

# Reflections & Reminiscences On The Measurement Of Teaching: Professional Competence

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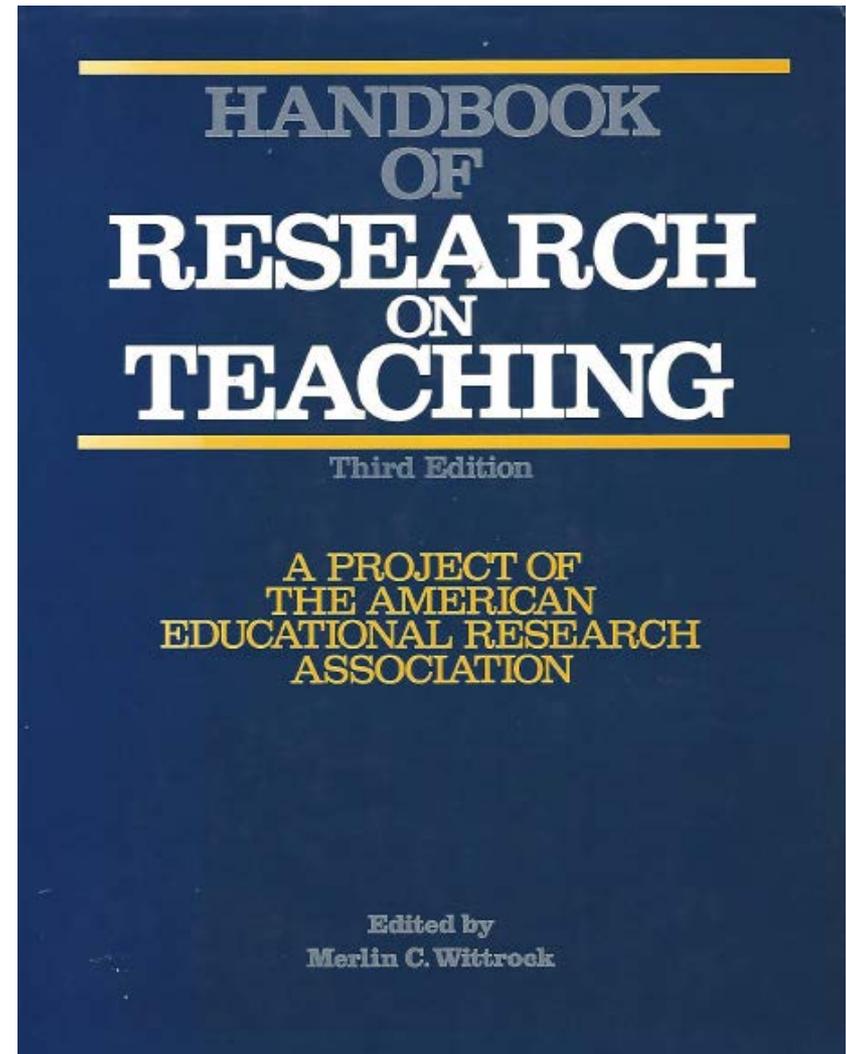
# Overview

- 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



# 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

PARADIGMS AND RESEARCH PROGRAMS IN THE STUDY OF TEACHING

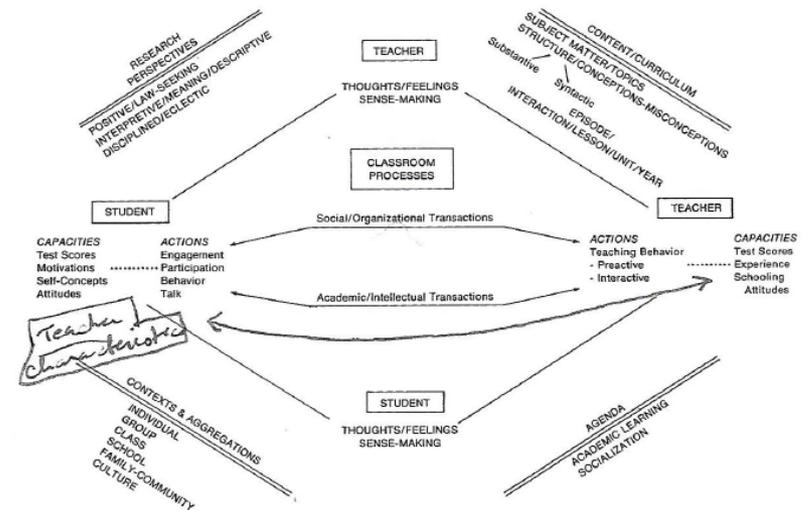


Fig. 1.2. Synoptic map of research on teaching.

# Synoptic Map Of Research On Teaching

PARADIGMS AND RESEARCH PROGRAMS IN THE STUDY OF TEACHING

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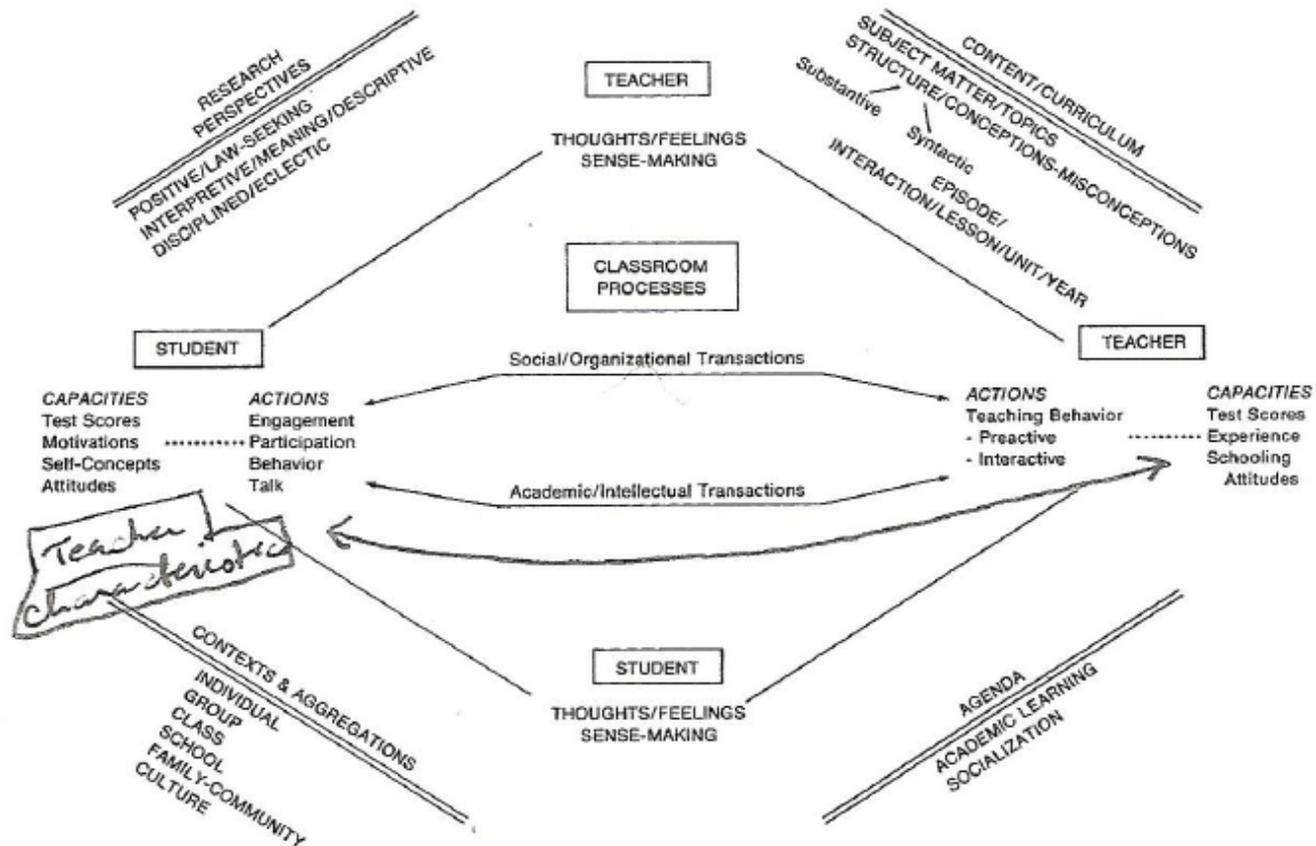


Fig. 1.2. Synoptic map of research on teaching.

# 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.”

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## Measurement of Teaching

Richard J. Shavelson, Noreen M. Webb, and Leigh Burstein  
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### Introduction

This is the first time in the *Handbook's* distinguished history that a separate chapter has been devoted to the broad topic of measurement of teaching. To be sure, previous volumes have not ignored measurement. Medley and Mitzel's classic chapter (1963), for example, not only provided methods for systematically observing and measuring attributes of teacher behavior, but it also presented elements of a measurement theory to go along with these methods. (Indeed, our chapter picks up the threads of that measurement theory in the form of generalizability theory.) Moreover, measurement concerns could be found sprinkled throughout the more substantive chapters. Just what, then, is the domain of measurement of teaching?

### Domain of Measurement of Teaching

Charting the measurement-of-teaching domain depends importantly on how the field of research on teaching is conceived (see Shulman's chapter in this volume). As a heuristic for mapping the domain, one possible view of the field is sketched briefly.

THE FIELD OF RESEARCH ON TEACHING

outcomes typically examine relations between measures of teacher behavior and student achievement. More recently, they have included randomized experiments that examine the effect of systematic variations in teaching behavior on student achievement (see Brophy & Good's chapter in this volume). And studies of teaching context examine the effects of classroom and school characteristics on classroom processes and teaching outcomes (see Feiman-Nemser & Floden, Lanier & Little, and Good & Brophy, all in this volume.)

Research on teaching typically focuses on the human teacher. The field, however, is not restricted to human teachers; it also includes, for example, studies of textbooks and computers as teachers. Further, teachers are not necessarily the sole focus of this research. Students' (and others') perceptions of teaching, of the teacher, and of the behavior of their teachers and classmates clearly fall within the domain (see Shulman's chapter in this volume).

### MEASUREMENT-OF-TEACHING DOMAIN

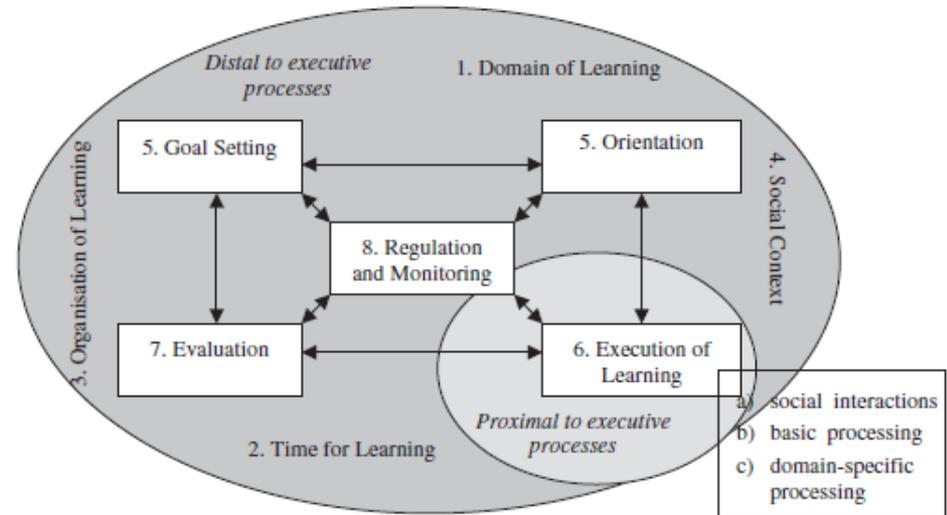
Traditionally, the field of educational and psychological measurement covers instrument construction, scaling and metrics, reliability, and validity. We define the *measurement-of-teaching domain* by linking each of these ...

# 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.

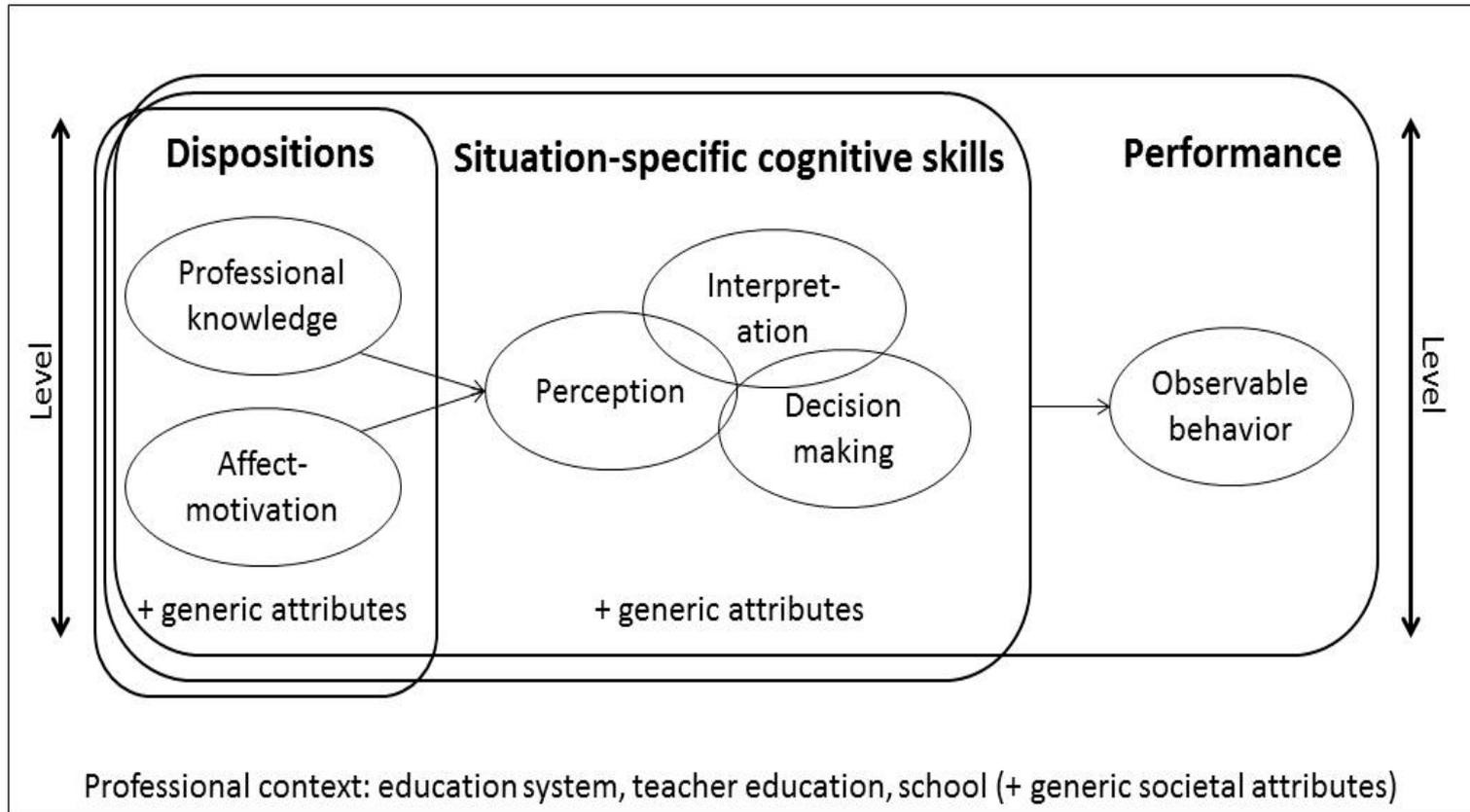
# Teaching Effectiveness Research in the Past Decade: “Déjà Vu All Over Again” (Yogi Berra)

- 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)

# Reflections Then To Now



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

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

- 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

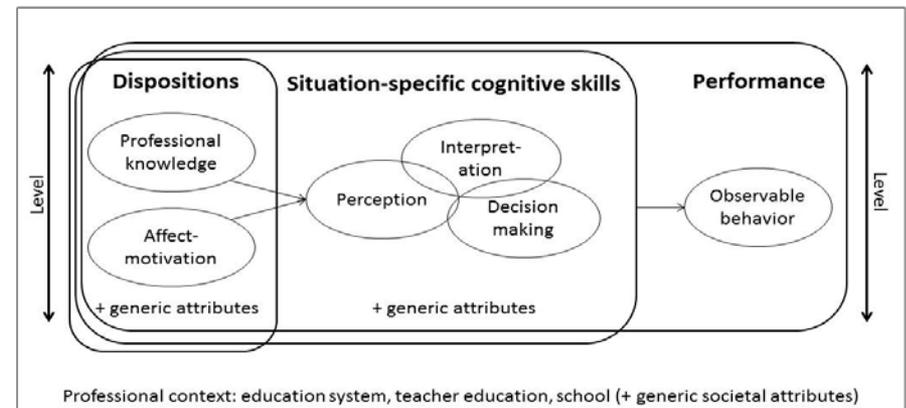
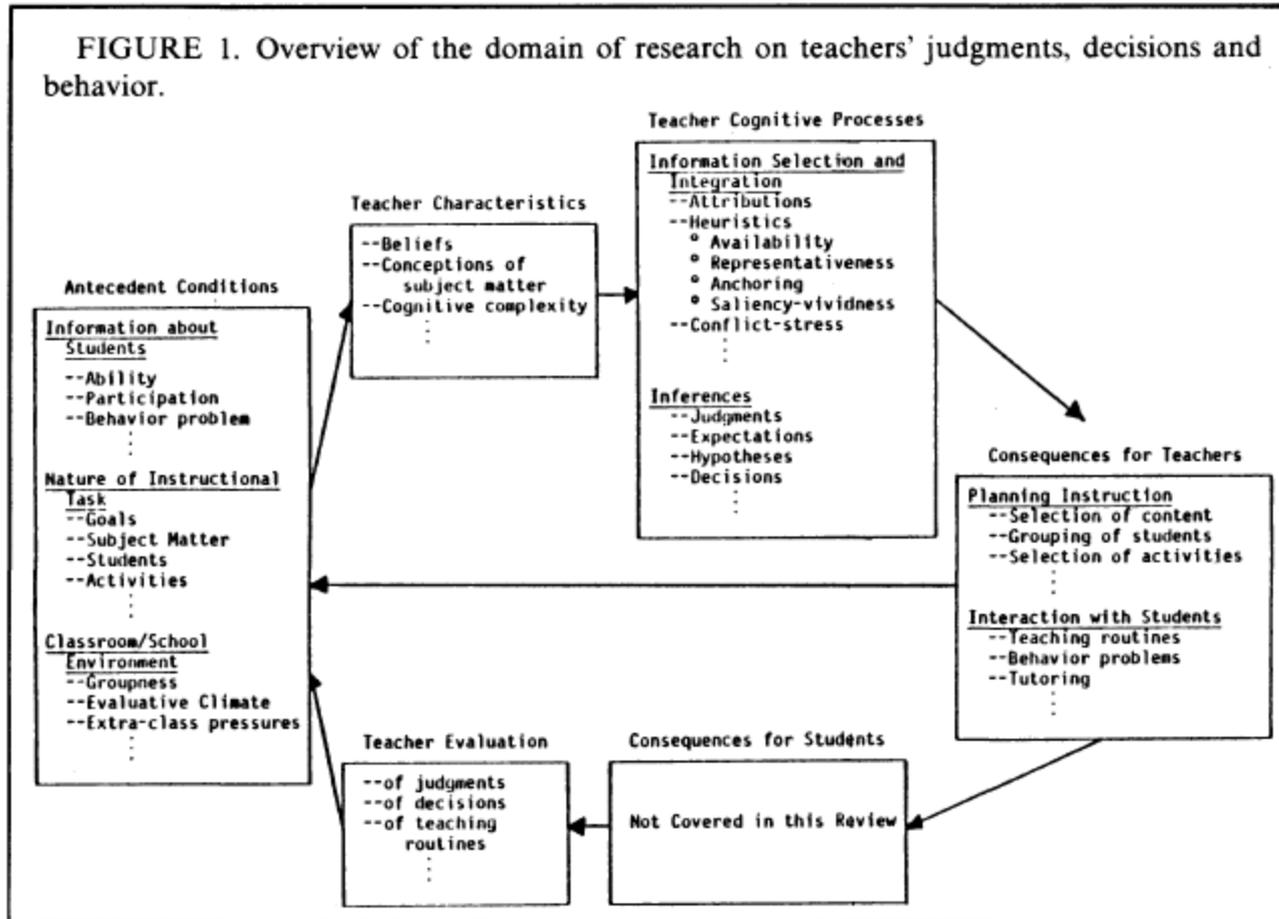


Figure 1. Extended version of Blömeke, Gustafsson & Shavelson, 2015.

# 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”

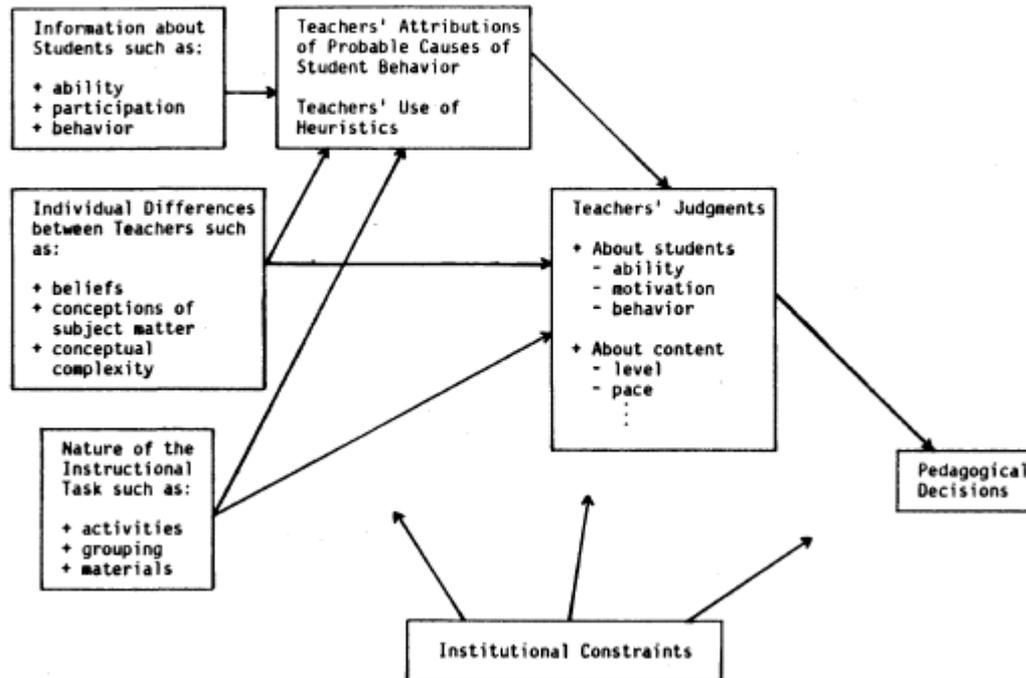
# Reflection: Teacher Competence— Situation-Specific Cognitive Skills



Shavelson & Stern (*RER*, 1981)

# Pedagogical Decisions

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



# Teacher Planning

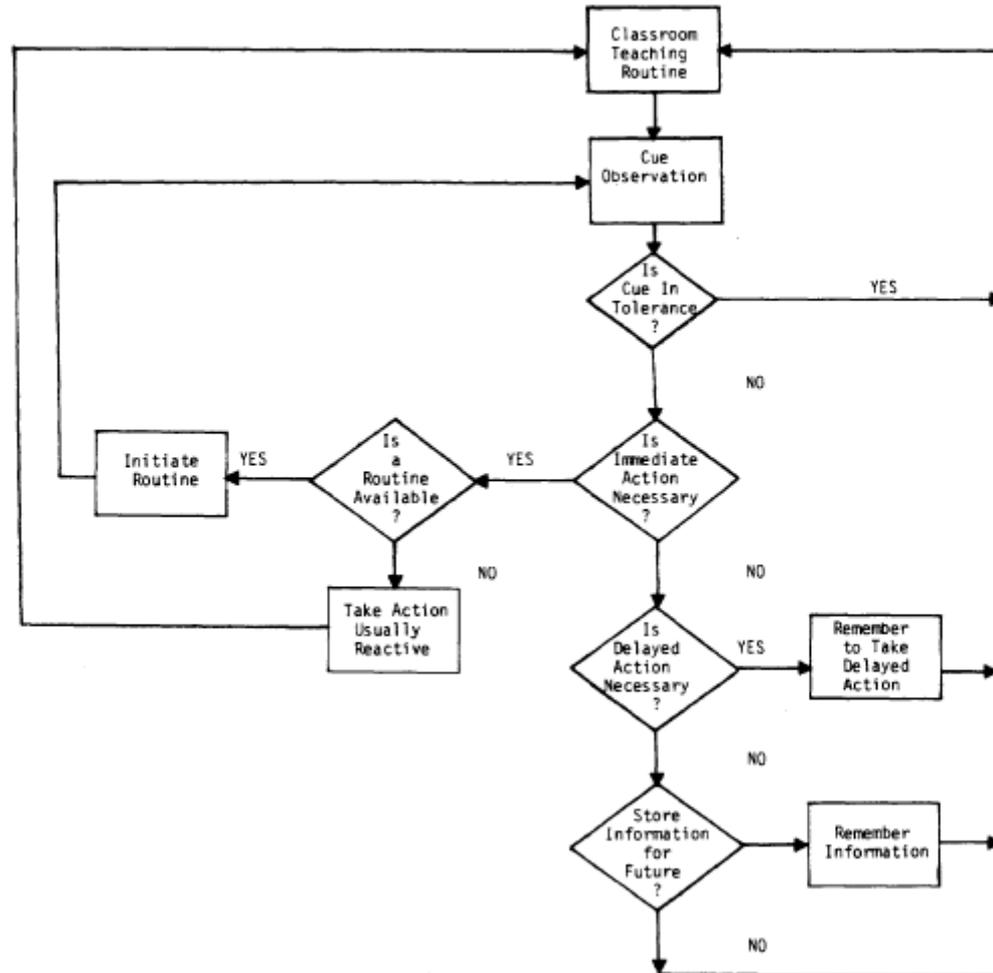
FIGURE 3. Elements of teachers' planning of instructional tasks.



- 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.



# 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

Shavelson, R.J. (1986). Toma de decision interactive: algunas reflexiones sobre los procesos cognoscitivos de los profesores. (Translation: Interactive decision making: Some thoughts on teacher cognition.) In L.M.V. Angulo (Ed.), *Pensamientos de los profesores y toma de decisiones* Universidad de Sevilla, Servicio de Publicaciones, Seville, Spain.

# 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!**