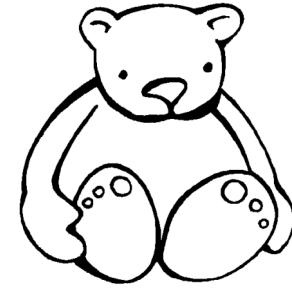


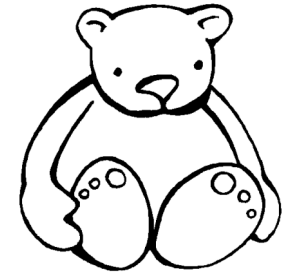
# Teacher Efficacy in Special Education



Development of a Measure of  
Teachers' Self-Efficacy in Deafblindness  
Education  
(TEDE)

Elizabeth Hartmann, ABD

# Why TEDE ?



- Teacher of the Visually Impaired and Learners with Deafblindness
- Doctoral Candidate in the Joint Doctoral Program in Special Education at UC Berkeley and San Francisco State University
- Spencer Foundation Research Training Grant
- UC Berkeley's Center for the Integrated Study of Teaching and Learning (CISTL)

# Goals of the Study



- To add to the growing corpus of research on teacher efficacy by investigating it in the context of teaching children with deafblindness
- To develop the TEDE and measure special education teachers' sense of efficacy
- To understand teachers' beliefs about their abilities to teach children with deafblindness

## TEDE

- Introduction
- Methods
- Results
  - Model
  - Reliability
  - Validity
  - Exploratory Statistics
  - Qualitative Analysis
- Discussion
- Questions

# Introduction: Theoretical Grounding

The construct of self-efficacy is based on Bandura's (1977) cognitive theory of social learning and is defined as people's capabilities to perform certain tasks in a given situation.

# Self-Efficacy

- Has to do with people's perception of what they can achieve, rather than their actual level of competence
- People with a strong sense of efficacy approach difficult tasks with high assurance that they can succeed and with the mindset that challenges can be overcome and tasks can be mastered

(Bandura, 1994)

# Teacher Efficacy

- Teacher efficacy is defined as “teachers’ beliefs or convictions that they can influence how well a student learns, even those who may be difficult or unmotivated”

(Guskey & Passaro, 1994, p. 4)

- Teacher’s judgments of their capabilities to bring about desired outcomes in children’s learning

(Bandura, 1997)

# Teachers with Higher Levels of Efficacy...

- Feel work is meaningful and important
- Expect students to achieve and behave well
- Take personal responsibility
- Are strategic planners
- Feel good about their students
- Are confident that they have a positive impact
- Feel they are learning vs. struggling
- Involve students in decision making
- Are persistent in challenging circumstances
- Have job satisfaction

(Ashton, 1984; Ashton & Webb, 1986; Caprara, Barbaranelli, Borgogni, & Steca, 2003)

# Special Educators' Self-Efficacy

- Felt satisfied with their position
- Thought instructional supervision was beneficial
- Had stronger theoretical orientations
- Experienced less burnout
- Were able to plan and organize
- Believed in instruction in mainstream settings
- Receptive to educating children with special needs in inclusive settings

(Soto & Goetz, 1998)

We will never have the perfect curriculum or teaching strategy, but teachers who set high goals, who persist, who try another strategy – in other words, teachers who have sense of efficacy and act upon it – are more likely to have students who learn.

(Woolfolk Hoy as cited in Shaughnessy, 2004, p.157)

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## Issues in Measurement

- Construct validity, or how teacher efficacy has been conceptualized
- Consideration of the context of the task, items must be specific and focused
- Importance of cultural context, more qualitative analysis needed

# Cultural Context: Deafblindness Education

- Deafblindness refers to the presence of both vision and hearing impairment in an individual
- The term should not be interpreted as the mere presence of two sensory impairments, but rather as a distinct disabling condition (McInnes, 1999)
- Low-incidence group of learners who require specialized teaching strategies (Killoran, 2007)

# Cultural Context: Deafblindness Education

- There are approximately 10,000 school-aged children with deafblindness in the US (Killoran, 2007)
- McLetchie and MacFarland (1995) found that only 6% of teachers who work with children with deafblindness have specialized training
- Corn and Ferrell (2000) found that the number of teacher education programs in deafblindness has decreased while the numbers of children with deafblindness has increased

## TEDE

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# Research Questions

1. What are the **psychometric properties** of the TEDE?
2. Are there significant **differences in the self-efficacy** of teachers who have different experiences or education?
3. What are **the factors that might differentiate** teachers with various levels of efficacy?

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## TEDE

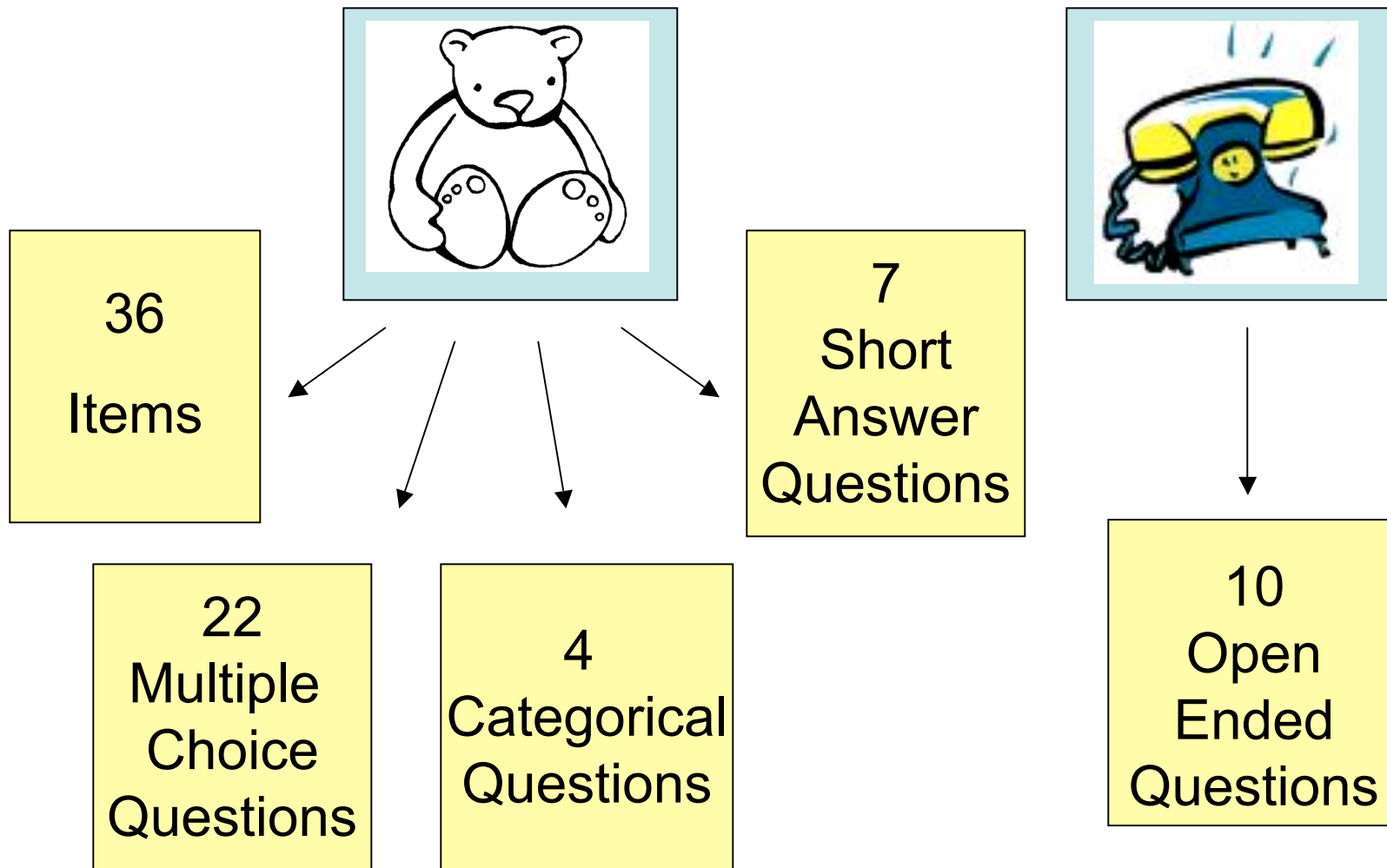
- Introduction
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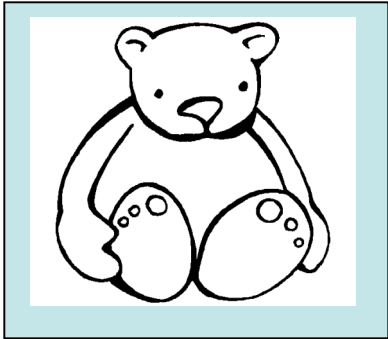
# Instrument Development

1. Develop construct of teacher efficacy in deafblindness education
2. Create and panel items and response formats
3. Create pilot version of TEDE
4. Administer the TEDE
5. Analyze survey data
6. Analyze follow-up interview data

# TEDE Survey *N*=87

# Follow-up Interviews *n*=13





# Sample Item

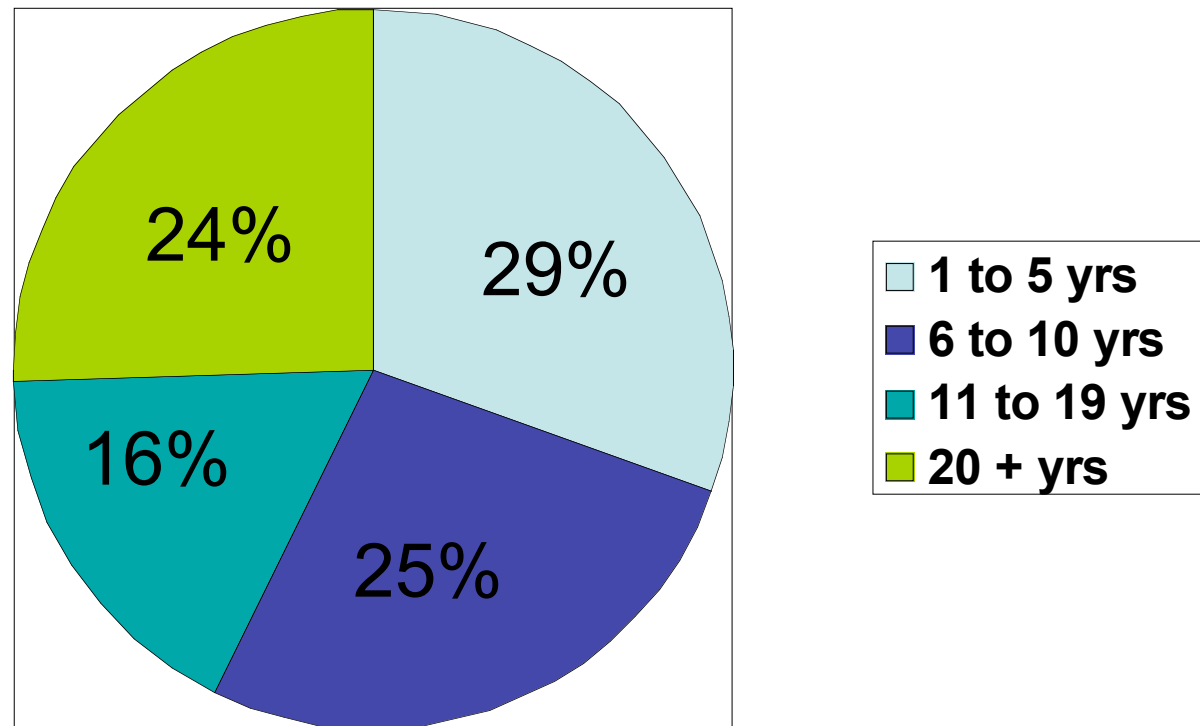
My confidence that I can do the following is:	<b>very low</b>	<b>low</b>	<b>about 50/50</b>	<b>high</b>	<b>very high</b>
Write appropriate goals and objectives for children with deafblindness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Items were adapted from the Tschannen-Moran & Woolfolk Hoy's (2001) Teachers' Sense of Teacher Efficacy Scale.

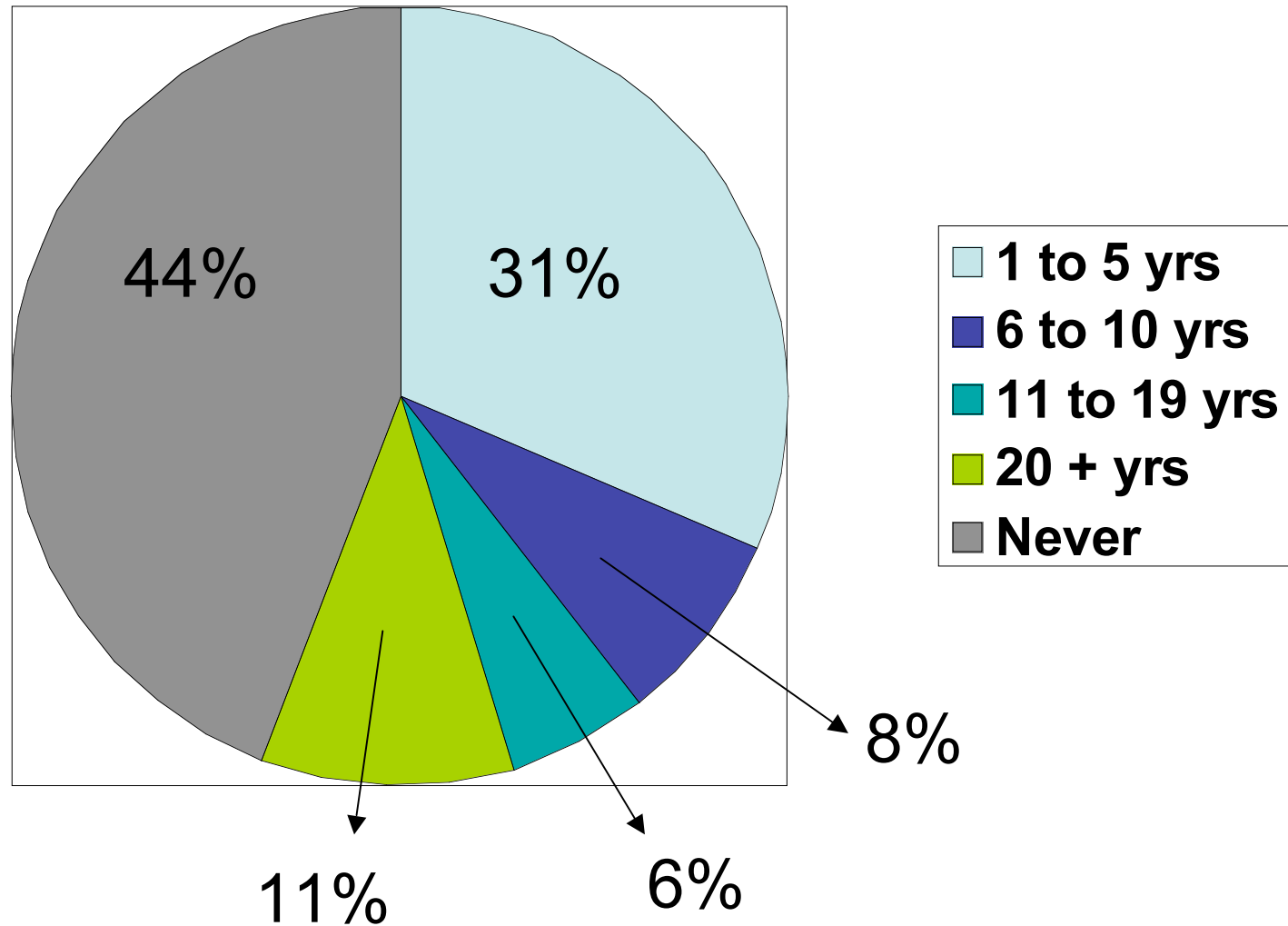
## TEDE

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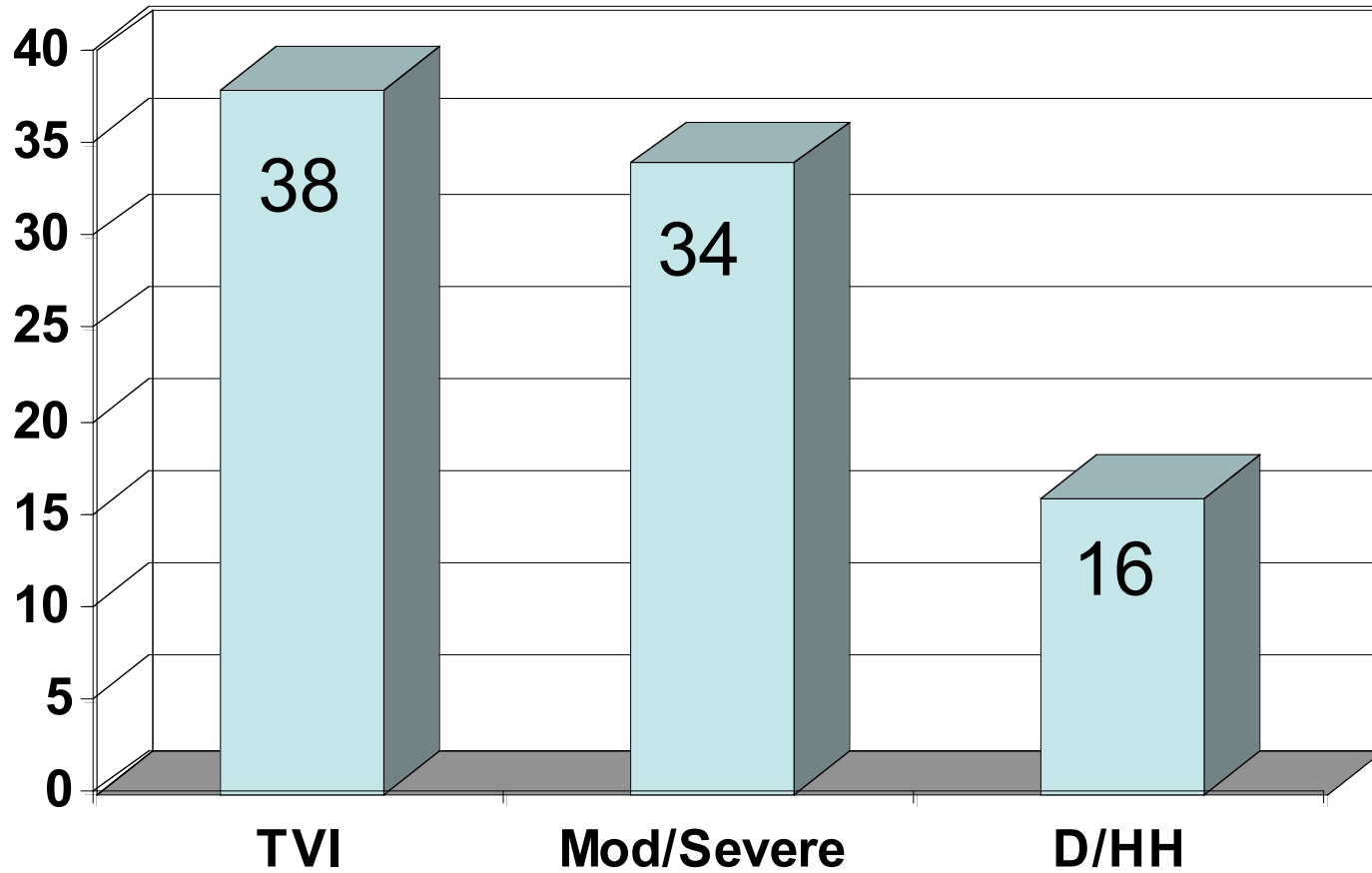
# Results: Teaching Experience



# Teaching Experience in Deafblindness



# Credentials



## TEDE

- Introduction
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## Model

- The software Construct Map was used to analyze the data
- Based on Item Response Theory (IRT) and uses item response modeling
- Allows for in-depth evaluation of psychometric properties of scales
- Good respondent fit and item fit with a 22 item survey (14 items removed)

## TEDE

- Introduction
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# Evidence of Reliability

- A Cronbach's alpha of .98 of the TEDE scores indicates strong internal construct reliability
- The Spearman-Brown formula was used to predict split-half reliability. The 22 items were split into two, 11 item sets
- $2(.98) / 1+.98 = .989$
- The two sets were correlated to produce a coefficient of .99

## TEDE

- Introduction
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  - Reliability
  - **Validity**
  - Exploratory Statistics
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# Evidence of Validity

- Evidence based on internal structure
  - A review of the extant research on teacher self-efficacy measurement
  - Analysis using Construct Map indicated that items relate to and support the construct of teacher efficacy used to create the measure
  - Response process evidence was collected by interviewing selected respondents after they completed the survey

## TEDE

- Introduction
- Methods
- Results
  - Model
  - Reliability
  - **Validity**
  - Exploratory Statistics
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# Evidence of Validity

- 4 categorical questions:
  - (a) to what degree do you feel your teaching impacts deafblind children's learning
- The teachers' TEDE scores were significantly correlated to the responses of all four questions at the 0.01 level (2-tailed)

## TEDE

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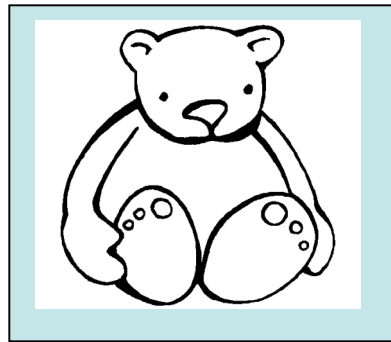
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## TEDE Survey *N* = 87



22  
Items

7  
Short  
Answer  
Questions

22  
Multiple  
Choice  
Questions

4  
Categorical  
Questions

## Follow-up Interviews *n* = 13



10  
Open  
Ended  
Questions

# Exploratory Statistics

- Three findings were statistically significant
  - (a) number of years teaching children with deafblindness ( $r = .360^{**}$ )
  - (b) the total number of children with deafblindness taught ( $r = .358^{**}$ )
  - (c) being credentialed as a teacher of children with moderate to severe disabilities ( $r = .211^*$ )

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

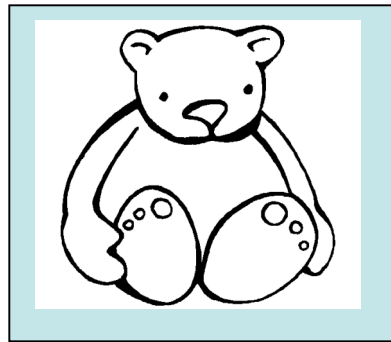
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TEDE Survey  $N=87$



36  
Items

22  
Multiple  
Choice  
Questions

7  
Short  
Answer  
Questions

Follow-up Interviews  $n=13$



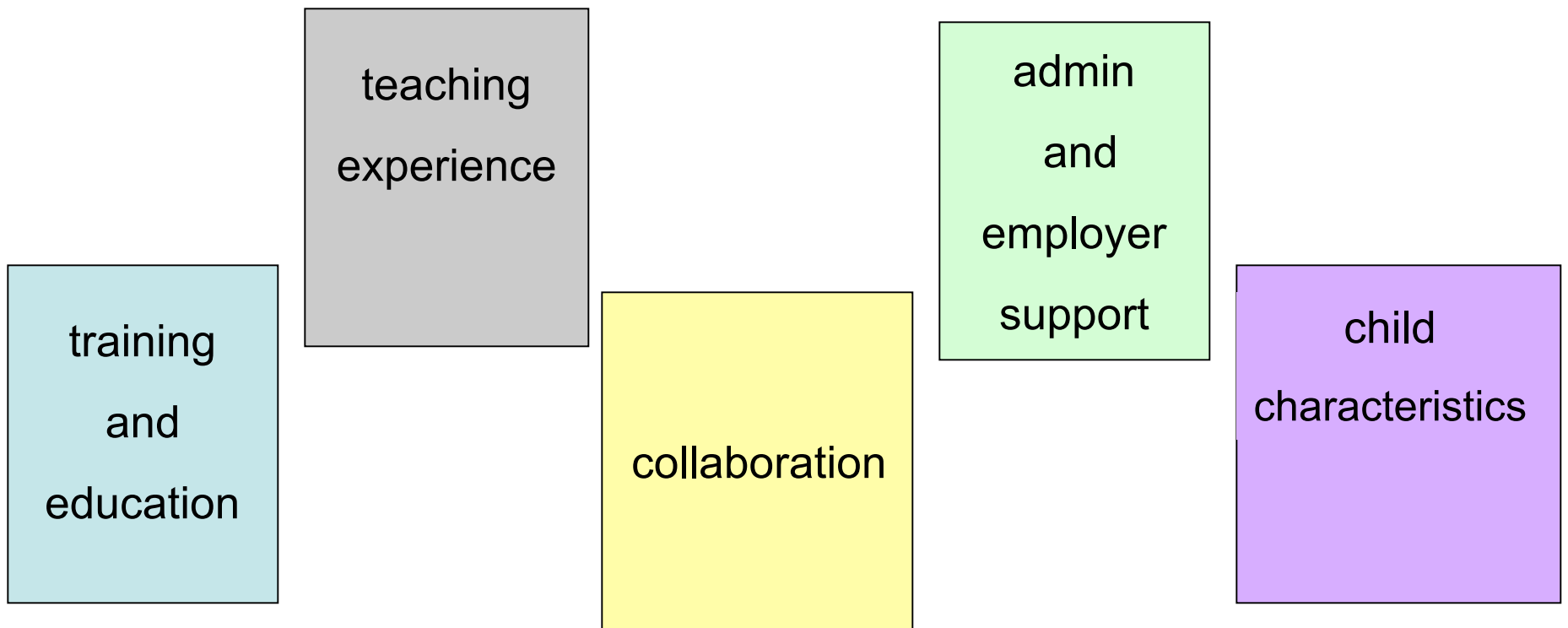
10  
Open  
Ended  
Questions

# Analytic Strategy

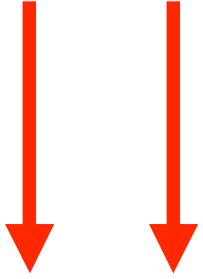
- The analytic approach used was informed by Miles and Huberman's (1994) book *Qualitative Data Analysis*
- **Hypothesis:** The teachers' abilities to secure supports and resources and implement them would be a mediating factor

# Analytic Strategy

- Interviews were coded for factors that have supported or challenged the teachers' judgments about their capabilities

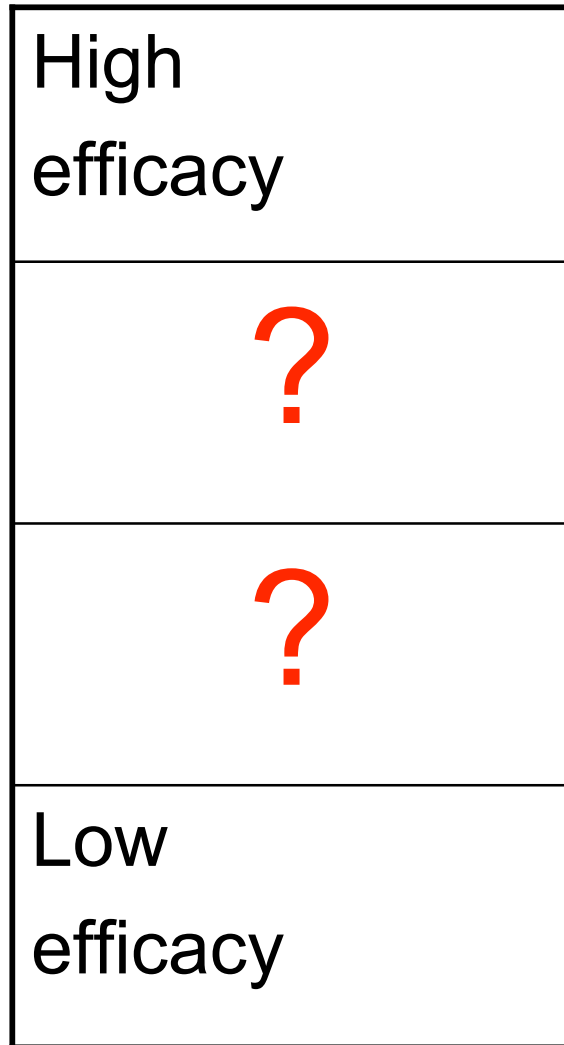


# Data Display Matrix



T#	TEDE score	training	teaching	collaboration	admin	child
10	54	—	—	○	—	—
67	130	—	+	+	—	○
81	162	+	+	+	○	+

# Construct Map



more  
efficacy



less  
efficacy

# Construct Map



more efficacy



less efficacy

# Construct Map

High efficacy	?
Moderately high efficacy	?
Moderately low efficacy	?
Low efficacy	?

more efficacy



less efficacy

# Construct Map

High efficacy	?
Moderately high efficacy	?
Moderately low efficacy	?
Low efficacy	I can't do it, someone else should

more efficacy



less efficacy

# Construct Map

High efficacy	?
Moderately high efficacy	?
Moderately low efficacy	I can do it. I am not sure how or what I need
Low efficacy	I can't do it, someone else should

more efficacy



less efficacy

# Construct Map

High efficacy	?
Moderately high efficacy	I can do it, but I need X to figure how
Moderately low efficacy	I can do it. I am not sure how or what I need
Low efficacy	I can't do it, someone else should

more efficacy



less efficacy

# Construct Map

High efficacy	I can do it. I know how but I will still need some support.
Moderately high efficacy	I can do it, but I need X to figure how.
Moderately low efficacy	I can do it. I am not sure how or what I need.
Low efficacy	I can't do it. someone else should!

more efficacy



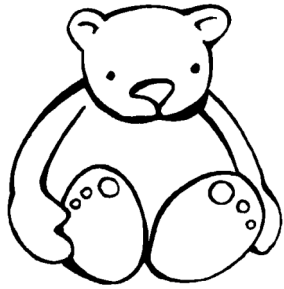
less efficacy

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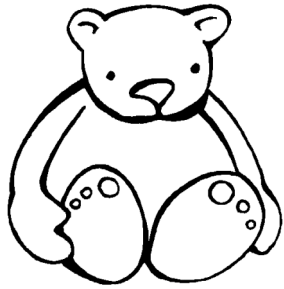
## Discussion

- The primary purpose of the TEDE was to measure teachers' sense of efficacy in teaching children with deafblindness
  - Scores demonstrated strong internal and external consistency (validity) and reliability
  - Results suggest that the TEDE could be further developed into a psychometrically sound instrument



# Discussion

- The secondary purpose of the TEDE was to investigate the relationship between teacher efficacy and teacher characteristics
  - Number of years, number of children and having a mod/severe credential correlated with TEDE scores
  - Mastery experiences are the most influential source of efficacy information (Bandura, 1997)
  - Practical experiences can lead to positive teacher attitudes and improved competence (Clift & Brady, 2005)



# Discussion

The last goal was to differentiate teacher with various levels of self-efficacy

- A combination contextual factors mediates teachers' efficacy (e.g., education/training, employer support, teaching experience, collaboration, attitudes about child characteristics)
- Teachers in the absence of formal education or experience need a variety of supports. Teachers' knowledge of these supports may lead to increased efficacy.

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## Limitations

- Pilot study – first iteration
- Future iterations are needed and continued psychometric development
- Range of tasks in 36 item version was too broad – 22 item TEDE is suggested for further iterations
- Limited sample size and a sample of convenience

## TEDE

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## Selected References

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change.
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education*, 17, 783-805.
- Wilson, M. (2005). *Constructing measures: An item response modeling approach*. London: Lawrence Erlbaum, Publishers.