

# Teacher Education in the 21st Century: Issues and Research Insights for Special Education Teacher Education

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# Context for Preparing Teachers

- Increasing educational accountability
- Demands for high quality teachers in the midst of chronic shortages
- Open market for teacher education
- Pressure to respond to greater accountability in teacher education

# Increasing accountability demands

- Access to the general education curriculum expected and necessary
- Access to technology needed to meet curricular demands
- Most students with disabilities must meet grade level expectations
  - But at the same time they must develop the skills that allow them to live in a global society
- Recognition that teacher quality matters more than ever

# Demands for High Quality Teachers

- Meeting such demands require high quality teachers
- Value-added assessment studies show that teachers make a difference in student learning
- NCLB and IDEA respond by insisting on content knowledge for teachers
- However, such demands create pressure in critical shortage areas and in certain geographic regions

# Teacher quality/quantity tension

- Shortages of special education teachers are chronic and expected to worsen
  - Shortages have been dramatic since the inception of IDEA
  - National shortages in special education higher than mathematics and science
  - Approximately 800,000 students with disabilities are taught by uncertified teachers

# Teacher quality/quantity tension

- Shortages of special education teachers are chronic and expected to worsen (cont.)
  - Shortages are most extreme in urban and remote rural areas
  - Shortages likely to worsen under IDEA 2004
  - Nationally, supply of teachers is a more significant problem than attrition

# Teacher quality/quantity tension

Percent of middle and high school special educators not highly qualified in core subject areas:

- English (91.9%)
- Mathematics (99.3%)
- Science (97.7%)
- Social studies (82.1%)

*(Schools and Staffing Survey, 1999-2000)*

# Challenges to Teacher Education

- Schools and Colleges of Education are under fire
- Alternative routes to the classroom are proliferating with little regulation or knowledge of effectiveness
- Schools and Colleges of Education are held to increasingly higher standards and many alternative routes are not
- Funds for educating teachers are insufficient

# Schools and Colleges of Education Under Fire

- Despite the absence of widely accepted pedagogical standards, aspiring teachers are forced to run an academic gauntlet of courses, requirements, and procedures created by accredited training programs that vary dramatically in quality. The prospect of spending substantial time and money on preparation and courses of study that bear little relation to what it takes to become a good teacher discourages some talented people from entering the profession.

- Frederick Hess, 2001

# Proliferation of Alternative Routes

- 47 states plus the District of Columbia have some type of alternative route program
  - National Center for Education Information
- 35 states and D.C. had a special education alternative route program
  - Rosenberg et al., 2005
- States with the greatest shortages seem to have the most AR programs
  - Rosenberg et al., 2005

# Deregulation of ARs and Increased Regulation of IHEs

- Only 13 states require AR programs to provide any type of classroom training prior to service
- IHEs are held to rigorous standards
  - All teacher education programs must submit data about their effectiveness
    - Title II of the Higher Education Act
  - 47 states use NCATE standards in their program approval process
    - Southeast Center for Teaching Quality

# Insufficient funds for teacher education

- Instructional subsidies for higher education
  - Education, business, math & history
    - \$3,430
  - Architecture, social work, and journalism
    - \$4,793
  - Nursing, engineering, and pharmacy
    - \$8,123

# How Can We Secure Adequate Numbers of Highly Qualified Special Education Teachers in this Context?

Insights from the Research on  
Teacher Quality, Recruitment,  
Teacher Education, and Retention

# What are we aiming for?

- A highly qualified teacher for every student with a disability;
  - . . .however, what is a highly qualified special education teacher?

# Definitions of teacher quality

- In special education, several definitions of teacher quality have prevailed:
  - A qualified teacher is one:
    - with considerable subject matter knowledge and academic aptitude (NCLB, IDEA 2004)
    - who is certified in special education through an approved program (IDEA 1997)
    - who implements validated interventions for students with disabilities (implicit)

What are assumptions and supporting research behind definitions of teacher quality?

# NCLB and IDEA 2004

## Definitions

- Assumes that teacher quality is more related to subject matter knowledge and academic ability than pedagogy
  - . . . *evidence for the importance of teacher aptitude is far more compelling and clear than any existing evidence about teacher training. In other words, current research suggests that . . . We would be wise to bet on the teaching success of an individual with strong verbal and intellectual skills, or high test scores and no teacher training than we would be to bet on the success of someone with mediocre skills and full teaching certification.*
    - Leigh and Mead (2005)

# Supporting Research

- Teachers with content area expertise secure better achievement gains (mathematics and science mostly)
  - Teachers certified in, or who held a bachelor's or master's degree in, mathematics secured better student achievement gains (Goldhaber & Brewer, 2000; Hawk, Coble, & Swanson, 1985; Rowan, Chiang, & Miller, 1997)
  - Amount of coursework in mathematics results in stronger student achievement gains (Monk, 1994)
  - Number of biology and science courses taken by biology teachers is positively associated with student achievement (Druva & Anderson, 1983, a meta-analysis)

# However. . .

- The number of courses taken in “how to teach mathematics” has a value added effect on student achievement that is above and beyond subject matter courses taken (Monk, 1994)

# IDEA 1997 Definition of Qualified

- Teachers certified through state approved programs are qualified
  - Assumes that certification equals competent

# Supporting Research

- Evidence supporting certification is conflicting
  - Teachers who are certified through more extensive preparation outperform those participating in Teach for America (Laczko-Kerr and Berliner, 2002; Darling-Hammond et al., 2005)
  - Teachers who have subject matter knowledge in mathematics outperform those who are certified but lack such knowledge (Goldhaber & Brewer, 2000)
  - Routes to preparation vary considerably and are not easily comparable (Humphrey & Wechsler, 2005; Wenglinsky, 2000)

# And...

- We have all met certified teachers who are very competent, as well as those who are not.
- Yet, some certification processes do seem to work.
  - National Board Certification involves a rigorous assessment process to certify teachers
  - Such teachers do produce stronger student achievement gains (Goldhaber & Anthony, 2004)

# Validated practices view of teacher quality

- Pedagogy is primary
  - *One thing that is right about special education is that it includes devising and testing empirically validated methods of instruction that are effective with atypical students. (Hockenbury et al., 1999-2000)*
- In this view, high quality special educators implement validated interventions with fidelity

# Supporting research

- Considerable research exists in special education about effective interventions, particularly within reading, writing, behavior, and technology
- For students with high incidence disabilities, direct explicit instruction with a metacognitive component is effective in securing student achievement gains

# However, . . .

- Can you effectively implement and evaluate the impact of an intervention without knowledge of the content and how students might learn the content?
- Would a validated intervention contain information about all the possible learning scenarios a teacher might need to respond to?

# Moving toward a more complex view of teacher quality

- What do we know about highly effective or exemplary teachers?
  - They have a sophisticated knowledge of:
    - Content that they teach
    - Sophisticated knowledge of pedagogy, generally and specific to representing the content
    - Students and how they develop

# What do highly effective teachers know?

- Teachers have knowledge of content specific to teaching that other bright, college graduates do not have:
  - Elementary teachers scored much higher than other competent professionals on a test of knowledge for teaching reading (Phelps, 2005)
  - Elementary teachers who scored higher on tests of knowledge for teaching mathematics secured higher student achievement gains than those without such knowledge (Hill, Rowan, & Ball, 2005)
  - Effective special educators scored higher on a test of knowledge for teaching reading than less effective teachers (Brownell et al., 2005)

# What do highly effective teachers do?

- Teachers with more effective literacy practices secure higher student achievement gains (Taylor et al., 2000; Haager et al., 2003; Pressley et al., 2001)
- Teachers with the best student literacy gains are the most responsive to student needs and differentiate instruction (Taylor et al., 2000; Haager et al., 2003)
- Special education teachers with more effective classroom practices secure higher achievement gains (Brownell et al., 2005)

# What Does this Research Tell Us About Highly Qualified?

- A highly qualified teacher is a bright individual who has extensive pedagogical knowledge that is grounded in a content area, and this knowledge is different than the general knowledge other intelligent adults have. Additionally these teachers know a good deal about students within a curricular area and how to respond to their needs.

# What does this research mean for teacher education in special education?

- Should research-based definitions of teacher quality drive special education teacher education?
- What is the content knowledge of special education teaching?
- Are there common challenges that all or most students with disabilities face that require a specific type of content knowledge?

# What does this research mean for teacher education in special education?

- What would it mean for teacher education programs as they are currently conceived to be founded in research-based definitions of teacher quality?
- What should the role of initial preparation versus ongoing teacher education be?

# In the Meantime. . .

- How should teacher educators proceed?
- What do we know about teacher education and teacher learning that might result in higher quality teachers who are willing to stay?

# Designing ongoing effective teacher education

- Certain program characteristics are likely to have an impact on teaching quality
- Ongoing professional development, including a strong induction program, seems to have an impact on teacher quality
- Professional standards and a well-articulated assessment/licensure system matter

# Characteristics of effective teacher education programs

- Insufficient research examining the characteristics of effective teacher education programs.
  - Two studies of exemplary teacher education programs (AACTE, IRA)
  - National study comparing different teacher education programs (NCRTL)
  - Review of literature examining teacher education strategies that promote conceptual change about student diversity (Wideen et al., 1998)
  - Recent study of AR programs (SRI International)
  - Review of special education AR literature (COPSSSE)

# Characteristics of effective programs

- Findings from General and Special Education:
    - Coursework and field experiences are integrated\*
    - Extensive field experiences are well supervised\*
    - Professional collaboration is valued and emphasized\*
    - Programmatic vision permeates the program
    - Theory, pedagogy, and subject matter are well-integrated
    - Standards of practice are carefully articulated and monitored
    - Active pedagogy is used to promote reflection
- (\* items are common to all studies and reviews)

# How do characteristics align with effective professional development?

- Structures for learning must be in place that promote more extended, deeper learning
- The duration of the learning activities matters, but only when they. .
  - provide opportunities for active learning and are
  - aligned with teachers' goals, curriculum standards, and professional communications

\* Roehrig & Brownell, 2004

# How do characteristics align with effective professional development?

- Collective participation of teachers from the same school, department, and grade level is important.
- Content focus of the staff development effort matters, particularly when it. . .
  - provides opportunities to learn about the curriculum
  - helps improve teachers' knowledge of content, content specific pedagogy, and how students acquire content

\* Roehrig & Brownell, 2004

# How do characteristics align with effective professional development?

- Promotes active learning on four dimensions:
  - observing and being observed teaching,
  - planning classroom implementation,
  - presenting in and leading staff development efforts, and . . .
  - analyzing and reviewing student work

\* Roehrig & Brownell, 2004

# How do characteristics align with effective professional development?

- Fosters coherence by:
  - being consistent with teachers' learning goals
  - building on information and skills previously acquired
  - being aligned with state and district standards and assessments
  - providing communication opportunities that enable teachers to confront implementation issues and share solutions

\* Roehrig & Brownell, 2004

Do most teacher education programs embrace what we know about effective professional development?

Should they?

Can they?

Can Teacher Education be  
Successful without Strong  
Induction?

# Why should we be concerned about induction?

- How are novice special education teachers at risk?
  - More likely to leave teaching
  - Less likely to be fully-certified
  - Struggle with demands of teaching
  - Greater isolation from colleagues
  - Insufficient curricular and technical resources
  - Role issues
  - Poor school climate
  - Lack of professional growth opportunities

# Why should we be concerned about induction?

- Evidence suggests that quality induction:
  - Reduces attrition rates, mostly for general education
  - Decreases financial costs associated with attrition
  - Improves teacher quality
  - Creates better overlap with what is learned in preparation

# Components of Effective Induction Programs

- Clear goals and purpose for the program
- Mentoring
- Opportunities for interaction between new/experienced teachers
- Professional Development
- Formative and summative evaluation

# Components of Effective Induction Programs

- Culture of shared professional development
- De-emphasized evaluation
- Diversified content
  - Instructional content
  - Pedagogical content
  - Psychological support
- Fiscal and political support

# Considerations for Special Education

- Mentors specific to special educators
  - Matching grade level, content areas, teaching model, disability categories, teaching style, and gender
  - Considering close physical proximity
- Mentor Characteristics
  - Having knowledge of special education (regulations and pedagogy)

Why professional standards,  
methods for assessment, and  
tiered licensure are  
imperative?

# Why well-articulated standards and advanced licensing?

- Recent studies of nationally board certified teachers show that such teachers are able to secure stronger student achievement gains than their peers
- Also, board certified teachers outperform teachers who participate in the certification process but do not succeed

# Why well-articulated standards and advanced licensing?

- The case of Connecticut:
  - Well-articulated standards promote a cohesiveness between teacher preparation, induction, and professional development
  - Standards provide the foundation for mentoring and evaluation of beginning teachers
  - Tiered licensing system encourages teachers to continually work at professional standards
  - NAEP scores and teacher retention rates are some of the best in the nation

Why should we attend to and participate in the development of AR programs?

# Designing Effective Alternative Route Programs

- With dramatic shortages, alternative programs are an inevitable part of the teacher education landscape
  - But how well do such programs meet the assumptions on which they are built?
  - What should we know about ARs to improve their quality?

# Assumptions of AR programs

- AR programs are likely:
  - to increase the diversity of the teaching pool
  - to reduce teacher shortages
  - to bring more academically talented persons into the classroom, particularly mature persons who are more likely to stay
  - to provide preparation that is of equal or better quality than that which is provided in Colleges of Education

# Alternative Routes: Who are target recruits

- Mid-career switchers are a major focus
- Minority faculty and males
- Recent college graduates who might be interested in teaching
  - Some seek graduates of selective schools, such as TFA
- Paraprofessionals

# Do targeted recruits enter programs?

- Are AR graduates more mature as suggested by AR proponents?
  - AR graduates are 36 years old compared to beginning teachers who are 29 years of age; however, averages mask dramatic differences between programs.
    - Example: TFA graduates are much younger than graduates of NC TEACH (Humphrey & Wechsler, 2005)

# Do targeted recruits enter programs?

- Do AR programs attract mid-career switchers who were mathematicians, lawyers, architects, etc.?
  - 42% of participants in well known AR programs were in education already or were full-time students; 5% were social workers; and 16% fell in some other category. Only 15% were scientists, mathematicians, lawyers, accountants, and engineers.
  - 59% of AR graduates received a pay raise when they entered teaching
    - (Humphrey & Wechsler, 2005)

# Do targeted recruits enter programs?

- Are targeted recruits more likely to be men?
  - Men account for 11.5% of the elementary teacher workforce overall; AR male graduates account for 13%
  - Men account for 40.5% of secondary teachers; AR males account for 39%
  - (NCES, 2002)

# Do targeted recruits enter programs?

- Are targeted recruits more likely to be minorities?
  - Nationally, 14% of AR graduates are minorities compared to 10% of teachers from traditional routes (NCES, 2002)
  - Orientation and location of program, however, makes a huge difference
    - Programs that carefully target the selection of minorities in urban areas are successful (Humphrey & Wechsler, 2005)

# Do targeted recruits enter programs?

- Are targeted recruits more academically able?
  - In a study of 7 well-know programs, AR participants on average graduated from more competitive undergraduate universities than traditional graduates
  - These findings varied considerably by program and minority status of program participants

# How effective are AR programs?

- Do they:
  - retain teachers?
  - provide clinical practice?
  - provide sufficient induction and mentoring experiences?
  - provide cohesive learning experiences?
  - result in better outcomes?

# Retention of teachers from AR programs

- AR programs and traditional programs that are longer in duration seem to have better retention rates
- In a study of 7 AR routes, all graduates, except for TFA graduates, indicated that they intended to remain in teaching
- Surprisingly, 60% to 100% of graduates of 5 programs had prior classroom experience

# Amount of clinical practice in ARs

- Length of clinical practice has been tied to perceptions of preparedness and retention
  - Teachers with practice teaching were more than twice as likely to remain in the classroom (Ingersoll, 2003)
  - Special education teachers with more clinical practice indicated that they felt more prepared to teach (Boe et al., 2005)

# Amount of clinical practice in ARs

- Amount and quality of clinical practice varies across programs
  - Humphrey and Wechsler found that in 6 of 7 programs, AR participants received less than 6 weeks of training compared to 8-12 weeks for traditional graduates
  - Rosenberg et al., found that 94 percent of AR programs surveyed provided some type of clinical practice, but length of practice not reported
  - Clinical practice experience depends on quality of supervising teachers, but that is an unknown

# Mentoring and induction in AR programs

- Mentoring and induction is seen as essential for on-the-job training
  - In special education, Rosenberg et al., found that 101 of 235 programs provided some type of mentorship
  - Humphrey and Wechsler found that all 7 major AR programs in their study had a mentoring component, but the quality was uneven and sometimes a mentor was not assigned

# How cohesive are AR programs?

- Like traditional preparation, the match between what teachers learn in their program and practice in schools matters but does not always exist
  - The type of curriculum available in schools and support to learn the curriculum influenced AR graduates' practice
  - Supports for learning to teach make a big difference in AR graduates' classroom practice

# Do AR programs result in qualified teachers?

- It depends, some do and some do not.
  - Carefully crafted paraprofessional step-up programs and district/university collaborative programs resulted in teachers who were comparable to traditional teacher education graduates on assessments of classroom practice (Brownell et al., 2003)
  - Programs that paid greater attention to learning pedagogy in a particular content area resulted in more knowledgeable teachers in mathematics and reading (Humphrey & Wechsler, 2005)

# Similarities between AR and traditional programs

- Like traditional programs,
  - AR programs vary in terms of program characteristics and structure (perhaps even more)
  - School contexts either support or inhibit program learning
  - Appropriate mentoring on the job makes all the difference
- Like traditional programs,
  - AR participants are likely to vary in terms of their background characteristics

# Clearly change is needed on several fronts . . .

- Field must come to terms with role content knowledge plays in special education teacher quality
- Need definitions of special education teacher quality and ways to operationalize those definitions into assessment measures NOW.

# Clearly change is needed on several fronts . . .

- Careful attention must be paid to how we are crafting campus based and alternative route teacher education programs.
- Need more information about the way program participants and programs interact to improve candidate selection process.

# Clearly change is needed on several fronts . . .

- Induction and professional development must be aligned with initial preparation and based on agreed upon definitions of teacher quality
- State policies need to be aligned with research on teacher quality, teacher education, and the ongoing development of teachers.

# But, what role will teacher educators play in?

- defining teacher quality
- reinventing teacher education
- improving alternative routes
- improving teacher induction and professional development
- crafting state policies that support improved teacher education and quality