

## Teacher Education What Difference Does It Make? CEC

[www.copsse.org](http://www.copsse.org)

April 10, 2003

## Objectives of the Center

- Conduct a comprehensive review of the extant literature base. . .
- Identify gaps in the current knowledge base and design a program of study to address them
- Conduct the studies
- Identify and disseminate policy and practice recommendations

## Supply and Demand of Special Education Teachers

### Overarching Research Questions:

- To what extent does an imbalance between personnel supply and demand exist or will exist?
- To what extent does a shortage vary by personnel type and locality?
- What factors influence the supply and demand of special education personnel?

## Three Papers Relating to Supply and Demand

**Supply and Demand  
Retention and Attrition  
Diversifying the Workforce**

## Supply and Demand

- Considerations
- What We Know
- What We Don't Know

## Considerations

- Suspicion that states do not consistently report certification status
- Terminology
- Old data

### What We Know about the Shortage of Special Education Teachers

- Chronic
  - Long term (at least 10 years)
  - 10% of all teachers uncertified
- Great Magnitude
  - Shortage in all geographic areas
  - Greatest shortage in 200 largest cities
  - Shortage in all certification areas of SPE
  - Greater than math and science

### What We Know about the Shortage of Special Education Teachers (cont.)

- Local variations within
  - State
  - District
- Supply insufficient
  - Exit attrition
  - Transfers to general education
  - Increasing student population
  - Insufficient supply of new SE teachers

### Teachers from CLD Backgrounds

- 38% of SPE students are diverse
- 14% of SPE teachers are diverse
- *If current trends continue, by 2009, 40% of students and only 12% of teachers will be diverse (Olson, 2000).*

### Trends

- Shortage Will Likely Worsen
  - Attrition rate exceeds production
  - Conditions of teaching not improving
  - SPE population projected to continue growth

### What We Know About Exit Attrition

- 13% of SPE teachers depart each year
- 10 times as many SPE teachers
- Transfer to General ed as vice versa
- Approximately 1 in 2 are possible candidates for retention

### The Gaps

- Supply
  - How to attract more teachers into SPE
  - Reserve pool
  - Impact of alternative certification
  - How qualified are 'uncertified' teachers?
- Attrition
  - How to retain more teachers
  - Why so many teachers transfer out of special education to general education

## The Gaps (cont.)

- Retention:
  - Relationship with teacher quality
  - What specific retention strategies are effective for schools, LEAs, and SEAs
- CLD Teachers:
  - Effective recruitment and retention strategies for LEAs and SEAs
  - Measurable benefits of a diversified workforce

## Lastly.....

Available data suggest that in most of the US, we face a critical shortages of qualified SPE teachers who are willing to work at the salaries we offer, under the working conditions that exist in classrooms.

## Personnel Preparation Team: Guiding Questions for the Reviews

- Overarching Question:
  - What influence does formal preparation have on beginning teacher competence as compared to informal preparation?
- Supporting Questions:
  - What characteristics differentiate programs?
  - How are these characteristics related to indicators of teacher quality?
  - How does school context facilitate a beginning special educators' practice?

## Key Findings from Research Syntheses

### What do we know about teacher education?

Positive correlations between certification status and student achievement exist, with some exceptions

Content pedagogy has a value-added effect

More intensive alternative preparation routes seem to prepare more skilled teachers

Informative case studies of teacher education, but few comparative studies that define exemplary features

Most of what we know about teacher education is based on consensus about exemplary practices

## Key Findings from Research Syntheses

### Comparison To Practices Considered Exemplary in General Education:

- Commonalities:
  - Carefully designed, well-supervised field experiences
  - High degree of professional collaboration
- Differences:
  - Student diversity addressed from different perspectives
  - Program evaluation employs more direct assessment in GE
  - Program orientation articulated better in GE
  - Stronger emphasis on content area pedagogy in GE

## Key Findings from Research Syntheses

### Induction of Beginning Special Education Teachers

- Conditions of SE practice make beginning teachers more vulnerable
- Effective induction programs in GE and SE share several features (e.g., frequent interactions between mentors and mentee)
- Induction programs influence beginning SE teachers' decisions to stay, collaborative skills, and self-confidence
- Alternative routes to certification are a form of induction for unprepared teachers

## Key Findings from Research Syntheses

### Beginning Teacher Quality

- Little consensus exists about the defining characteristics of a quality teacher
- Indicators of quality depend on the research design
- Five approaches to assessing beginning teacher quality exist (process-product checklists, Englert's checklist, PRAXIS III, surveys, professional standards)

## Key Unanswered Questions

- What characterizes effective practice in initial preparation?
- How do features of initial preparation contribute to beginning teacher competence?
- What characterizes beginning teacher competence?
- How does the school context extend or inhibit beginning SE teachers' learning after initial preparation? What role does formal induction play in beginning teacher learning?
- What supports do teachers entering through alternative routes (compared to more traditional routes) need?

## Certification and Licensure of Special Education Teachers

- Overarching Research Questions:
  - Are methods of certification and licensure predictors of student achievement and other related outcomes? What do we know about the efficacy of alternative routes to certification?
  - What certification options are currently utilized by the states? What criteria have states used to devise these standards? How have changes in certification and licensure influenced the range and design of teacher preparation programs?

## Certification and Licensure of Special Education Teachers

- Overarching Research Questions:
  - What are the relationships between the existence of certification and licensure reciprocity agreements among states and Sped teacher supply and demand both within and between states?
  - What is the professional status of special education? How does the evolution of teaching compare with the developmental histories of established professions? What are the issues and social forces that influence the course and development of teaching as it moves toward full professional status?

## Research Syntheses

- The Status of Licensure of Special Education Teachers at the Beginning of the 21st Century
- Getting Teachers Where They are Needed Most: The Case for Licensure Reciprocity
- The Proliferation of Alternative Routes to Certification in Special Education: A Critical Review of the Literature
- The Development of Teaching as a Profession: Comparisons with Careers that Have Achieved Full Professional Standing

## Key Findings from the Research Syntheses: The Status of Licensure

- There have been major changes in licensure structures and requirements in the recent years
- National standards for the preparation of Sped teachers have influenced the licensure standards adopted by many states
- A majority of jurisdictions have adopted licensure structures that include a mixture of categorical and non-categorical options
- Challenges exist in reliably indexing Sped

### Key Findings from the Research Syntheses: Licensure Reciprocity

- Forty-five states have entered into the NASDTEC Reciprocity Compact
- Although good reciprocity benefits individual teachers and individual states, licensure has limited capacity to alleviate teacher shortages
- Other factors influence teachers' decisions to teach
- Further research is needed to learn the extent to which teachers relocate in response to market conditions

### Key Findings from the Research Syntheses: Alternate Routes to Certification

- Little is known about ARC in Special Education
- There is a great range and variability of the structure and standards of ARC
- Successful, ARC programs are planned and delivered collaboratively by IHEs, SEAs, LEAs.
- We know little regarding how ARC programs influence professionalization of Sped or teacher candidates.

### Key Findings from the Research Syntheses: Teaching as a Profession

- Teaching as a profession mirrors debates that have occurred in the developmental histories of established professions
- The developmental structures found in medicine, law and engineering are not currently found in education
- At present, teaching lacks clear borders that demarcate legitimate programs of preparation
- Efforts to professionalize teaching are dependent upon free-market or governmental forces which influence professional preparation programs

### Key Unanswered Questions

- Are there certain licensure frameworks or models more efficacious ?
- Is there a relationship between the existence of certain licensure models and the demand for Sped teachers within a particular jurisdiction?
- To what extent do ARC programs contribute to the production Sped teachers?

### Key Unanswered Questions(cont.)

- What are the relative cost benefits of different types of preparation programs?
- How do variations in the quality/rigor of teacher preparation affect teacher performance outcomes? How do the variations affect the status of the profession?
- How have certification policies, including ARC and reciprocity affected teacher migration and supply?



### Formulating the Research Agenda

[COPSSE Papers Link](#)

## Research Design Panel

Baltimore, MD  
April 17-19, 2002

- Purpose: Prescribed in RFP
- Inputs: Executive Summaries,  
Synthesis of the Syntheses
- Process: Expert Panel (Ed Boe, Lynn Boyer,  
Elaine Carlson, Stan Deno, Mary Kennedy, and  
Virginia Richardson) Discussion and  
Interactions with Project Team
- Outcome: Four Guiding Questions

## Research Design Panel: Guiding Questions

- What characterizes efficient and effective practice in initial preparation as measured by beginning teacher quality and retention?
- How do school and district context influence beginning teacher quality and retention?
- How does state policy context affect the shortage of qualified special education teachers?
- How does policy context affect the content and process of teacher education?

[Research Design Panel Webpage](#)

## The Quest for Concrete, Researchable Questions

- Post RDP Team Planning
  - May - June 2002
- Policy RDP
  - July, 2002
  - Bill East, Mike Hardman, Maggie McLaughlin,  
Jane West, Deb Ziegler
- Policy Summit, July 2002

## Policy Summit Outcomes: Top-rated Questions

- How do school settings (e.g., administrative support, school climate, student SES) interact with beginning teachers' preparation to influence their effectiveness and retention?
- What teaching and working conditions (class size, caseload, collaboration time, paperwork) lead to quality and retention of special education teachers?

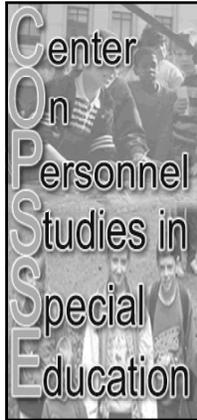
## Policy Summit Outcomes: Other Key Questions

- What defines teacher quality in special education teachers?
- What are the key characteristics of initial preparation programs that contribute to the development of skill in novice special educators?
- How do workplace variables interact with preparation variables to contribute to the quality of novice special education teachers?

## Setting the Research Agenda

- Teacher Quality
  - Validation of BTQ Assessment
  - Initial Preparation and BTQ
- Policy Studies
  - Indexing Study (with CEC Clearinghouse)
  - SASS Analysis
  - Cost Effectiveness Analysis

[COPSSSE Webpage Link](#)



## ARC Indexing Study

Michael S. Rosenberg  
Vince Connelly  
Lynn Boyer  
Val Sharpe

## ARC Indexing Study

- Background

Proliferation of ARCs

Little Known re: Scope  
re: Characteristics  
re: State Variability

## ARC Indexing Study

- Research Questions
  - What is the breadth and depth of ARC training?
  - How do programs vary across states?
  - How do ARC programs differ in terms of
    - a) program sponsorship/alignment
    - b) program length/intensity
    - c) program participants
    - d) specific program characteristics?
    - e) program capacity
  - How does policy context influence ARC programs within states?

## ARC Indexing Study

- Method
  - Partnership with CEC Clearinghouse
  - Development of Structured Interview Reflecting Key Factors
  - Interviews conducted by BEBR
  - Analyses of State Policy Contexts
  - Data Aggregated Across/Within Factors and States

## ARC Indexing Study: Initial Outcome Data

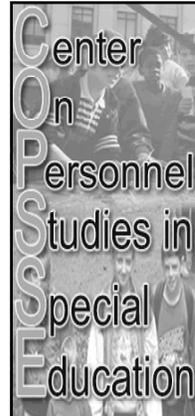
- Scope of ARCs to Date
  - 185 programs in 30 states (no info from several key states)
  - Six states have 9 or more programs and account for 68.1% of the programs found
  - Two states (CA & TX) account for 44.3% of the programs found

## ARC Indexing Study: Initial Outcome Data

- Relationship of Selected States Program Data to Percent of Teachers Not fully Certified

## ARC Indexing Study: Initial Outcome Data

•State	•# ARC Programs	•% Not Fully Certified
•CA	•36	•20.84
•TX	•46	•14.26
•GA	•16	•2.17
•KY	•10	•10.64
•SD	•9	•1.06
•UT	•9	•4.23



## Schools and Staffing Survey

Vince Connelly,  
Michael Rosenberg, JHU

## Schools and Staffing Survey Study

### Background:

- The proliferation of ARCs
- Debate continues regarding ARC:
  - Proponents argue ARCs:
    - reduce shortages
    - raise the quality of teachers
    - diversify the teaching workforce
  - Opponents argue ARCs:
    - degrade the professional status of teaching
    - ultimately hinder student learning
    - teachers: easy come, easy go

## Schools and Staffing Survey Study

- Purpose
- To describe the demographics of those teachers who have attained their certification through alternative routes, as well as to describe the characteristics and outcomes of their alternative preparation.

## Schools and Staffing Survey Study

### Research Questions:

- Research Question I: *The extent of alternative certification.*
  - What is the extent of practicing alternatively certified special educators in the elementary and secondary teaching force today? How have the demographic and descriptive characteristics of these educators changed over time?

## Schools and Staffing Survey Study

### - Research Questions:

- Research Question Number II: *The quality and efficacy of alternative certification.*
  - How do alternative routes vary from traditional routes to elementary and secondary special education certification according to both the quality and components of the teacher preparation program?

## Schools and Staffing Survey Study

- Research Questions:
- **Research Question Number III:** *The relationships among method of preparation, self-efficacy, and intent to remain in the profession.*
  - What are the relationships, if any, among types of certification and new teacher intent to remain in the profession? Specifically, what are the differential effects of method of teacher preparation, mediated by situational variables (e.g., self-efficacy), on a new special education teacher's intent to stay?

## Schools and Staffing Survey Study

- Methodology:
  - This study will be based upon an analysis of data from the public school teacher surveys of the Schools and Staffing Surveys (SASS) from 1997-98, 1990-91, 1993-94, and 1999-2000 .
  - The SASS surveys were sponsored by the United States Department of Education, National Center for Educational Statistics (NCES). Schools were sampled nationally, proportional to size within various demographic strata. Approximately 57,000 teachers were sampled.

## Schools and Staffing Survey Study

- Methodology:
  - Variables used in this study were taken across time from the SASS and consist of the following, among others: teacher demographics (gender, income, race, age, marital status), teacher academic background, degrees held, previous work experience, and programmatic aspects of the respondent's pre-service preparation.

## Schools and Staffing Survey Study

- Methodology:
  - Other variables used included responses to a series of questions contained in the SASS that seek to measure a teachers self-efficacy, or ask "how well prepared were you before entering teaching" to handle specific sets of teaching skills. In addition, variables were included that measured a teacher's intent to stay in special education, and their intent to stay in the profession of teaching altogether.

## Schools and Staffing Survey Study

- Initial Outcome Data:

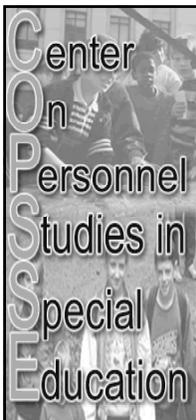
Holds Certification in Main Field?	sample (n)	pop. est (value)	plus/minus (value)	percent (%)	
Special Education**	yes	4,397	307,209	6,182	93.33
	no	356	21,958	1,704	6.67
	total	4,753	329,167	6,324	100
All Other Education	yes	35,267	2,509,587	13,108	94.50
	no	2,071	146,028	3,760	5.50
	total	37,338	2,655,615	13,130	100
Total:	yes	39,664	2,816,796	19,290	94.31
	no	2,427	167,986	5,464	5.63
	total	42,091	2,984,782	19,454	100

What Type of Certification in Main Field?		sample (n)	pop. est. (value)	plus/minus (value)	percent (%)
Special Education**:	Regular/APC				
	Probationary				
	Provisional				
	Temporary				
	Emergency				
	Total				
All Other Education*:	Regular/APC				
	Probationary				
	Provisional				
	Temporary				
	Emergency				
	Total				
Total:	Regular/APC				
	Probationary				
	Provisional				
	Temporary				
	Emergency				
	Total				

How Certification Earned in Main Field?		sample (n)	pop. est. (value)	plus/minus (value)	percent (%)
Special Education**:	Bachelor's 5th year				
	Master's				
	After, ALTCERT				
	Before, ALTCERT				
	Prof. Develop.				
	Other				
	Total				
All Other Education*:	Bachelor's 5th year				
	Master's				
	After, ALTCERT				
	Before, ALTCERT				
	Prof. Develop.				
	Other				
	Total				
Total:	Bachelor's 5th year				
	Master's				
	After, ALTCERT				
	Before, ALTCERT				
	Prof. Develop.				
	Other				
	Total				

If No, Are You in a Certification Program?		sample (n)	pop. est. (value)	plus/minus (value)	percent (%)
Special Education**	yes	2,244	23,624	2,197	92.97
	no	2,771	19,726	1,746	68.96
	total	766	49,284	2,664	100
All Other Education*	yes	2,050	154,945	2,996	44.70
	no	1,520	181,725	1,353	85.29
	total	3,570	346,670	4,349	100
Total:	yes	4,294	184,400	5,193	46.97
	no	2,791	211,544	1,108	83.03
	total	5,335	395,951	7,040	100

Description of this certification program?		sample (n)	pop. est. (value)	plus/minus (value)	percent (%)
Special Education**:	IHE	266	7,851	725	91.21
	LEA	74	4,513	926	19.27
	Other				
	Total				100
All Other Education*:	IHE	2,288	97,181	2,785	62.71
	LEA	327	27,937	1,427	17.83
	Other	435	25,947	1,437	19.23
	Total	3,050	151,065	5,649	100
Total:	IHE	2,554	109,458	3,485	62.72
	LEA	399	30,389	1,453	19.53
	Other	266	14,260	1,360	19.83
	Total	3,219	154,107	6,303	100



**Cost Effectiveness Analysis**

Michael Rosenberg, JHU  
 Paul Sindelar,  
 David Denslow,  
 James Dewey, UF BEBR

**Cost Effectiveness Study**

- Denton & Smith (1985): Alternative versus traditional routes
- Lewis (1990): 5th year licensure versus undergraduate teacher education programs
- Darling-Hammond (2000): 5-year, 4-year, and alternative route programs

## Cost Effectiveness Studies

- Participants: Mike Rosenberg and Paul Sindelar, COPSSE, and Jim Dewey and Dave Denslow, BEBR
- Question: How should public funds be allocated across training programs to maximize special education teacher supply?

## Cost Effectiveness: Next Steps

- Develop analytical model
- Analyze data from familiar programs
- Develop program taxonomy and cost out all models, including traditional programs
- Develop quantitative model of special education teacher labor market
  - Estimate net benefits
  - Relate benefits to program characteristics
- Identify need for new parameter estimates

## Training Costs

- Production Costs
- Number of Graduates
- Retention: How long do they remain in the field?
- Teacher Quality: How capable are they?
- Contexts: Where do they work?

## Production Costs

- Instructional costs
  - Instructors' Salaries
  - Equipment and Materials
- Administrative costs
  - Facilities
  - Record Keeping
  - Student Services
- Opportunity Costs

## Number of Graduates

Some enter teaching, and others do not. Of interest to us is the number of graduates who enter the profession.

So, Unit Cost is better expressed as  
Costs/Number of Graduates *who enter the profession*

## An Example:

### Volusia County/UF Program

- OSEP funded from 1992-1995
- Paraprofessional step up program
- 19 Graduates
- Total costs incurred: \$274,000
- Unit cost: \$14,413 (discounting admin costs)
- 16 teachers currently teaching in VC
- Graduates have provided 140 years of service
- Cost/year of service: \$103

## Retention and Context Upgrades

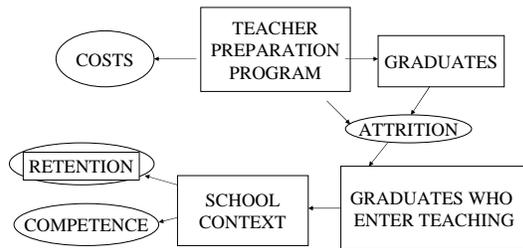
Retention: All other things equal, if graduates of Program A remain in teaching longer than graduates of Program B, Program A may be said to be more cost effective than Program B.

Also, retention in hard-to-staff schools may be more highly valued than retention in readily staffed schools.

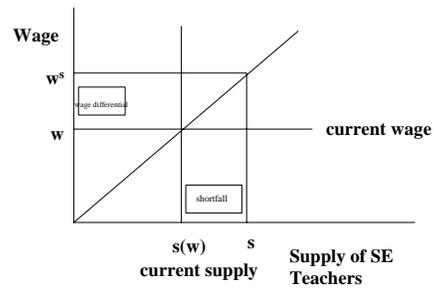
## Beginning Teacher Quality Upgrade

**Beginning Teacher Quality:** All other things equal, if graduates of Program A are judged to be more effective teachers than graduates of Program B, Program A may be said to be more cost effective than Program B.

## Cost Effectiveness Model



## The Simple Case

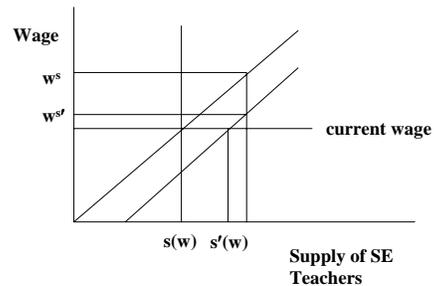


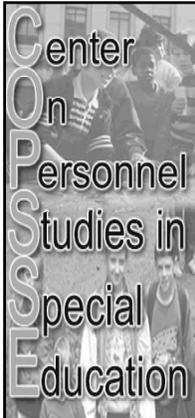
## What is the impact of an alternative route program on supply?

Assuming that new programs supplement existing programs. . . .

Total cost of eliminating shortages by raising salaries is reduced proportionately

## Impact of an AR Program





## Carving Out a Research Agenda In Teacher Education

How do we know teacher education makes a difference?  
Issues in Design

## Does Teacher Education Make a Difference?

Research we need:

- Cross institutional studies that provide insight into effective preparation practice
- Longitudinal approaches that examine how teachers change in response to preparation
- Studies that account for the influences of context
- Studies that tie preparation to valued criterion measures

## Carving out a Research Agenda in Teacher Education

One of the most difficult facts facing social scientists has been the realization that social phenomena cannot be disentangled in a way that permits unambiguous statements of causal relationships.

--Kennedy, 1991

## Understanding the Influence of Teacher Education

*What makes the task so hard?*

- Learning to teach is developmental
- Teacher education programs and beginning teachers are situated in complex contexts
- Conducting research that is meaningful to key stakeholders

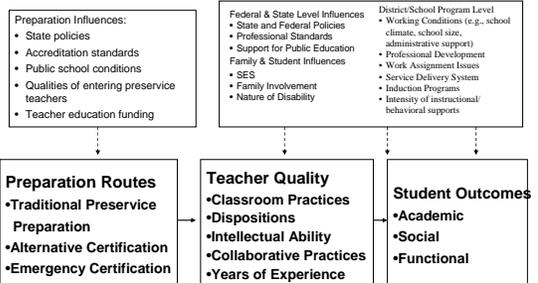
## Understanding the Influence of Teacher Education

*What makes the task so hard?*

Special education teaching is complicated by disability, grade level, and role played

State assessments may not be appropriate  
Determining reasonable progress for students with disabilities

### Linking Preparation, Teacher Quality, and Student Outcomes: Factors to Consider



### Issues in Designing Teacher Education Studies in Special Education

#### Developing dependent variables:

Measures of knowledge, beliefs, and practice capture developmental nature of learning to teach

Measures can be used in large and small scale studies (e.g., retention, classroom practice)

### Issues in Designing Teacher Education Studies in Special Education

#### Developing dependent variables:

Measures capture different aspects of special education teaching

Measures contribute to some of variance in student performance or can predict later expertise

### Issues in Designing Teacher Education Studies in Special Education

#### Sampling programs for study:

Preparation programs are heterogeneous

Need to distinguish programs in ways that may influence teacher learning (e.g., views of teacher knowledge, amount of clinical experience)

### Issues in Designing Teacher Education Studies in Special Education

#### Determining the Influence of Context:

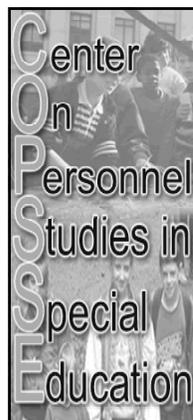
Designs must account for ways state, district, and building policies and practices might influence beginning teacher practice

### Issues in Designing Teacher Education Studies in Special Education

#### Considers constructivist and developmental nature of learning to teach:

Experiences and beliefs novices bring to their program influence learning

Knowledge development is uneven and evolves differently according to context



### Developing Quality Special Education Teachers: *Linking Beginning Teacher Quality and Teacher Education*

University of Florida  
Instructional Research Group  
University of Colorado  
Johns Hopkins University

## Guiding Question

What characterizes efficient and effective practice in initial preparation as measured by beginning teacher quality?

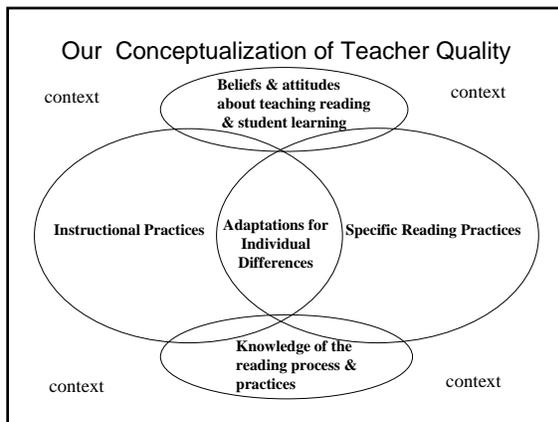
## Facets of Effective Teaching: Linking Teacher Quality to Student Performance(year 3)

### Rationale:

Establish criteria for evaluating the impact of initial preparation on beginning teachers

### Overarching Question:

What defines teacher quality in beginning special education teachers?



## Facets of Effective Teaching: Linking Teacher Quality to Student Performance(year 3)

### Research question:

- What are the classroom practices and beliefs that promote growth in reading skills for 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grade students with high incidence cognitive disabilities?

### Research Activities

- Instrument Selection and Modification
- Observations and interviews with teachers
- Collection of some student data
- Conceptualizing common themes

## Role of Initial Preparation in Beginning Teacher Quality (year 3)

### Rationale:

Identify key features of preparation for studies linking preparation, teacher quality, and student performance

### Research Question:

What are the common features of preparation that discriminate competent early career teachers from their less competent counterparts?

## Role of Initial Preparation in Beginning Teacher Competence (Year 3)

### Purpose:

Develop survey measures assessing features of initial preparation and beliefs that discriminate more expert from less expert novices

### Participants:

Beginning special education teachers selected for teacher quality study

### Role of Initial Preparation in Beginning Teacher Competence (Year 3)

#### Research Activities:

- Create initial preparation survey
- Conduct content validation of survey
- Pilot test survey
- Conduct focus groups with teachers being observed
- Conduct survey with future teachers from various preparation routes

### Components of the Survey

- Initial Preparation
- Work Environment
- Instructional Programs, Materials & Practices
- Certification and Preparation Route to Teaching  
Special Education

### Impact of Initial Research

Provides observable criteria and some survey measures for determining the impact of initial preparation

Provides a better understanding of the roles general and special education are playing in the achievement of students with disabilities

Lays some foundation for correlational studies examining relationships between teacher quality, workplace, and initial preparation variables