

# **BUILDING A RESEARCH REPERTOIRE**

**TRINA D. SPENCER,  
PHD**

**RESEARCH DIRECTOR,  
INSTITUTE FOR HUMAN  
DEVELOPMENT**

**COLLEGE OF  
EDUCATION RESEARCH  
CENTER**

**OCTOBER 29, 2014**

# **OVERVIEW**

**Education research in context**

**Introduce the phases of treatment-focused research**

**Describe how researchers (should) select study designs**

**List the steps from the beginning to the end of a study**

**Identify common mistakes and mousetraps**

**Explain IES's goal structure and topics**

**Final thoughts on establishing a fundable research agenda**

# **EDUCATION RESEARCH**

**How is education research the same or different from other sciences?**

**What is the purpose of education research?**

**How does education research contribute to the health and wellness of our society?**

**Why do you/we do research?**

# PHASE MODELS OF RESEARCH

Language Intervention	Special Education	Institute for Educational Science
Pre-Trial	Preliminary	Foundational
Feasibility	Controlled Experiments	Early Stage / Exploratory
Early Efficacy	Efficacy / Effectiveness	Design and Development
Later Efficacy		Efficacy
Effectiveness	Feasibility / Implementation	Effectiveness
		Scale Up

# RESEARCH DESIGNS BY PHASE

Phase	Designs
Pre-Trial	Qualitative, Correlational, Descriptive, Observational
Feasibility	Qualitative, Correlational, Descriptive, Observational, Single-Case Experimental, Quasi-Experimental
Early Efficacy	Single-Case Experimental, Quasi-Experimental, Regression Discontinuity, Small RCT
Later Efficacy	Large RCT (Quasi-Experimental, Regression Discontinuity)
Effectiveness	Large RCT (Quasi-Experimental, Regression Discontinuity)

# SELECTING RESEARCH DESIGNS

## INAPPROPRIATE

1. Preference
2. Convenience
3. Money

## APPROPRIATE

1. Questions!!!
2. Phase of research
3. Money

- Always choose the strongest design to adequately answer the research questions, but also stay within your budget.

# RESEARCH AGENDA EXAMPLE

## NARRATIVE INTERVENTION

### 1. Thorough literature review

- Discovered preliminary work has been done
- Many correlational and descriptive studies
- Discovered that there were a few intervention studies, but they fell into the Feasibility phase and were of poor quality

### 2. Study 1 (Early Efficacy and Feasibility)

- Small Group Intervention
- Researchers / Developers
- Multiple Baseline Design (SCED)

### 3. Study 2 (Early Efficacy and Feasibility)

- Large Group Intervention
- Researcher / Developers
- Quasi-Experimental Control Group Design

# RESEARCH AGENDA EXAMPLE

## NARRATIVE INTERVENTION

### 4. Study 3 (Early Efficacy and Feasibility)

- Individual Intervention
- Research Assistants
- Multiple Baseline Design (SCED)

### 5. Study 4 (Replication and Feasibility)

- All 3 tiers of intervention
- Research Assistants
- Mixed Methods: MBD and small RCT

### 6. Study 5 (Replication and Effectiveness)

- All 3 tiers of intervention
- 3 Head Start teachers (end users)
- Matched Sample Quasi-Experimental Control Group Design

### 7. Study 6 (Scale up)

- All 3 tiers of intervention
- District teachers and SLPs
- Randomized Control Group across 22 school districts



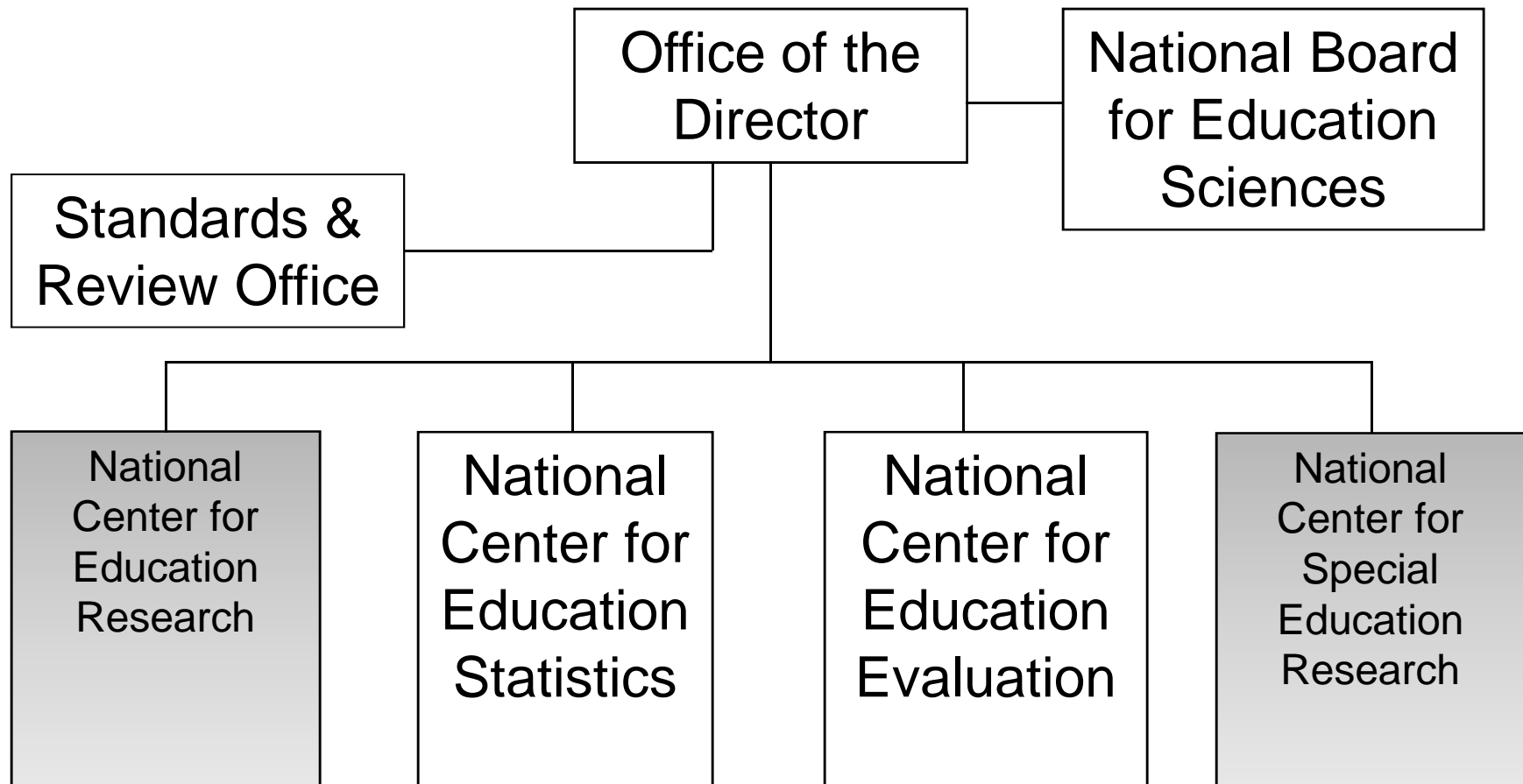
# **THE RESEARCH STUDY**

- 1. Read the literature on a topic of interest**
- 2. Formulate a question**
- 3. Write a proposal (apply for funds, if appropriate)**
- 4. Establish a team and identify participants**
- 5. Submit an IRB application**
- 6. Recruit participants and obtain informed consent**
- 7. Conduct proposed study (analyze data)**
- 8. Complete reliability and fidelity checks**
- 9. Analyze data**
- 10. Present results at a conference**
- 11. Prepare a manuscript**
- 12. Submit and revise a manuscript**
- 13. Celebrate when the manuscript is accepted and published**

# **MISTAKES & MOUSETRAPS**

- 1. Do the study for the wrong reasons**
- 2. Underestimate the duration of the process**
- 3. Don't know the extant literature well enough**
- 4. Formulate a question before knowing the literature**
- 5. Do a study before knowing your question**
- 6. Develop a question because you are comfortable with a specific research design**
- 7. Misunderstand what aspects of research designs establish internal validity**
- 8. Poor measures for the question and design**
- 9. Rely on convenience and ease rather than quality**
- 10. Don't describe participants carefully enough**
- 11. Don't build rapport with sites and participants**
- 12. Never write the paper**
- 13. Don't select an appropriate journal**

# INSTITUTE OF EDUCATION SCIENCES ORGANIZATION



# **IES PRIORITIES**

**Describe the condition and progress of education in the United States**

**Identify education practices that improve academic achievement and access to education opportunities**

**Evaluate the effectiveness of Federal and other education programs**

# **GENERAL EDUCATION RESEARCH TOPICS**

**Cognition and Student Learning**

**Early Learning Programs and Policies**

**Education Technology**

**Effective Teachers & Effective Teaching**

**English Learners**

**Improving Education Systems: Policies, Organization,  
Management, and Leadership**

**Mathematics and Science Education**

**Postsecondary and Adult Education**

**Reading and Writing**

**Social and Behavioral Context for Academic Learning**

# **SPECIAL EDUCATION RESEARCH TOPICS**

**Autism Spectrum Disorders**

**Cognition and Student Learning in Special Education**

**Early Intervention and Early Learning in Special Education**

**Families of Children with Disabilities**

**Mathematics and Science Education**

**Professional Development for Teachers and Related Service Providers**

**Reading, Writing, and Language Development**

**Social and Behavioral Outcomes to Support Learning**

**Special Education Policy, Finance, and Systems**

**Technology for Special Education**

**Transition Outcomes for Secondary Students with Disabilities**

# **IES GOAL STRUCTURE**

**GOAL 1 Exploration**

**GOAL 2 Development & Innovation**

**GOAL 3 Efficacy & Replication**

**GOAL 4 Effectiveness**

**GOAL 5 Measurement**

# GOAL 1: EXPLORATION

**Explore associations between education outcomes and malleable factors**

**Identify factors and conditions that may mediate or moderate relations between malleable factors and student outcomes**

**Possible methodological approaches include:**

- Analyze secondary data
- Collect primary data
- Complete a meta-analysis



# GOAL 2: DEVELOPMENT & INNOVATION

Develop an innovative intervention (e.g., curriculum, instructional approach, program, or policy)

**OR** improve existing education interventions

**AND** collect data on its feasibility and usability in actual education settings

**AND** collect pilot data on student outcomes.



# **GOAL 3: EFFICACY & REPLICATION**

**Evaluate whether or not a fully developed intervention is efficacious under limited or ideal conditions**

OR

**Gather follow-up data examining the longer term effects of an intervention with demonstrated efficacy**

OR

**Replicate an efficacious intervention varying the original conditions**

# **GOAL 4: EFFECTIVENESS**

**Evaluate whether a fully developed intervention that has evidence of efficacy is effective when implemented under typical conditions through an independent evaluation**

**Prior to submitting an effectiveness proposal, at least two efficacy studies of the intervention with beneficial and practical impacts on student outcomes must have been completed**

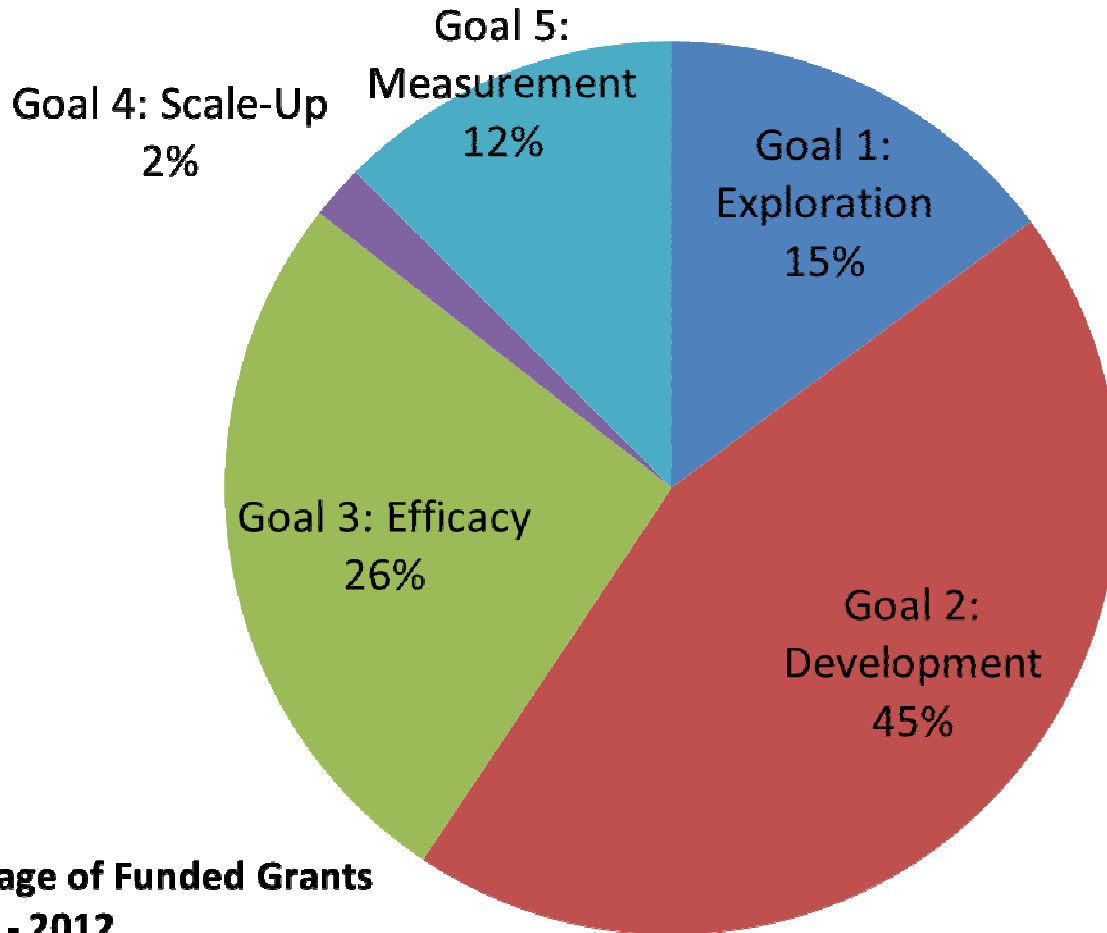
# **GOAL 5: MEASUREMENT**

**Development of new assessments or refinement of existing assessments, and the validation of these assessments**

**OR**

**Validation of existing assessments for specific purposes, contexts and populations**

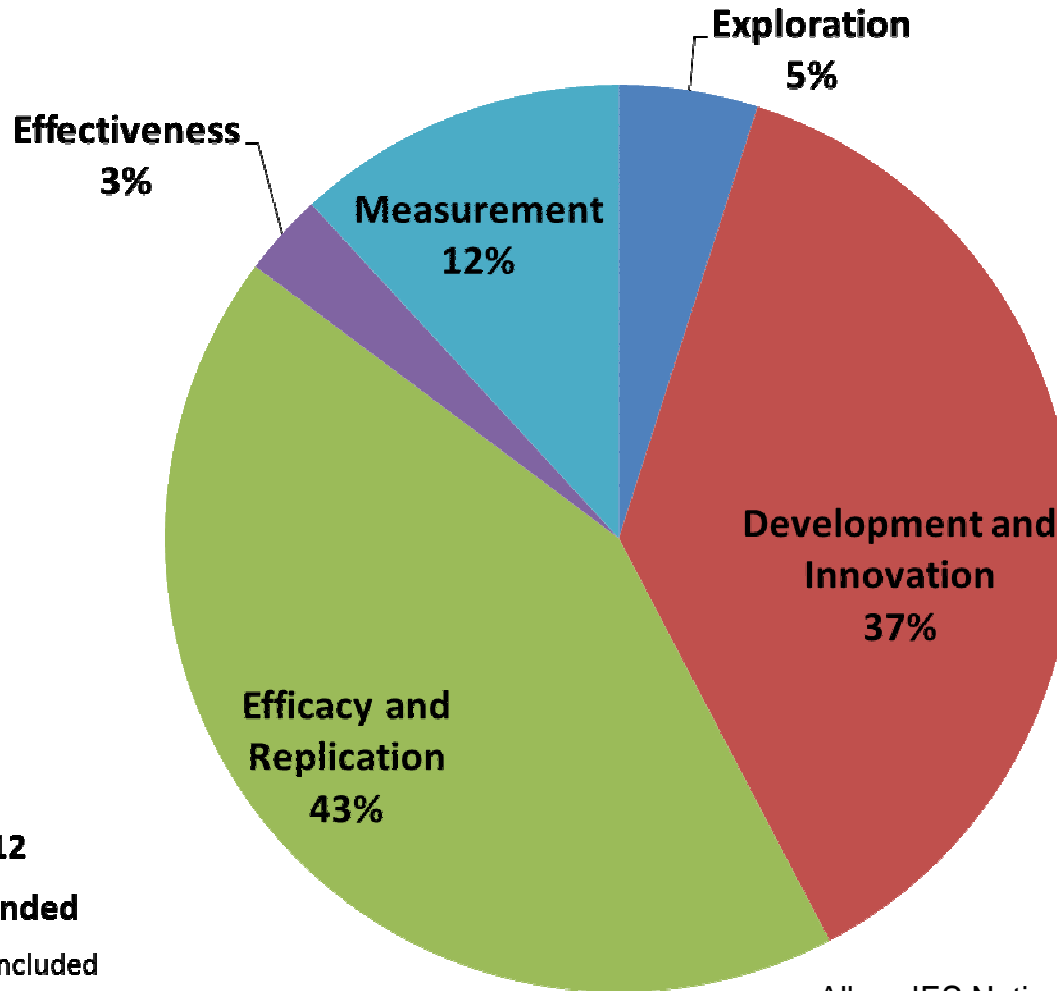
# NCER GRANTS BY GOAL (2004-2012)



**Percentage of Funded Grants  
FY 2004 - 2012**

Albro, IES National Center for  
Education Research Commissioner

# NCSER PROJECTS BY GOAL



**FY 2006 – FY 2012**  
**% of Funds Expended**  
R & D Centers not included

Albro, IES National Center for  
Education Research Commissioner

# **OTHER RESEARCH PROGRAMS**

## **Education Research and Development Centers**

**Knowledge Utilization**

**Standards in Schools**

**Virtual Learning**

## **Statistical and Research Methodology in Education**

**Statistical and Research Methodology**

**Early Career**

## **Partnerships and Collaborations Focused on Problems of Practice or Policy**

**Researcher-Practitioner Partnerships**

**Continuous Improvement**

**Evaluation of State and Local Education Programs**

# **IES VALUES...**

**Mentorship for new investigators**

**Partnerships**

**End Users**

**Methodologists**

**Theory of Change**





# **FINAL THOUGHTS**

**Education yourself**

**Search for appropriate funders and their priorities**

**Build relationships and great research partners**

**Identify a socially important real world problem**

**Craft a solution to the problem**

**Task analyze the solution into steps, phases, or studies**

**Begin with a thorough literature search**

**Draft your research questions for the whole agenda**

**Apply for intramural funds**

**Complete pilot work and be productive**

**Establish yourself as an expert in this particular area**

**Stay focused!**

# **QUESTIONS AND DISCUSSION**

