_{XY} = .31, p < .001$).	.53	<.001	.24	<.001

Table 3, Continued

	<u>University Supervisors</u>		<u>Cooperating Teachers</u>	
	<u>R_{xy}</u>	<u>p</u>	<u>R_{xy}</u>	<u>p</u>
Principles and Standards (Inter-rater Reliabilities)				
Principle 5: Learning Environment: The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation ($r_{XY} = .37, p < .001$).	.57	<.001	.22	<.001
Principle 6: Communication: The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom ($r_{XY} = .35, p < .001$).	.44	<.001	.29	<.001
Principle 7: Planning Instruction: The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals ($r_{XY} = .36, p < .001$).	.50	<.001	.37	<.001
Principle 8: Assessment: The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.	.54	<.001	.27	<.001
Principle 9: Reflection & Professional Development: The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally ($r_{XY} = .29, p < .001$).	.49	<.001	.23	<.001
Principle 10: Partnerships: The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being ($r_{XY} = .30, p < .001$).	.49	<.001	.25	<.001
Standard 11: Professional Dispositions. The teacher demonstrates enthusiasm, reliability, responsibility, flexibility, initiative, sensitivity to student needs and other disposition related to professional standing ($r_{XY} = .42, p < .001$).	.58	<.001	.30	<.001
Total Across Variables Internal Consistency Reliability = .93 (USs) and .91 (Cooperating Teachers)	.53	----	.28	----

