Reflections & Reminiscences On The Measurement Of Teaching: Professional Competence

Richard J. Shavelson
Stanford University

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richs@stanford.edu
Overview

• Some Reminiscences

• Some Reflections
Reminiscences—1986:
Back In The Day

- Shulman—Paradigms & Research Programs in the Study of Teaching
- Rosenshine & Stevens—Teaching Functions
- Cazden—Classroom Discourse
- Brophy & Good—Teacher Behavior and Student Achievement
- Doyle—Classroom Organization & Management
- Corno & Snow—Adapting Teaching to Individual Differences among Learners
- Romberg & Carpenter—Research on Teaching & Learning Mathematics

HANDBOOK OF RESEARCH ON TEACHING
Third Edition
A PROJECT OF THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION

Edited by Merlin C. Wittrock
Paradigms (Programs) Of Research On Teaching—Shulman

- Research Programs
  - Criterion of Effectiveness
  - Process-Product
  - Time and Learning
  - Pupil Cognition & Mediation of Teaching
  - Social Mediation
  - Classroom Ecology
  - Teacher Cognition & Decision Making

- Research Infrastructure
  - Invisible College of Researchers on Teaching
  - Institute for Research on Teaching—Judy Lanier & Shulman

Fig. 1.2. Synoptic map of research on teaching.
Synoptic Map Of Research On Teaching
Measurement Of Teaching In 1986: Some Insights—I

• “Teaching encompasses planning, classroom processes, teaching outcomes, and multilevel contexts that form the environment of teaching.”

• “In the end we realized that any discussion of psychometrics cannot, and should not, be divorced from the phenomena they are used to model. Substantive knowledge is a precursor to measuring attributes of teaching.”
Measurement Of Teaching In 1986: Some Insights—II

• “Measurement of teaching effectiveness must be linked closely to the content of instruction and the multilevel nature of the classroom.”

• Research on classroom processes can be enhanced by the application of generalizability theory to identify multiple sources of measurement error.

• Study teacher cognition and decision making as measured by policy capturing, process tracing and stimulated recall.
Teaching Effectiveness Research in the Past Decade: “Déjà Vu All Over Again” (Yogi Berra)

• Meta-Analysis

• Role of Theory
  – Process-product
  – Cognitive processes
  – Largest effects for domain-specific components—most proximal to executive processes of learning

• Role of Method
  – Correlational—small effects due to distance from teaching-learning processes
  – (Quasi) Experimental—large effects due to focus on domain-specific proximal processes

Seidel & Shavelson (2008)
Understanding the development of teachers’ professional competencies as personally, situationally and socially determined; Sigrid Blömeke & Gabriele Kaiser (in press)
From Teacher Effectiveness To Teacher Competence

• Personal Determinants
  – Professional Knowledge ((M)CK, GPK, (M)PCK)
  – Affect/Motivation (Teacher vs. Student Orientation/Beliefs, Self-efficacy, Anxiety)
  – Generic Attributes

• Situation-Specific Cognitive Skills—from competence to observable behavior
  – Perception
  – Interpretation
  – Decision making

• Teaching Performance

• Professional Context
  – Teacher education → social practice
  – School environment and policies

Understanding the development of teachers’ professional competencies as personally, situationally and socially determined
Sigrid Blömeke & Gabriele Kaiser (in press)

Figure 1. Extended version of Blömeke, Gustafsson & Shavelson, 2015.
Reflection: Teacher Dispositions (1986)

- Criterion of Effectiveness Program--Generic Skills

- Teacher Cognition Program—need to incorporate content knowledge (CK) and pedagogical knowledge (PK) in (PCK)

- Time and Social Mediation:

- Verbal Ability only reliable teacher characteristic predictive of student outcomes

- Shulman on 1986: “I shall distinguish among three kinds of knowledge: content knowledge..., pedagogical knowledge... curricular knowledge”

- Importance of time on task, instructional variables, and “activity structures”
Reflection: Teacher Competence—Situation-Specific Cognitive Skills

Shavelson & Stern (RER, 1981)
FIGURE 2. Some factors contributing to teachers’ pedagogical judgments and decisions (after Shavelson, 1979; Shavelson, Atwood, & Borko, 1977).

Pedagogical Decisions

Information about Students such as:
- ability
- participation
- behavior

Teachers’ Attributions of Probable Causes of Student Behavior

Teachers’ Use of Heuristics

Individual Differences between Teachers such as:
- beliefs
- conceptions of subject matter
- conceptual complexity

Teachers’ Judgments
- About students
  - ability
  - motivation
  - behavior
- About content
  - level
  - pace

Nature of the Instructional Task such as:
- activities
- grouping
- materials

Pedagogical Decisions

Institutional Constraints
Teacher Planning

- Bob Yinger’s Dissertation (1977) on Planning for the:
  - Year
  - Semester
  - Unit
  - Week
  - Day of the week
    - Mondays/Fridays
    - In between
  - Activity is basic unit and starting point for planning
  - Routines are used to simplify complexity for teachers and students
Interactive Decision Making

FIGURE 4. Model of teachers’ decision making during interactive teaching.

- Classroom Teaching Routine
- Cue Observation
  - Is Cue In Tolerance?
    - YES
    - Initiate Routine
    - Is a Routine Available?
      - YES
      - Take Action Usually Reactive
      - Is Immediate Action Necessary?
        - YES
        - Remember to Take Delayed Action
        - Store Information for Future?
          - YES
          - Remember Information
          - NO
        - NO
      - NO
    - NO
  - NO

Social Determinants (Doyle 1986)

• Basic unit of classroom organization is the activity—short blocks of classroom time (10-20 min.) with varying number of students and topological characteristics arranged in particular way (e.g., reading group) following a set of shared rules: giving instructions, seatwork, recitation, discussion, presentations, small groups.

• Teacher behavior is systematically related to the affordances and limitations of the types of activities used in the classroom.

• Classroom management around activities; activities give classrooms “order,” time allocation and predictability.
Teaching Schemas

• Scripts and teaching routines
  – Scripts as formalized teaching routines
    • Goal sequence to outcome
    • Activities to move to outcome
    • Supporting props
    • Example: Reading Groups

• Scenes (topological) and activity structures
  – Example: Reading group
  – Example: Berliner’s research on expertise

• Propositional structures and teacher knowledge
  – CK
  – PK
  – PCK

Concluding Comments

• The groundwork for what today is on the cutting edge of research on teaching and teacher education was laid more than 30 years ago.

• Much of the research surrounding this era speaks to the work currently going on. As I have tried to show, a substantial body of empirical research at the time directly informs our work today.

• Indeed, I am surprised to find, upon reading current research that it jogs my memory to earlier days and the research base that would inform and fill out what is currently contended.

• Ah, well, these are the musings of a fellow traveler in time back in the day of giants in the field, most notably Nate Gage—the father of research on teaching and my good mentor and friend.
Thank You!