

Do You Really Know What You're Using?

A Comparison of Two Widely Used
Science and Math Observation
Instruments

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Background and Need

- Evaluation/design of five funded MSP projects
- Classroom implementation of intervention and examining student outcomes
- Black box between training and outcomes
- Classroom observation issues
- Instrumentation issues

Examination of Two Popular Math/ Science Observation Instruments

Inside the Classroom Observation
and Analytic Protocol (ITC COP)

Horizon Research, Inc 2000

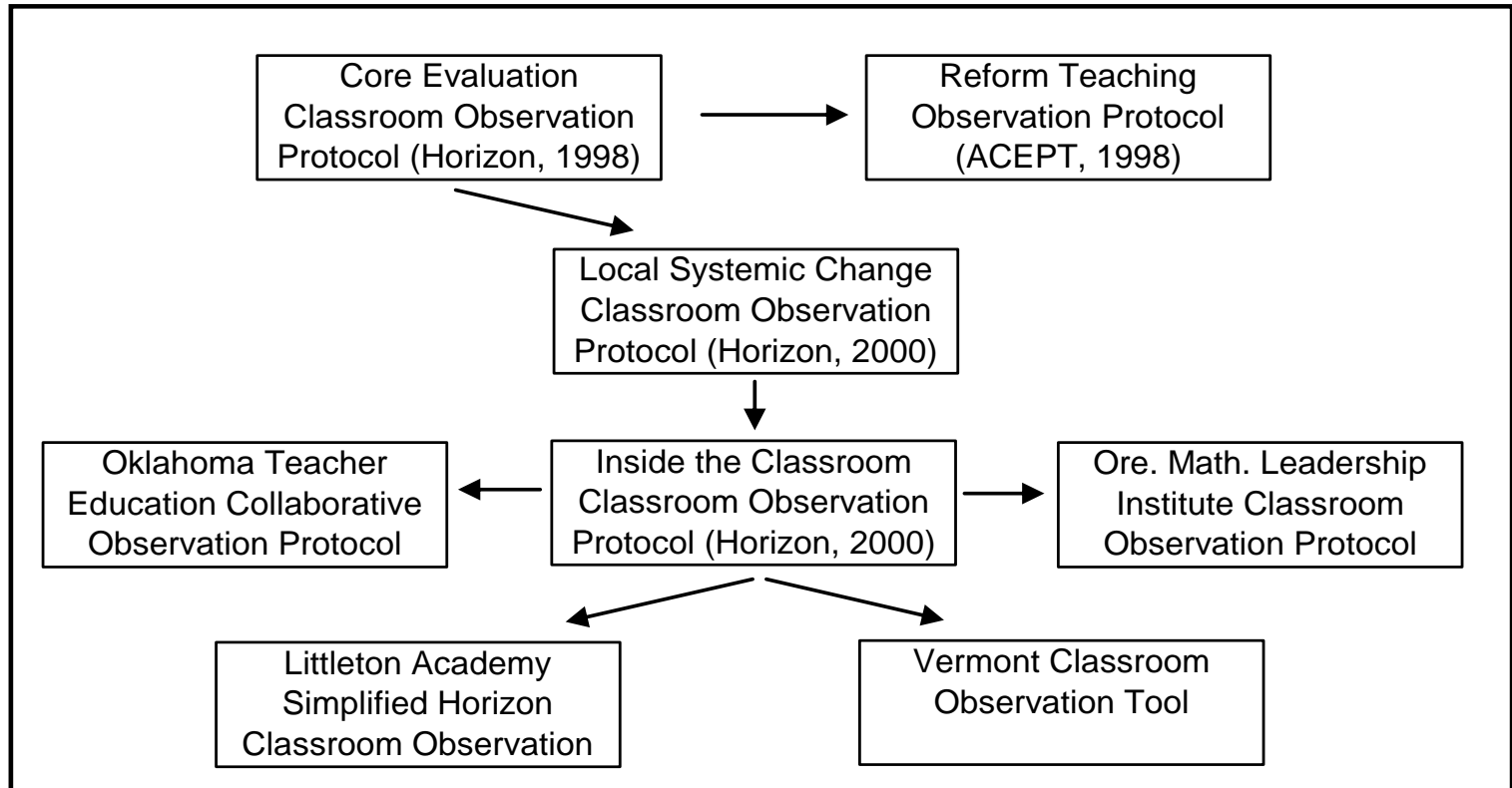
Reform Teaching Observation
Protocol (RTOP)

Arizona Collaborative for Excellence in
the Preparation of Teachers 1998

Process

- Examine ancestry and supporting documents for both instruments
- Examine document structure and framework
- Examine items – qualitative, based on documentation, on our interpretation and experience

Ancestry



Supporting Documentation

○ RTOP

- Metrics, online training videos and protocols, validity and reliability research

○ ITC COP

- Training provided by Horizon, little published info on metrics or comprehensive research; conversations with Horizon indicate some in progress

Inside the Classroom Observation and Analytic Protocol (ITC COP)

- Background and Demo Information
- Classroom Information - extensive
- Rating: 4 Categories; varying number of indicators; Synthesis Rating
- Scale: 1-5 Likert; option for Don't Know or N/A
- Overall and Capsule Ratings

Reform Teaching Observation Protocol (RTOP)

- Background and Demo Information
- Rating: 5 Categories; 5 indicators each
- Scale: 1-5 Likert Scale
- No option for “Don’t know” or “N/A”

Analysis

- Review of instruments and associated support materials – tech manuals, training videos, etc.
- Instrument structure
- Item comparison – wording and intent (4 professional evaluators)
- Focus - rating pages

Findings

- Similar philosophical bases – same foundational documents
- Quantitative and qualitative data
- Similar areas are being evaluated
 - Lesson design
 - Lesson implementation
 - Content
 - Classroom culture

Findings (Continued)

- Different number of indicators per area
 - RTOP – 5/5 areas (25 indicators)
 - ITC COP – Variable/4 areas (29 indicators)

- Wording of the indicators
 - Comprehensive
 - Check-list-type

Three Ways To Look At Items

- Are items identical or have same intent across instruments (match)?
- Are there items in RTOP that incorporate items in ITC COP?
- Are there items in ITC COP that incorporate items in RTOP?

Matching Items

RTOP Category	Design and Implementation			Content: Propositional Knowledge				Content: Procedural Knowledge		Classroom Culture: Communicative Interactions	Classroom Culture: Student/Teacher Relationships	
	1	2	4	7	8	9	10	11	14	20	21	22
RTOP Items												
ITC	I.3	I.6	I.1	I.7	III.3	III.7	III.8	III.7	III.9	IV.2	IV.1	IV.5
COP Items	II.6		II.1		III.5							

RTOP 10: Connections with other content disciplines and/or real world phenomena were explored and valued.

ITC COP III.8: Appropriate connections were made to other areas of math/sci, to other disciplines and/or to real-world contexts.

ITC Indicators Within RTOP Indicators

RTOP Category	Content: Propositional Knowledge	Content: Procedural Knowledge	Culture: Communicative Interactions	Culture: Student/Teacher Relationship
RTOP Items	7	15	18	21
ITC COP Items within RTOP Items	III.4	III.4 IV.5	I.6	I.5

RTOP 7: The lesson promoted strongly coherent conceptual understanding.

ICT COP III.4: Students were intellectually engaged with important ideas relevant to the focus of the lesson

RTOP Indicators within ITC COP Indicators

ITC COP Indicators	Design				Implementation			Mathematics/Science Content			Classroom Culture					
	I.1	I.2	I.3	I.7	I.9	II.1	II.6	II.7	III.4	III.6	III.9	IV.1	IV.2	IV.3	IV.4	IV.5
ITC COP Items																
RTOP	2	1	3	9	20	3	17	4	13	4	7	1	5	16	5	4
Items within	3	2		10	21	5		12		13	9	2	18	18	18	12
ITC COP	5	3		13		12		22		15	11	5	19	19	19	13
Items	12			14		13		24		22	16	13	21	20	20	15
	13			22		15					22	16	24	21	21	19
	22					16						19			24	20
						22						22				21

ITC COP 1.2: The design of the lesson reflected careful planning and organization.

RTOP 2: The lesson was designed to engage students as members of a learning community.

Findings

- ITC COP items are constructed with the assumption that rater knows what reform teaching looks like and require more interpretation
- RTOP indicators act as checklists requiring fewer assumptions and less interpretation of item

Recommendations

- When using the ITC COP, choose observers experienced in the project definition of reform pedagogy, classroom culture, and classroom observation.
- Developers should focus on further research into validity and reliability of the instruments.

Next Steps

- Item analysis of results of teachers being observed using both instruments by MA Henry Consulting observers

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