

COPSSE Update: Related Service Providers, Program Design, and Teacher Quality and Student Outcomes

TED Conference
Albuquerque

November, 2004
www.copsse.org

COPSSE

- Collaborative venture of the University of Florida, Johns Hopkins University and consulting partners
- Funded by the U. S. Dept. of Education, Office of Special Education Programs
- To conduct research on the supply and demand, preparation, and certification and licensure of special education teachers and related service providers.

COPSSE

- Reports on 10 teacher education topics and 9 related service disciplines
- Developed and validated teacher education and related services research agendas
- Undertaken studies on beginning teacher quality and the effectiveness of training alternatives
- All available on www.copsse.org

COPSSE

www.copsse.org

- Also available on our website:
 - Executive summaries as well as full-length versions of 19 research papers
 - Policy Briefs
 - Research Agendas
 - Teacher Education
 - Related Services
 - Descriptions of Current Studies

Teacher Education Research Agenda

- Beginning Teacher Quality Study:
 - What do beginning teachers know and do?
- Alternative Route Policy Studies
 - What special education AR programs are currently offered? What are they like?
 - How do AR program graduates differ from graduates of traditional teacher preparation programs?
 - What does teacher preparation cost? What does it return? How do traditional and AR programs compare?

Current Studies

- Beginning Teacher Quality Study, Mary Brownell, PI
 - UF, University of Colorado, Boulder, California State University at Los Angeles, and the Instructional Research Group, Long Beach, CA
- Cost Effectiveness of Preparation Options, Paul Sindelar, PI
 - UF, JHU, Bureau of Economic and Business Research
- Alternative Route Indexing Study, Mike Rosenberg, JHU, PI
 - JHU, Council for Exceptional Children
- SASS Path Analysis, Vince Connelly, UNH
 - JHU, University of New Hampshire

Related Services Research Agenda

Work funded by H3250000002, a cooperative agreement between the University of Florida and the Office of Special Education Programs of the U.S. Office of Special Education.

Coordinated by:
Mary Jane K Rapport, PhD, PT

Developing the Research Agenda

- Issue Briefs
- Policy Briefs
- Research Design Panel meetings
- Policy Makers' Summit
- Post Summit Analysis and confirmation
- Proposed Research Agenda
- Next Steps

Issue Briefs

- School Administration
- Special Education Administration
- Teachers of Students Who Are Visually Impaired
- Teachers of Students Who Are Hearing Impaired
- Paraprofessionals
- Audiology
- Occupational Therapy
- Physical Therapy
- Speech Language Pathology

Policy Briefs

- An Insufficient Supply and a Growing Demand for Qualified Special Education Personnel: What State Policymakers Should Know (*Policy Brief #16*)
 - An Insufficient Supply and a Growing Demand for Qualified Special Education Personnel: What School Districts Should Know (*Policy Brief #17*)
 - Paraprofessionals: What You Should Know About Ensuring a Highly Qualified Workforce (*Policy Brief #20*)
 - An Insufficient Supply and a Growing Demand for Qualified Related Service Personnel: Are School Districts Prepared? (*Policy Brief #21*)
- All available at www.copsse.org – *Workforce Watch* link

Research Design Panel Meetings

- February 2003 and May 2003
 - Researchers
 - Related Services Personnel Trainers and Educators
 - Practitioners
 - Related Services
 - Teachers
 - Administrators

Purposes of RSRDP

- identify critical unanswered research questions
 - supply and demand, professional preparation, and certification and licensure
- identify potential funding sources for research
- develop a plan to obtain funding for research
- determine how COPSSE might support this plan

Outcome of meetings

- Lists of key questions from each subgroup:
 - related service providers (including paraprofessionals)
 - teachers of students with sensory impairments (hearing and vision)
 - administrators (special ed and school admin)

Policy Makers' Summit

- Co-hosted by NASDE
- Participants included:
 - representatives from the RSRDPs
 - state department officials
 - professional organization representatives
 - practitioners
- Paraprofessional training separated from related service group

Charge to Summit Participants

- reflecting on the concerns of their constituencies
- edit questions for clarity
- propose additional questions
- rank the importance of the research questions

Post Summit Analysis

- ratings by subgroup
- calculated means and standard deviations
- z-scores to control for difference across groups
 - set a break point ($z\text{-score} \geq .72$)
- feedback from RSRDP participants
- minor revisions completed

Proposed Research Agenda

Paraprofessionals

- What are effective models for using paraprofessionals to deliver services to students with disabilities?
- Within each model of service delivery, what does a paraprofessional need to know and be able to do?
- What constitutes effective preparation of paraprofessionals as measured by satisfaction, use of evidenced-based practices, and retention?

Proposed Research Agenda

Related Service Providers

- What are the common factors in service delivery models that lead to positive student outcomes?
- Which evidence-based or effective practices lead to positive outcomes for students and families?
- How does effective related services preparation affect student and family outcomes?
- How does effective preparation affect professionals' ability to implement effective related services practices?

Proposed Research Agenda

Teachers of Students with Sensory Impairments

- What is effective practice in educating students with sensory impairments?
- What models of preparation have the biggest impact on teachers' knowledge and skills?
- What models of preparation have the biggest impact on student outcomes?

Proposed Research Agenda

Administrators

- What are the factors influencing the attrition and retention of administrators?
- To what extent are administrators prepared to meet the needs of all students?
- What are the dimensions of instructional leadership in schools and school districts (LEAs) that have an impact on the performance of teachers responsible for instruction?
- What are the dimensions of instructional leadership in schools and school districts (LEAs) that have an impact on outcomes for high- and low-achieving students?
- What comprises the content, organization, and structure of an exemplary administration program?

Next Steps

- Dissemination of the agenda and ideas
- Convene with The Center to Inform Personnel Preparation, Policy and Practice in Early Intervention and Preschool Education (AKA Early Childhood Center)
- Seek funding and resources

Contact information

Mary Jane K Rapport, PhD, PT
UCHSC – JFK Partners
4200 E. Ninth Ave., C221
Denver, CO 80262
303-864-5166
rapport.maryjane@tchden.org

COPSSE Document No. OP-01

Available at <http://www.copsse.org> or by contacting the COPSSE office at the University of Florida.

Designing Effective Alternative Route Programs

Paul Sindelar and Michael Rosenberg

Insights from Research

Features of Effective SE Alternative Route Preparation

- Rosenberg and Sindelar (in press). *The proliferation of alternative routes in special education: A critical review of the literature*. www.copsse.org
 - Based on 10 evaluations and studies
 - Measures include cost, teacher competence, student outcomes, and persistence

Features of Effective SE Alternative Route Preparation

- Meaningful Collaboration
- Substantial, Rigorous, and Programmatic Content
- Supervision and Mentorship Support

Effective SE AR Preparation

- Alternative routes can produce competent teachers who persist in the field, however. . .
 - “alternative” is not a synonym for “streamlined”
 - more research is needed before we know the extent to which training may be abbreviated without diminishing competence and persistence
 - we know little about the effect that streamlining training may have on teacher professionalization

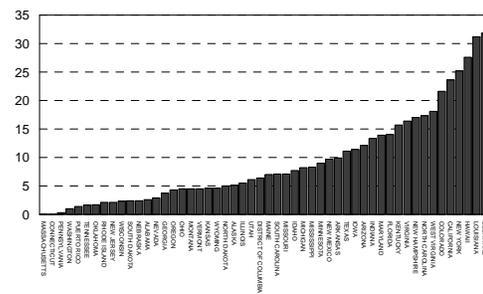
Insights from Economic Analysis

Cost Effectiveness Study

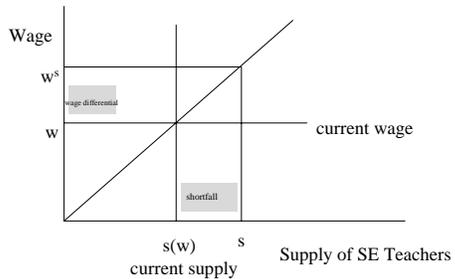
- Done in collaboration with JHU and BEBR
- Bureau of Economic and Business Research, Warrington School of Business Administration at UF
 - Dave Denslow
 - Jim Dewey
 - Chifeng Dai
- How can states best invest limited training funds to maximize the supply of highly qualified special education teachers?

Uncertified Special Ed Teachers

Share of All Special Ed Teachers, 2000



The Simple Case



Critical Assumptions

- Within school districts, wages paid special education teachers--or science or math teachers--are the same as those paid other teachers.
- Wages are constrained by negotiated agreements; otherwise, wages paid special education teachers--and science or math teachers-- would be higher than those paid other teachers.
- It is not feasible to remove this constraint. Voters will not approve large enough increase to pay all teachers the salary required to attract enough special education (and science and math) teachers (Hanushek, Kain, & Rivkin, 1999).

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Implication of Assumptions

- To address shortages, we must increase the supply of special education teachers.
- Many approaches are being used to increase the supply, including alternatives to traditional teacher preparation.
- Analyzing costs and benefits of the various approaches could result in more efficient allocation of limited training funds.
- Economic analysis does suggest guidelines for program design

Design Considerations

- Program location
- Candidate selection
- Program cost and sponsorship
- Financial support
- Program requirements
- Practice teaching

Program Location

- Most beginning teachers stick close to home
 - Boyd, Lankford, Loeb, & Wycoff, 2003
- Districts with hard-to-staff schools should offer programs for members of the neighborhood and school community
 - Who have more location specific human capital (Becker, 1975)

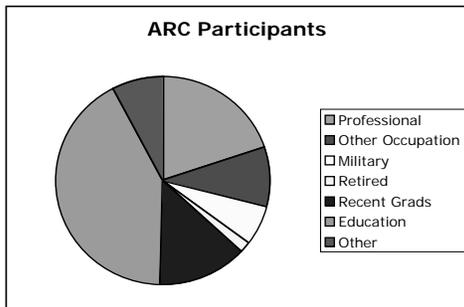
Candidate Selection: Risks and Potential

New programs should supplement the supply of special education teachers and not compete with existing programs for students and resources

Potential pools of candidates

- Mid-career changers
- Early career changers
- Retirees
- Military Retirees
- Paraprofessionals

Feistritz, 2004 Alt. Teacher Certification



Mid-Career Changers

- This table presents just a taste of what some career changers encounter in terms of pay-cuts:

Income Sacrificed by Mid-Career Changers				
	Accountants/Auditors		Mechanical Engineers	
	Dade	Hillsborough	Dade	Hillsborough
Cut in lifetime earnings	\$447,102	\$362,296	\$486,179	\$584,531
Cut in annual pay	\$43,285	\$34,978	\$47,068	\$56,590
Cut in hourly pay	\$16.24	\$12.65	\$18.13	\$23.45

Who's Gonna Do That?

- Truly Altruistic
- Independently Wealthy
- Retired and Unfulfilled
- Incompetent
- Unemployed
- Unemployable. . . .

Motive for change does become an important consideration in choosing mid-career changers for teacher education programs

Cost and Program Sponsorship

- Because initial preparation is valuable to many districts, an individual district may be reluctant to finance it
 - Human capital theory posits that participants should pay for general training that prepares them to work in any district (like initial preparation)
- However, districts may be more willing to finance programs for current employees who seek career change
 - In this case, trainees have a stake in the community and district and are more likely to persist there

Financial Support

- High costs may discourage even highly motivated and highly qualified candidates
- However, when participants bear a share of the costs, less highly committed candidates may be weeded out
- Financial support may be awarded in exchange for service in hard-to-staff schools

Program Requirements

- Rigorous program requirements may discourage casual candidates, or candidates with less potential for or commitment to teaching.
- Requirements should be designed so that the opportunity cost of completing them is greater for less qualified candidates
 - Example: Cutoff scores for admissions

Practice Teaching

- Bears a high opportunity cost: After all, it's often a full-time, semester long uncompensated job!
- Reducing the cost could be a true incentive
- One way to do that is OJT--on the job training, just as it's done in CA and other places.
- Caveats: OJT may be more appropriate for some kinds of trainees than others
 - Especially trainees with occupation specific human capital

Cost Effectiveness

- Varies as a function of cost and attrition so that
 - High cost program may be cost effective when retention is high
 - Low retention program may be cost effective when cost is low
- More generally, benefit is sensitive to persistence at high costs and sensitive to cost at low persistence.
- Lacking good data on persistence by program type, what can we infer about persistence by program type from other sources?

Step Up Programs

- Step Up candidates bring more knowledge about both the job of education and the community in which a hard-to-staff school is located.
- Economists say that they bring job- and location-specific "human capital" to their work, making them more likely to remain on the job.

Mid-Career Changers

- Mid-career changers may be a riskier clientele, depending on
 - Their reasons for changing careers
 - The salary differential (Remember the Dade and Hillsborough County accountants and mechanical engineers)
 - The similarity between teaching and their previous careers

Mid-Career Changer

- Some may view teaching as a temporary job
 - A former accountant at Arthur Anderson
 - A high tech industry worker
- Consider a hypothetical Arthur Anderson accountant:
 - Being a senior at the firm, she made around \$90,000 annually after 25 years at her firm
 - Upon switching to teaching, she earns about \$30,000 because she only has a bachelor's degree and no experience
 - She might be keen to return to accounting, whatever the joys of teaching
 - If her time at an AR program were subsidized, the state would lose much of its subsidy if she quit teaching

Insights From Labor and Information Economics

- More occupation and location specific human capital means higher persistence (Jovanovic, 1979)
- Better job match yields higher persistence (Jovanovic, 1979)
- Investing more time and effort signals more persistence (Salop & Salop, 1976, Becker, 1975)
- For many occupations, lifetime earnings profile punishes career shifting
- Career shifting may signal low quality, low persistence, or both (Chang & Wang, 1995)
- If the career changer is shifting for a "good" reason, it may signal they think they are a good match
- So age, reason for shift, and willingness to invest own resources may signal persistence and quality

Mid-career Changer vs. Step Up

- Both are career changers
- Absent other information, mid career changers represent a riskier applicant pool
- Step up program participant does not take earnings hit from switch
- Step up brings more occupation and location specific human capital
- Step up candidate invests more time and effort, signaling more persistence
- Job match characteristics are better known to workers and employers in step up programs
- If any program can justify a large program cost, it is step up programs for current district personnel in high needs districts

Beginning Teacher Quality Study Research Team

Mary T. Brownell (Lead Investigator)
Anne Bishop
Randy Penfield
Paul Sindelar
Jeanette Klingner
Shailaja Menon
Russell Gersten
Diane Haager
Joe Dimino

Doctoral Students

(Potentially Terrific Future Faculty)

Seonjin Seo
Pam Williamson
Sally Campbell
Eric Rossen
Linda Radbill
Lisa Langley

Teacher Quality Research

Teacher quality is on the forefront of policymakers' minds:

- Research demonstrates that teachers can make a difference in student achievement growth
 - Value-added assessment studies (Ross, Stringfield, Sanders, & Wright, 2003)
 - Exemplary teacher studies (Pressley & Allington, 1998; Wenglinsky, 2002)
 - Policy studies employing teacher characteristics (Darling-Hammond, 1999; Rice, 2003)
 - Classroom observation research (Haager, Gersten, Baker, & Graves, 2003)

Teacher Quality Research in Special Education

What do we know?

- Early process-product research linking discrete teaching behaviors with student achievement gains (Sindelar, Smith, Harriman, Hale, & Wilson, 1986)
- SPeNSE and SEELS research linking aspects of teacher quality to student achievement

Teacher Quality Research in Special Education

What do we need?

- Studies describing practices of beginning special educators
- Studies linking the practices of beginning special educators to student outcomes

Teacher Quality Research in Special Education

Why is this important?

- In a policy context that emphasizes student outcomes and questions teacher preparation, we need to know:
 - Relationships between teacher preparation, teacher effectiveness, and student outcomes
 - But first, we need to define and assess what effective beginning special educators do

Teacher Quality Research in Special Education

- *What are the challenges to such research?*
 - Roles and responsibilities of special education teachers vary considerably
 - Multiple sources contributing to instruction
 - In our study, students spent, on average, 17% of their day in special education (range was 8% to 22%)
 - Issues of power necessitates collapsing teachers across grade levels

Teacher Quality Research in Special Education

- Assessments that are sufficiently sensitive, standardized, and individually administered
- Student variability in achievement gains
 - In our study, the confidence interval for mean gain scores on CBM for 12 students was 97 units, 168 units for 4 students.

Teacher Quality Research in Special Education

- *Purpose of this study:*
 - Define and assess what beginning teacher quality is for high incidence disabilities
- *Research question:*
 - What are the classroom practices, content knowledge, and beliefs of effective special education teachers providing instruction in reading?

Teacher Quality Research in Special Education

- *Methodology Used*
 - Participants were 38 beginning special education reading teachers in 3 states with multiple settings, delivery models and curriculum
 - 3rd to 5th grade students with disabilities were assessed on a variety of reading measures
 - Reading lessons were observed using an observation protocol
 - Teacher knowledge was assessed using a content knowledge survey developed at MU

Teacher Quality Research in Special Education

- Observation tool was developed based on research on effective reading instruction, observational studies of reading instruction for students with significant reading problems, and research on components of an effective reading program
- Instrument had 27 items rated using a likert scale (coefficient alpha = .92)

Teacher Quality Research in Special Education

- Observations
 - 3 hours of classroom observation on 2 to 4 separate occasions
 - Anecdotal field notes used to complete observation tool
 - Interrater reliability established with one anchor person (Mean = 70%, range 30% to 90%)

Teacher Quality Research in Special Education

- Teacher Knowledge Survey
 - Total number of items (n=119)
 - 3 subscales were good discriminators in MU study and used in this study
 - Comprehension/Knowledge of Content ($\alpha=.74$)
 - Comprehension/Knowledge of Teaching and Content ($\alpha=.67$)
 - Word Analysis/Knowledge of Content ($\alpha=.82$)

Teacher Quality Research in Special Education

- Student Achievement Measures
 - Oral reading rates on CBM passages at the 2nd, 3rd, and 4th grade levels
 - Woodcock Reading Mastery Word Identification and Word Attack Subtests
 - Gray Oral Reading Test (posttest only, comprehension subtest only)

Teacher Quality Research in Special Education

- Subscale Means
 - Instructional Practices (2.61)
 - General Instructional Environment (2.85)
 - Phonological Awareness (.51, dropped)
 - Word Study (1.71)
 - Fluency (1.36)
 - Vocabulary (1.59)
 - Comprehension (2.1)
 - Classroom Management (2.93)

Correlations for Observation Instrument

Observation Measure	CBM	WID	WA
Holistic TQ	.46*	.37	-.07
IP	.26	.16	
GIE	.44*	.25	-.10
WS	.06	.22	.07
FLU	.21	.33	-.10
VOC	.15	.18	-.20
COMP	.39	.27	-.01
CM	.60*	.30	-.05

Within Site Correlations

Site	CBM (2nd grade)	WID	WA
Florida	.39	.60	.18
California	.37	-.13	-.1
Colorado	.81	.44	-.55

Correlations Between TQ and Teacher Knowledge

Comprehension/ Knowledge of Content	Comprehension/ Knowledge of Teach and Content	Word Analysis/ Knowledge of Content
.25	.28	.45*

Conclusions

- What special education teachers do makes a difference
- More knowledgeable teachers are more likely to engage in more effective classroom practices
- Beginning teachers are more sophisticated in their general practices and classroom management than reading practices

Implications

- Content matter knowledge is important to effective special education instruction
- A stronger focus on preparing special educators to teach reading comprehensively is needed
- Our findings suggest that further research on developing measures of teacher knowledge holds great potential

Implications

- How should we best prepare beginning special education teachers to provide reading instruction?
 - Moreover, whose responsibility is it to provide this preparation?
- What do our findings mean for other aspects of special education instruction?
 - For example, would similar findings hold for special educators teaching mathematics, science, or social studies?

Next Steps

- Replicate current study with a larger pool of teachers (n=60)
- Tie differences in teacher preparation to assessments of teacher quality