

## Findings from Studies of Beginning Teacher Quality and Preparation Alternatives

CEC Conference  
New Orleans, LA

April 17, 2004  
[www.copsse.org](http://www.copsse.org)

## Center on Personnel Studies in Special Education

- Collaborative venture of Johns Hopkins University and the University of Florida
- 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](http://www.copsse.org)

## COPSSE

[www.copsse.org](http://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 Ed. Research Agenda

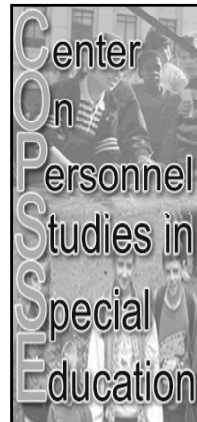
1. What is skilled practice?
2. Skilled novices vs skilled experienced teachers?
3. Characteristics of effective preparation?
4. Impact of workplace on teacher development?
5. Implications of NCLB for SE teachers?
6. Implications of NCLB for SE policy and practice?
7. What preparation options are available currently?
8. Completion and retention rates by program type?
9. Impact of state and federal policy on AR outcomes?
10. Program costs?
11. Impact of AR on shortages of SE teachers? On diversification of the workforce?

## Teacher Education Research Agenda

- Beginning Teacher Quality Study:
  - What do beginning teachers know and do? How do they learn? How does what they know and do relate to their initial preparation?
- 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; 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, Mike Rosenberg, JHU, PI
  - JHU, University of New Hampshire



## Studies of Beginning Teacher Instruction in Special Education

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## Beginning Teacher Quality in Special Education

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)

## 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 establish what effective beginning teacher practice looks like

## Teacher Quality Research in Special Education

### **Rationale for Current Study:**

- In this study, we decided to examine what beginning teachers do to promote student engagement during instruction
  - We selected student engagement because of its strong link to academic achievement (Guthrie, 2000)

## Struggles Beginning Teachers Encounter

### **Novice teachers may have difficulty promoting student engagement in reading curriculum**

- Superficial understanding of how to address individual student needs within broader curriculum
- Demonstrate difficulties with student discipline
- Lack strategies to engage students in their work
- Content specific pedagogical understandings limited (Reynolds, 1995)

## Teacher Quality Research in Special Education

### **Purpose of Current Study:**

- To identify moments of student engagement during reading instruction
- To examine practices of beginning special education teachers that result in student engagement
- Part of a larger COPSSE study linking beginning teacher practice and reading achievement

## Methodology

### **Teacher Pool:**

- Twenty five special education teachers with 1-3 years experience [24 female and 1 male]
- 2 teachers provided reading instruction in a co-teaching situation
- 23 teachers provided reading instruction in a resource room
- In all but one case, the special education teacher was responsible for the total reading instruction for her children
- Preparation backgrounds varied considerably
- Class size varied from 3 to 25 students
- All taught in high poverty urban and rural schools
- Half of the teachers used highly structured curriculum

## Methodology

### **Data Collection**

- Observations
  - 73 reading lessons observed
  - Three to five observations per teacher
  - 5 trained observers
  - Field notes
  - Observation tools rated [scale 0-4]
  - 21 interrater reliability checks conducted (29%)
  - Average 80% of Interrater reliability [93%-55%]
- Interviews
  - Discussing preservice preparation and current practice

## Methodology

### **Study Participant Selection Criteria:**

We considered the rates of the following items from the observation tool

- An overall teacher rating
- Items specifically related to student engagement
  - Organization of the lesson, allowing opportunities for most students to respond
  - Extent to which students are highly engaged
  - Fostering student motivation and engagement
  - Continuous and intensive instruction

## Methodology

### **Study Participants**

Based on the scores related to the selection criteria, study participants were selected

- High (above 3.5) : 3 teachers
- Moderate (3.5-3.0) : 2 teachers
- Low(below 2.0) : 4 teachers

## Methodology

**Grounded theory** was used to analyze individual lessons to:

- Determine points at which students were engaged or not engaged
- Determine practices that result in student engagement or non-engagement

## Methodology

How we conducted the data analysis :

- **Opening coding--**
  - labeled all observed classroom practices and looked for incidences of student engagement
- **Axial coding--**
  - Identified engaging points in lessons (conditions, interactions/actions, consequences)
  - Reassembled smaller units of data into broader units

## Methodology

How we conducted the data analysis:

- **Selective coding:**
  - Identified a core category "Promoting versus Regulating Instruction"
  - Integrated concepts and categories around this core category
- Trustworthiness determined through:
  - Multiple observers and multiple observations
  - Peer debriefing during analysis

## Findings

### **Teaching behaviors linked to high student engagement during reading instruction**

Theme 1: Teachers use pedagogy that promotes versus regulates student participation and learning

Theme 2: Teachers demonstrate a responsiveness to student learning and understanding

Theme 3: Teachers provide cohesive, well-coordinated lessons

Theme 4: Teachers create a safe and warm environment for participation

## Explanation of Theme 1

### **Teachers use pedagogy that promotes versus regulates student participation and learning**

- Create a willingness to respond through specific teacher actions
- Help students think on own and work independently
- Foster higher level thinking
- Monitor student behavior unobtrusively to encourage participation

## Explanation of Theme 2

### Teachers are responsive student learning and understanding

- Recognize when students need assistance
- Provide specific help when needed
- Adjust instruction based on student need
- Reinforce student achievement using specific feedback

## Explanation of Theme 3

### Teachers provide cohesive, well-coordinated lessons

- Balanced literacy instruction
- Fast-paced transitions to new activities
- Connections between ideas and activities

## Explanation of Theme 4

### Teachers create a safe and supportive environment for participation

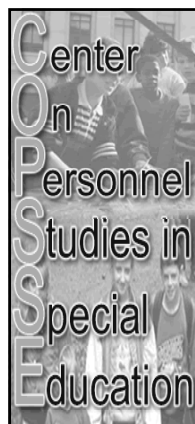
- Employ effective behavior management techniques
- Arrange and manipulate learning environments to foster participation
- Use peers to assist student responding and learning

## Discussion and Implications

- Techniques and structures used to promote engagement demonstrate an integration of what we know from the process-product and motivation literature
- Teachers can foster high engagement even when using highly structured curriculum
- Knowing pedagogy as well as reading content matters in fostering engagement during instruction
- Beginning teachers provide glimpses of expertise suggesting need for well-structured induction programs

## Next Steps

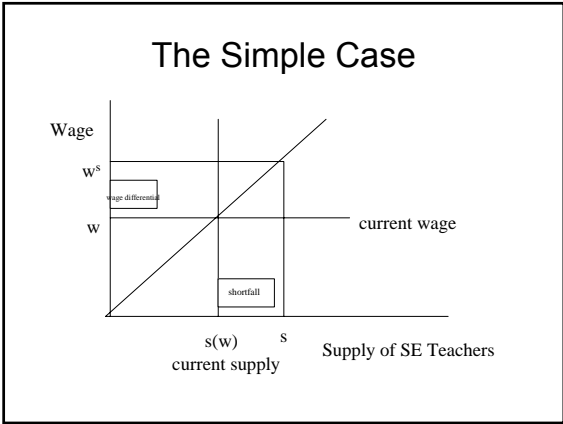
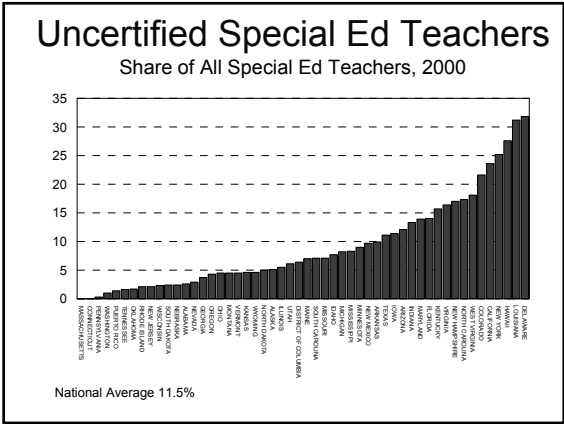
- Determine if beginning special educators who create consistently engaging lessons also foster student reading achievement or do other factors get in the way
- Quantify practices that best promote student engagement and reading achievement
- Look for relationships between teachers' reading pedagogy and opportunities to learn in preparation programs and schools



## Cost Effectiveness of Preparation Options

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- ### Critical Assumptions
- Within school districts, wages paid special education teachers--or science or math teachers--are the same as those paid other teachers.
  - If not constrained by negotiated agreements, 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 fill all positions with highly qualified teachers (Hanushek, Kain, and Rivkin, 1999).
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- ### Evidence for Assumptions
- The proportion of special education teachers who are less than fully certified is much higher than the proportion of general education teachers who are less than fully certified.
  - Although special education teachers often become general education teachers, the reverse is less likely.
    - McLeskey, Tyler, & Flippin (2003) noted that special education suffers a net loss of 5,000 teachers to general education annually

- ### Implication of Assumptions
- To address shortages, we must reduce the demand for or to increase the supply of special education teachers.
  - Many approaches are being used to increase the supply.
  - Analyzing costs and benefits of the various approaches could result in more efficient allocation of funds.

- ### Can Traditional Training Boost Supply Enough?
- Traditional training has a relatively low average cost (Darling-Hammond, 2000)
  - Most students in tradition programs would attend college anyway, so their participation in teacher preparation costs nothing
  - To increase enrollments, programs would have to boost student support
  - Because enrollment is "inelastic," these increases must be large, and the cost would be prohibitive
  - Increasing enrollments in traditional programs may not be the answer to the problem of shortages

## No Child Left Behind

- NCLB provides funds for state to provide alternative routes for, among others:
  - Paraprofessionals (step-up)
  - Mid-career changers (e.g., accountants, engineers, former military personnel)
  - Early-career changers (e.g., Teach for America)

## Evaluating Programs-- Data Needs

- Consistent cost data
- Precise career path, by program type
- What can we learn without precise cost and attrition data?

## 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 very 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

- Step Up candidates bring more knowledge about both the job of education and the location.
- 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 can be a riskier clientele, depending on
  - Their reasons for changing careers
  - The salary differential
  - 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 ARC were subsidized, the state would lose much of its subsidy if she quit teaching

## 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

## Reducing the Risk

- Seek qualified people who can't easily return to previous employment
  - Former military officers of a relatively high rank are a prime example
- If program participants are taking large pay cuts or are moving from fields quite unlike education, assess their motivation for making the change
- Make subsidies contingent on teaching
  - Like OSEP's service obligation requirement

## Insights From Labor and Information Economics

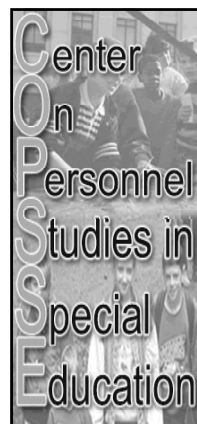
- More school, occupation, and location specific human capital means higher persistence (Jovanovic, 1979)
- Better job match yields higher persistence (Jovanovic, 1979)
- Investing more time and effort signals more persistence (Salop & Salop, 1976, Becker, 1975)
- For many occupations, lifetime earnings 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

## Example: 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 school, 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

## Other things the same, spend more on training methods that

- Attract entrants who are more likely to remain in teaching
- Tap new pools of potential teachers and draw few entrants away from existing programs
- Prepare entrants in a way that makes them more likely to remain in teaching
- Cost less



## An Analysis of the Extent and Efficacy of Alternative Routes to Teacher Preparation in Special Education

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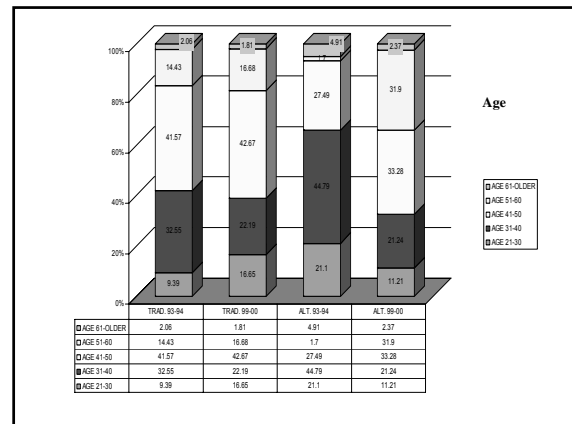
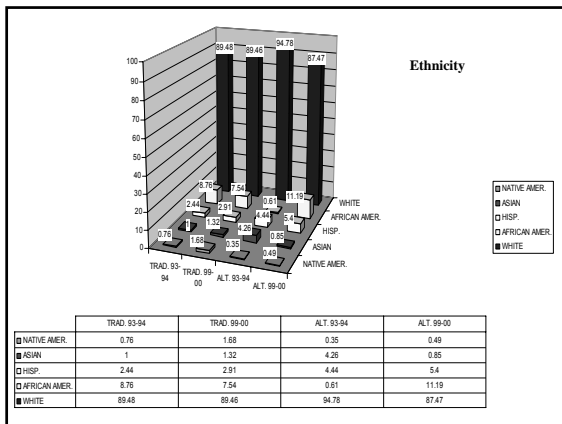
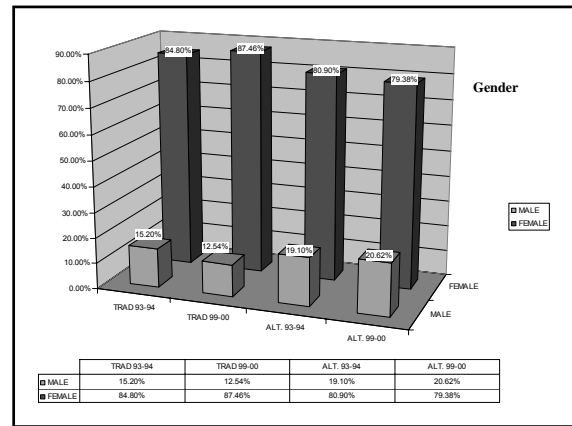
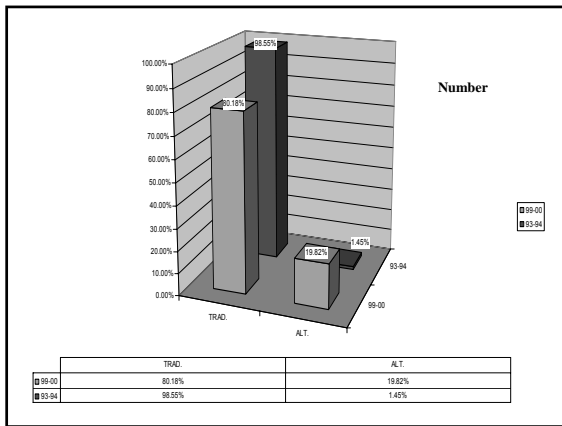
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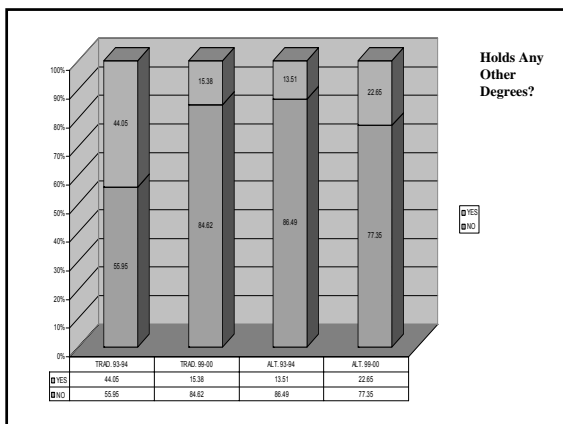
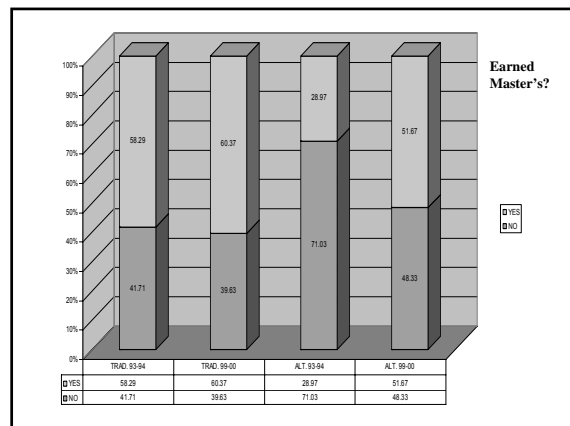
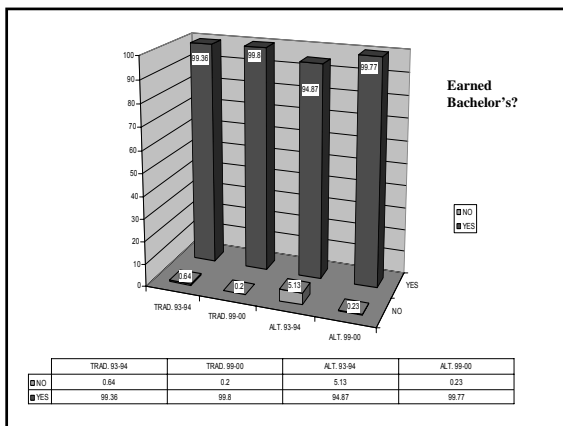
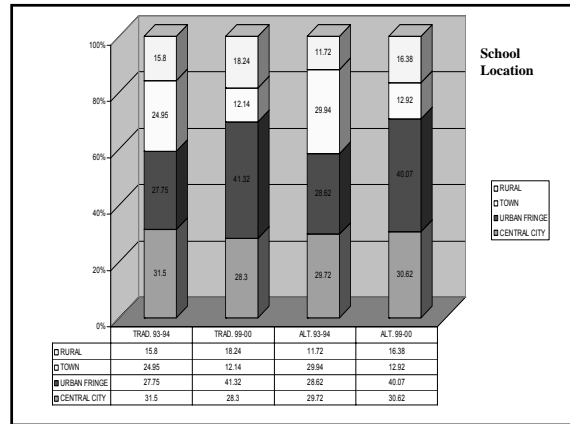
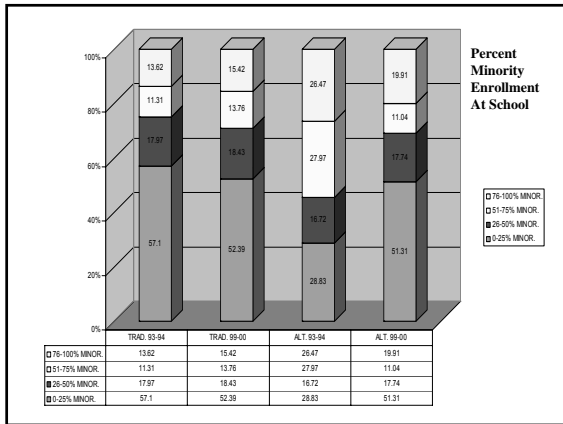
## Three Areas of Analysis

Demographic analyses  
Comparative analyses  
Structural modeling

## Demographic Analyses

Nationally Representative  
Estimates Generated Using  
Wesvar





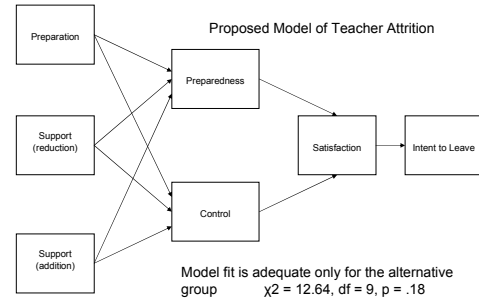
- ## Comparative Analyses
- Factor Analysis
  - Comparisons Across Groups
  - Factors:
    - Preparation
    - Support (Reduction)
    - Support (Addition)
    - Preparedness (Efficacy)
    - Control
    - Satisfaction
    - Intent to Leave

### Mean Factor Scores Only Significantly Different Across Groups in the Area of

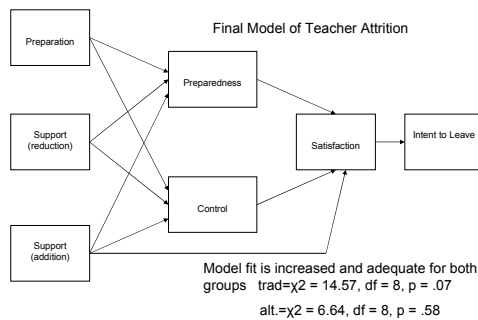
DV	<i>Preparation</i>		df
	Univariate F		
<i>Preparation</i>	13.95*		1,684
Support (Reduction)	2.25		1,684
Support (Addition)	0.44		1,684
Preparedness		0.49	1,684
Control	0.32		1,684
Satisfaction	0.66		1,684
Intent to Leave	0.48		1,684

\*p<.01

### Structural (Causal) Modeling



### Structural (Causal) Modeling



### Standardized Coefficients for the Final Model of Teacher Attrition

Parameters	Traditional	Alternative
Intent – Satisfaction	.25*	.27*
Satisfaction – Preparedness	.10*	.10
Satisfaction – Control	.19*	.23*
Satisfaction – Support (A)	.20*	.22*
Preparedness- Preparation	.20*	.22*
Preparedness – Support (R)	-.09*	-.13
Preparedness – Support (A)	.14*	.07
Control – Preparation	-.01	.16
Control – Support (R)	-.02	.14
Control- Support (A)	.09*	.03

\*p< .05

### Conclusions

- Demographic analyses confirm known trends and prior analyses
- Comparative analyses indicate no differences between groups on outcome variables
- Control is a significant mediating variable between groups in predicting future attrition