Evidence-Based Practices in Early Childhood Intervention and Family Support

Carl J. Dunst, Ph.D.   Carol M. Trivette, Ph.D.

Orelena Hawks Puckett Institute
Asheville and Morganton, North Carolina

Purposes of the Presentation

- Describe a framework for categorizing different approaches to identifying evidence-based practices
- Illustrate the yield from the different approaches to identifying evidence-based practices using a research synthesis of adult learning methods
- Describe the process for conducting a practice-based research synthesis for identifying the key characteristics of evidence-based and research-informed practices
- Illustrate how the key characteristics of evidence-based practices can be used as standards against which to evaluate early childhood and family support practices

What Are Evidence-Based Practices?

Evidence-based practices are defined as practices informed by research findings demonstrating a functional or statistical relationship (or both) between the characteristics and consequences of a planned or naturally occurring experience or opportunity where the nature of the relationship informs what someone can do to produce a desired outcome

What Counts As Evidence?

There are so many answers to this question depending on who you ask that it is difficult to classify or categorize all that has been written on the topic.

- At one extreme, there are those that consider *only* the results from randomized controlled group design studies the gold standard for what counts as evidence
- At the other extreme, there are those that consider personal experience or professional opinion as the sources of what counts as evidence

A Practical Approach to What Counts As Evidence

Evidence is gained from the systematic analysis of the relationships between the characteristics and consequences of a practice (intervention, experience, opportunity, etc.) in studies using any number of research methodologies, including, but not limited to quantitative and qualitative research, group and single participant design studies, and observational and intervention studies

When More is Better

The more studies that report the same or very similar relationships between the characteristics and consequences of a practice, the stronger is the evidence-based for the practice. The extent to which findings from different studies yield the same relationships is called replication. The extent to which replication is systematically established is accomplished by the conduct of research syntheses or meta-analyses.

What is a Research Syntheses?

A research synthesis is a systematic review and analysis of studies which focus on the relationships between a target practice and the outcomes the practice is intended to produce. The goal of a research synthesis is establish the extent to which the combined results from different studies yield results that demonstrate that a practice is related to the outcomes of interest. A goal ought to be (but often is not) the identification of the nature of the relationship(s) between a practice and its intended outcomes. The latter is what is needed to develop research-informed or evidence-based practices.

Types of Research Syntheses

- Efficacy
- Effectiveness
- Efficiency
- Translational

Research Syntheses of Efficacy Studies

The purpose of efficacy research syntheses is to determine if an intervention (treatment, experience, practice, etc.) is associated with a better outcome compared to no intervention.

- Randomized controlled group design studies comparing participants who receive vs. those who do not receive an intervention

- Single participant design studies comparing the intervention phase of a study with the baseline (nonintervention) phase of a study

Research Syntheses of Effectiveness Studies

The focus of effectiveness research syntheses is the comparison of either two types of interventions that are intended to have the same effect(s) or the comparison of the same intervention implemented under different conditions.

- Comparative effectiveness studies might compare, for example, two different naturalistic teaching procedures to determine which procedure does a better job increasing children's communicative behavior

- Contrasting conditions effectiveness studies might compare, for example, the effects of a home-based infant curriculum implemented once a week vs. once a month

Research Syntheses of Efficiency Studies

The focus of efficiency research syntheses is to determine the effects of an intervention that intentionally or unintentionally differ in its fidelity, amount, frequency, dose, etc. of the intervention in studies investigating the efficacy or effectiveness of an intervention.

- Efficiency research syntheses might examine, for example, the effects of an intervention provided only half the time that it was provided in the original research

Practice-Based (Translational) Research Syntheses

The focus of a translational research synthesis is to identify the particular characteristics of an intervention that **matter most** in terms of the effects on the study outcomes.

- *Practice-based research syntheses* are a particular type of translational synthesis. The focus of these types of research syntheses is to **unpack** and **unbundle** an intervention to identify the active ingredients associated with an outcome with an explicit focus on the implications for informing day-to-day practice.

Examples of Findings from the

Different Kinds of Research Syntheses

Research Synthesis of Adult Learning Studies[a]

- Research synthesis of studies of accelerated learning, coaching, guided design, and just-in-time-training
- 58 randomized control design studies
- 2,095 experimental group participants and 2,213 control or comparison group participants
- Combination of studies in university and nonuniversity settings
- Learner outcomes included learner knowledge, skills, attitudes, and self-efficacy beliefs
- The influence of the adult learning methods on the learner outcomes was estimated by Cohen's *d* effect sizes for the differences on the post test means for the intervention vs. nonintervention group participants

[a] Dunst, C.J., Trivette, C.M., & Hamby, D.W. (2010). Meta-analysis of the effectiveness of four adult learning methods and strategies. *International Journal of Continuing Education and Lifelong Learning,* 3(1), 91-112.

Adult Learning Methods and Strategies

Methods	Description
Accelerated Learning	"Creating a relaxed emotional state, an orchestrated and multi-sensory learning environment, and active learner engagement" (Meier, 2000).
Coaching	"Method of transferring skills and expertise from more experienced and knowledgeable practitioners to less experienced ones" (Hargreaves & Dawe, 1990).
Guided Design	"Method characterized by decision-making and problem solving processes that include procedures to using real world problems for mastering learning content (through) facilitator guidance and feedback" (Wales & Stager, 1998).
Just-in-Time Training	"Training methods and strategies used in the context of real-life challenges in response to learner requests for guidance or mentoring" (Beckett, 2000).

Characteristics Used to Evaluate the Adult Learning Methods[a]

Planning

    Introduce   Engage the learner in a preview of the material, knowledge or practice that is the focus of instruction or training

    Illustrate   Demonstrate or illustrate the use or applicability of the material, knowledge or practice for the learner

Application

    Practice   Engage the learner in the use of the material, knowledge or practice

    Evaluate   Engage the learner in a process of evaluating the consequence or outcome of the application of the material, knowledge or practice

Deep Understanding

    Reflection   Engage the learner in self-assessment of his or her acquisition of knowledge and skills as a basis for identifying "next steps" in the learning process

    Mastery   Engage the learner in a process of assessing his or her experience in the context of some conceptual or practical model or framework, or some external set of performance standards or criteria
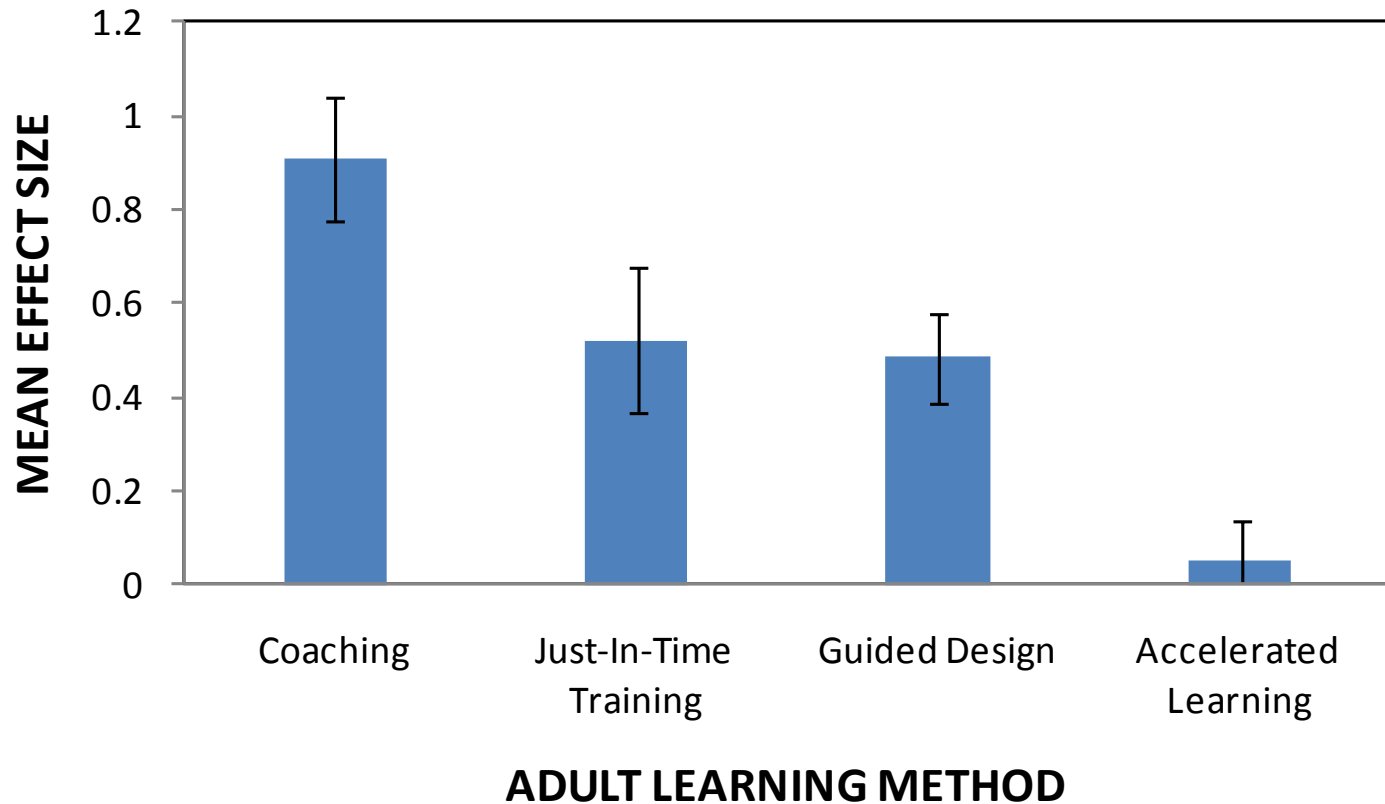

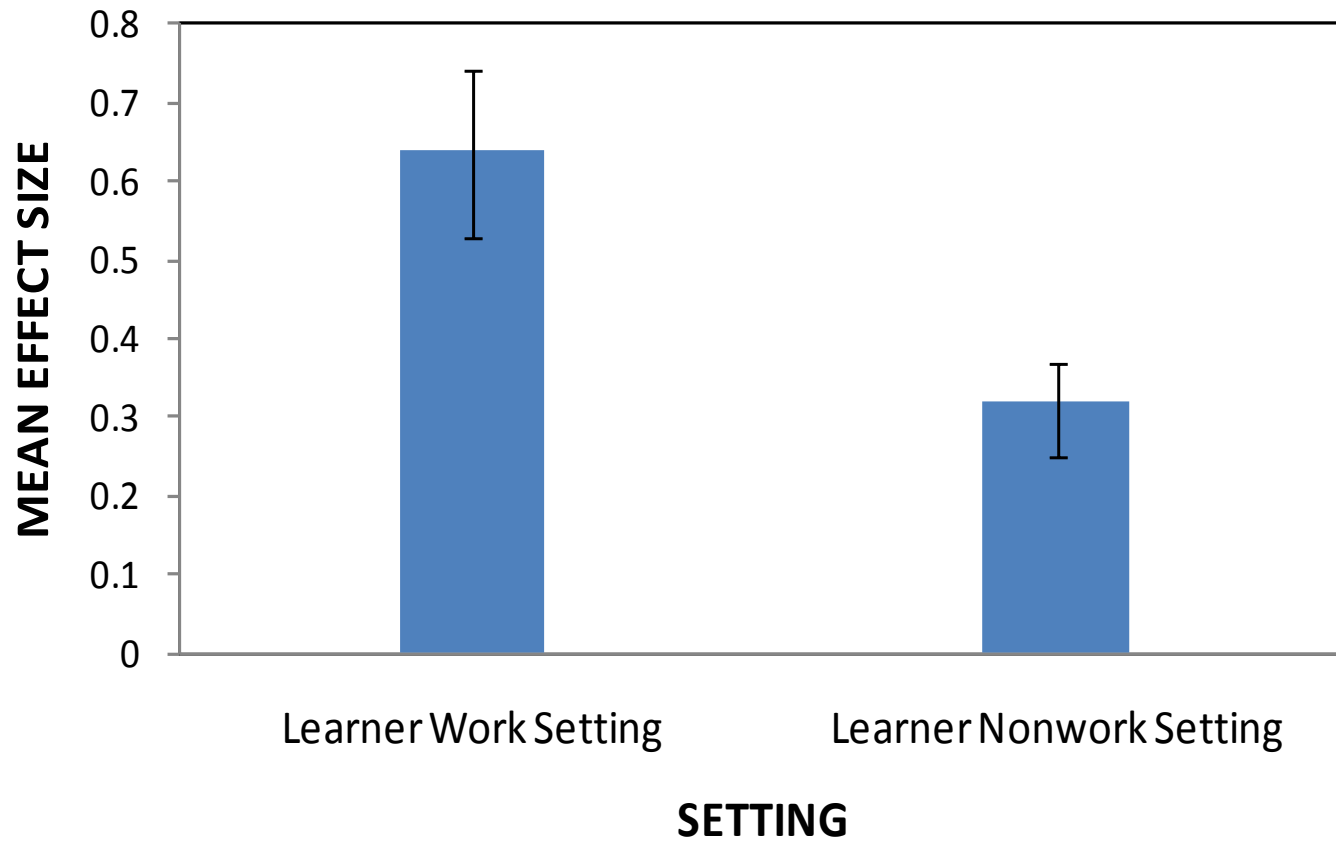[a] Donovan, M. et al. (Eds.) (1999). *How people learn.* Washington, DC: National Academy Press.

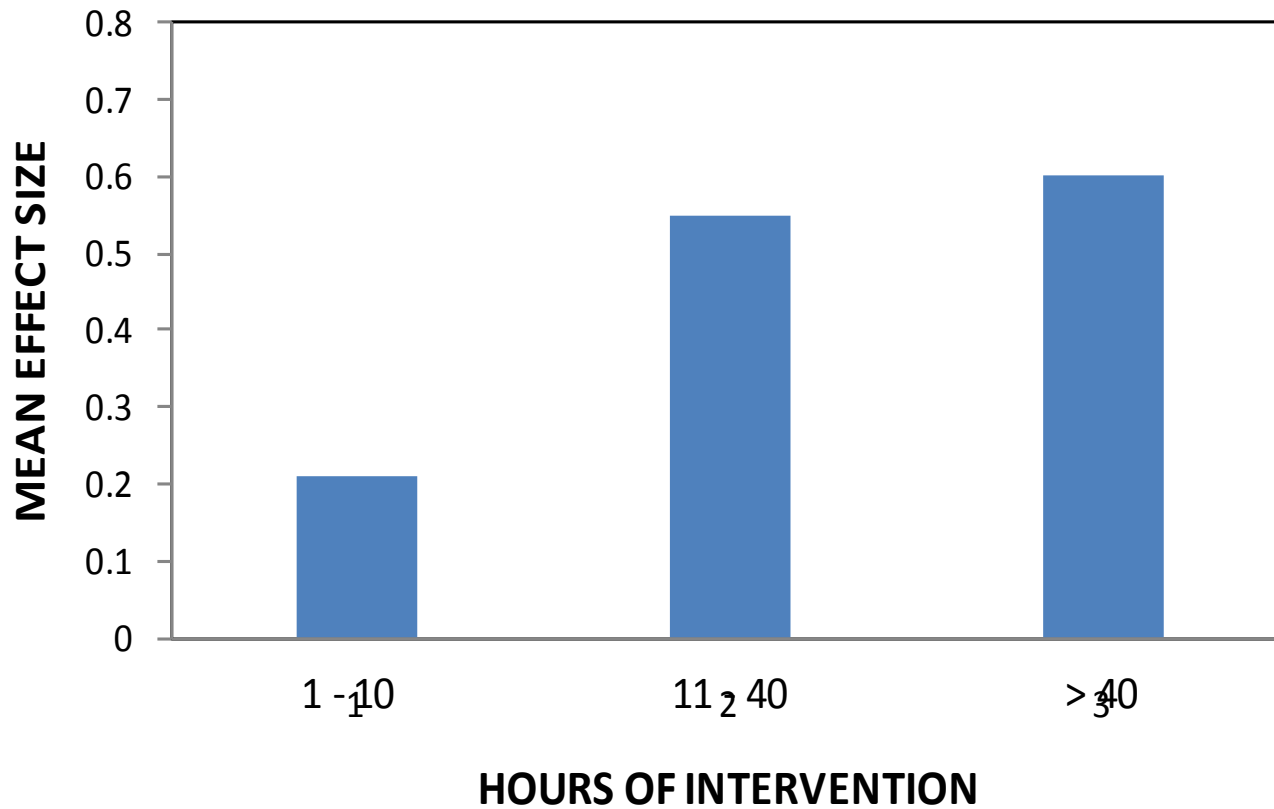Efficacy of the Adult Learning Methods for the Intervention vs. Nonintervention Group Comparisons
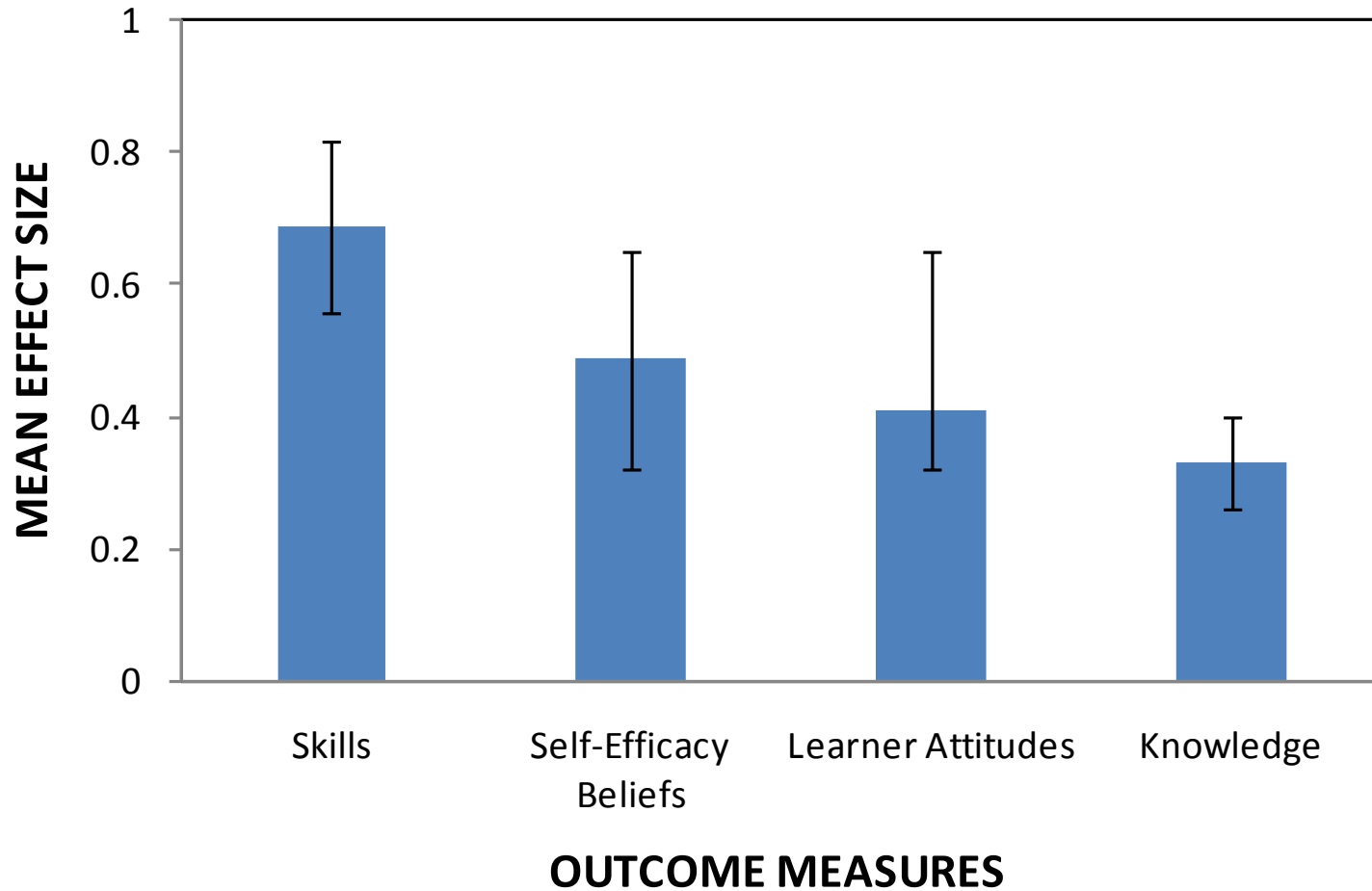
Findings of the Comparative Effectiveness of the Four Adult Learning Methods

Example of Findings from a Contrasting Conditions Effectiveness Analysis

Example of Findings from an Analysis of the Efficiency of the Adult Learning Methods

Findings from the Practice-Based
Research Synthesis of the Adult Learning Methods

- For each of the six adult learning method characteristics (introduce, illustrate, reflection, etc.) that were the focus of analysis, investigators used different kinds of practices

- The different practices for each characteristic were first examined to identify the most effective practices

- The extent to which the simultaneous use of the most effective practices had "value added" benefits was examined to determine which combinations of practices were most effective

Practices Used By Instructors and Trainers to Introduce and Illustrate the Learning Material or Topic

Introduce	Illustrate
Out of class activities/self-instruction	Role playing/simulations
Classroom/workshop presentations	Learner input
Pre-class exercises	Real life example/real life + roleplaying
Dramatic readings/imagery	Instructional video
Dramatic readings	
Imagery	

Practices to Engage the Learners in the Use of the Learning Material or Topic

Practice/Apply	Evaluate
Real life application	Assess strengths/weaknesses
Real life application + role playing	Review experience/make changes
Problem solving tasks	
Learning games/writing exercises	
Role playing (skits, plays)	

Practices Used to Promote Learner Deep Understanding

| Reflection	Mastery
Performance improvement	Standards-based assessment
Journaling/behaviour suggestion	Self-assessment
Group discussion about feedback	

Most Effective Adult Learning Methods Practices

Characteristic	Practice	Mean Effect Size
Introduction	Out of class activities/self-instruction	0.64
	Classroom/workshop presentations	0.63
	Pre-class exercises	0.54
Illustration	Role playing/simulations	0.55
	Learner informed input	0.53
Practicing	Real life application	0.94
	Real life application/role playing	0.86
Evaluation	Assess strengths/weaknesses	0.94
Reflection	Identify performance improvement goals	1.27
	Journaling/behavior suggestions	0.82
Mastery	Standards-based assessment	0.86

Cumulative Effects of Using Different Combinations of the Most Effective Adult Learning Method Practices
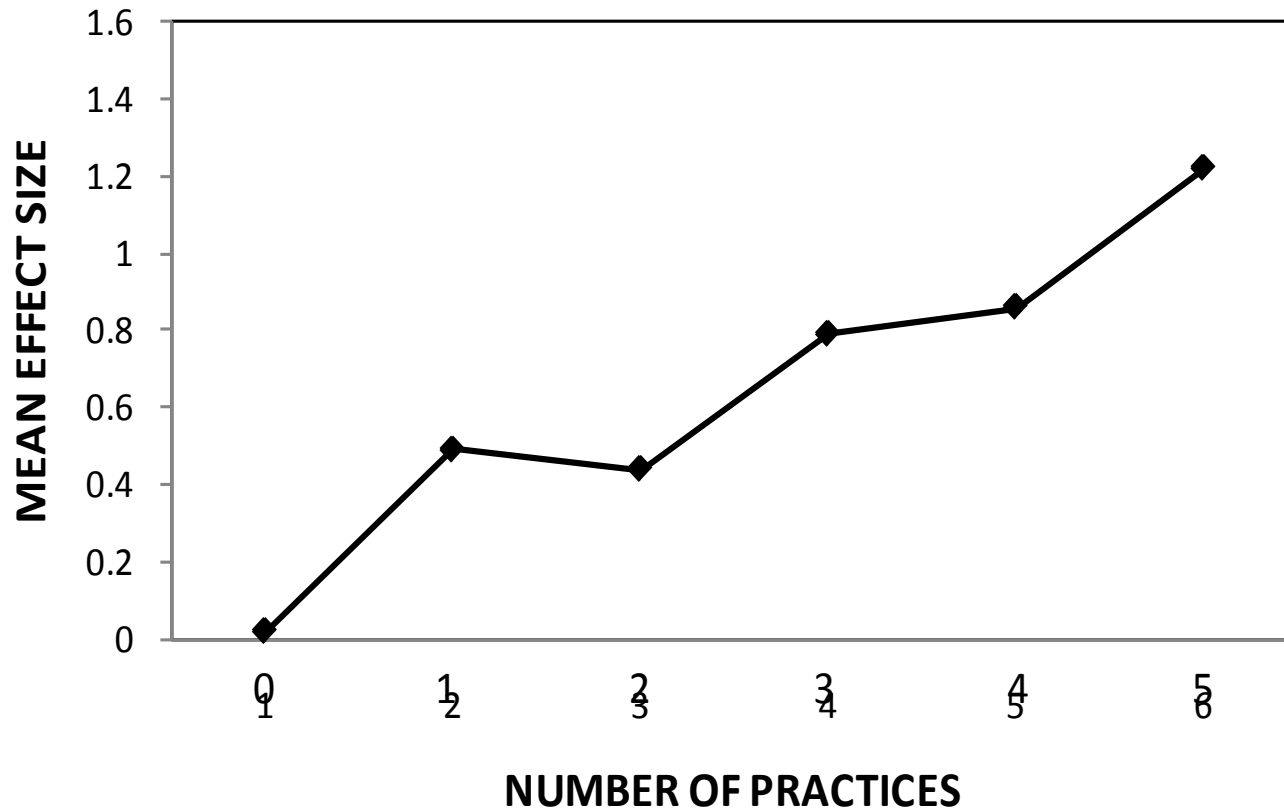
Implications of the Translational Research Findings for Practice

- Actively involving learners in as many phases of the learning process as appropriate is likely to be most effective in terms of achieving intended outcomes

- The practices found most effective can be used for planning and implementing different kinds of training opportunities

- Actively engaging learners in reflection and self-assessment of their knowledge and skills using a performance checklist or a set of practice standards will likely have value-added benefits

- Repeated learning opportunities increase the likelihood of learners developing deeper understanding of a targeted practice

Influences of Contrasting Types of Training on Practitioners' and Parents' Use of Assistive Technology and Adaptations with Infants, Toddlers, and Preschoolers with Disabilities[a]

Carl J. Dunst, Carol M. Trivette, Diana Meter, & Deborah W. Hamby

- Research Synthesis of 35 studies including 839 adults and 1100 young children with disabilities

- Studies were examined using the same framework used in the adult learning method synthesis

- Results were almost identical in terms of the kinds of practices found most effective with only one difference. Practices to engage the learners in reflection were rarely used.

- Findings were used to develop a checklist to promote adoption and use of assistive technology and adaptations

---

[a] *Tots n' Tech Research Briefs*, Volume 5, Number 1 (in press).

Checklist for Promoting the Use of Assistive Technology or Adaptations

Introduction	The training to promote adoption and use of the assistive technology or adaptations (AT/A) should include most of the following practices:
	1. Solicit trainee identification or description of what they expect to learn from the training
	2. Provide a detailed description or explanation of the AT/A
Illustration	3. Use trainee knowledge or experience with the AT/A or similar devices to provide example(s) of application
	4. Demonstrate the use of the AT/A either *in vivo* or through role playing
Practicing	5. Engage the trainee in the use of the AT/A either *in vivo* or through role playing
	6. Provide the trainee trainer-guided practice using the AT/A
Evaluation	7. Engage the trainee in evaluation of the experience using the AT/A
	8. Provide the trainee feedback based on trainer observation of trainee application
Reflection	9. Engage the trainee in self-assessment of the understanding of both the use and consequences of the AT/A
	10. Together with the trainee, assess trainee performance and identify next steps in the learning process
Mastery	11. Have the trainee use a checklist or set of performance standards to assess overall mastery of the AT/A
	12. Provide the trainee opportunities to use the AT/A in different settings or with different children

Examples of Practice-Based Research Syntheses in Early Childhood Intervention and Family Support

- Increasing Infant Vocalizations

- Family-Centered Help Giving Practices

Effects of Adult Verbal and Vocal Contingent Responsiveness on Increases in Infant Vocalizations[a]

Carl J. Dunst, Ellen Gorman and Deborah W. Hamby

Number of Studies: 22 studies including 214 infants and toddlers (15 studies of typically developing infants and 6 studies of infants and toddlers with disabilities)

Research Designs: Baseline (A) and intervention (B), ABA, and ABAB single participant or group design studies

Adult Reinforcement: Imitation of child vocalizations, verbal comments (e.g., "good girl") or pre-determined vocal sounds ("tsk, tsk, tsk")
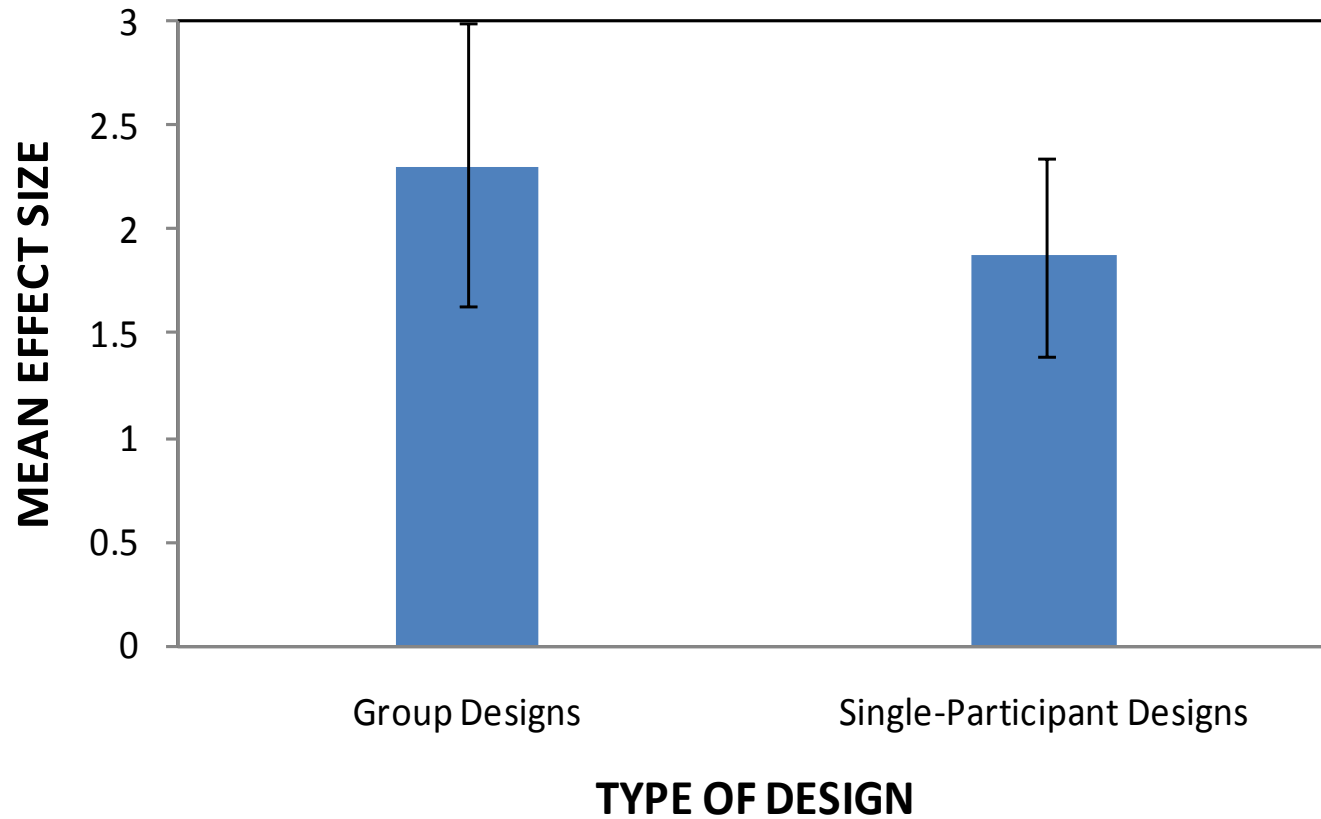
Social Concomitants: Influences of visual, social, and tactile adult concomitant behavior on infant vocalizations

Size of Effect: Cohen's d effect size for the different between the baseline and intervention phase of each study
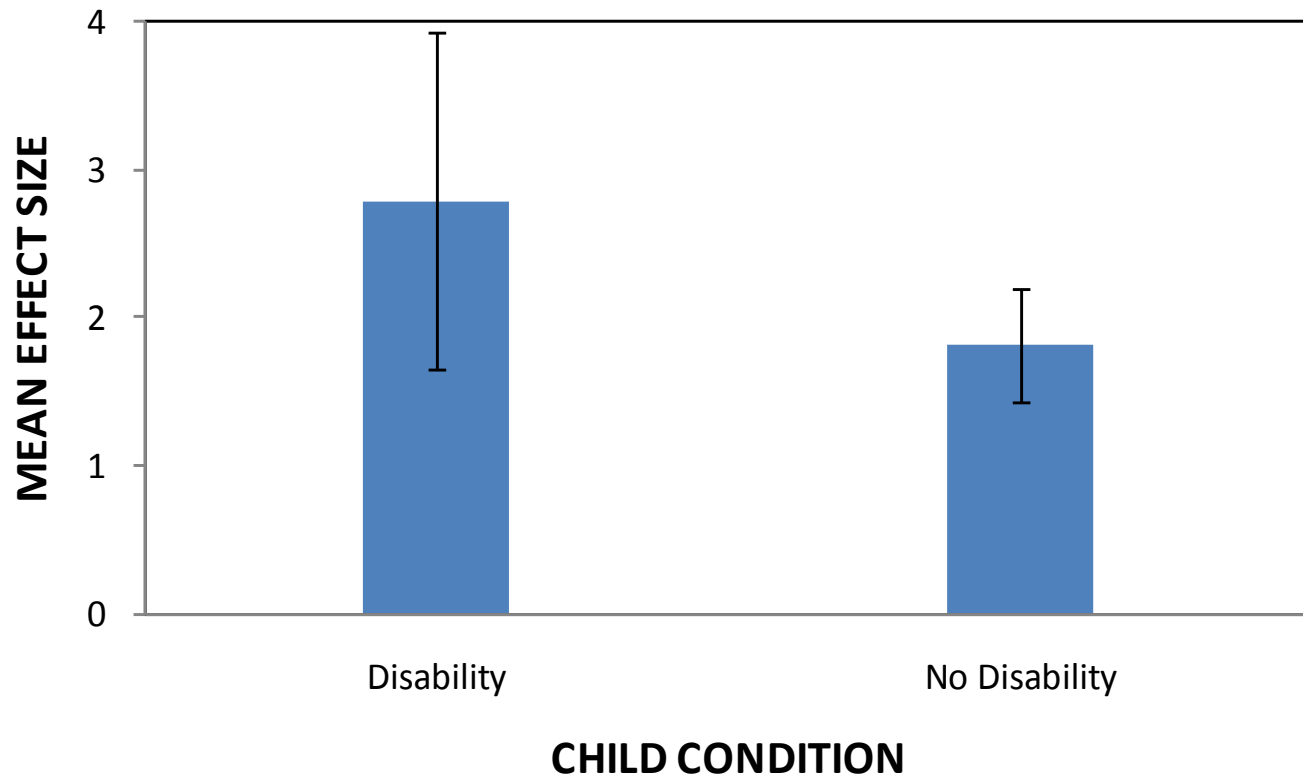
Influences of Contingent Responsiveness on
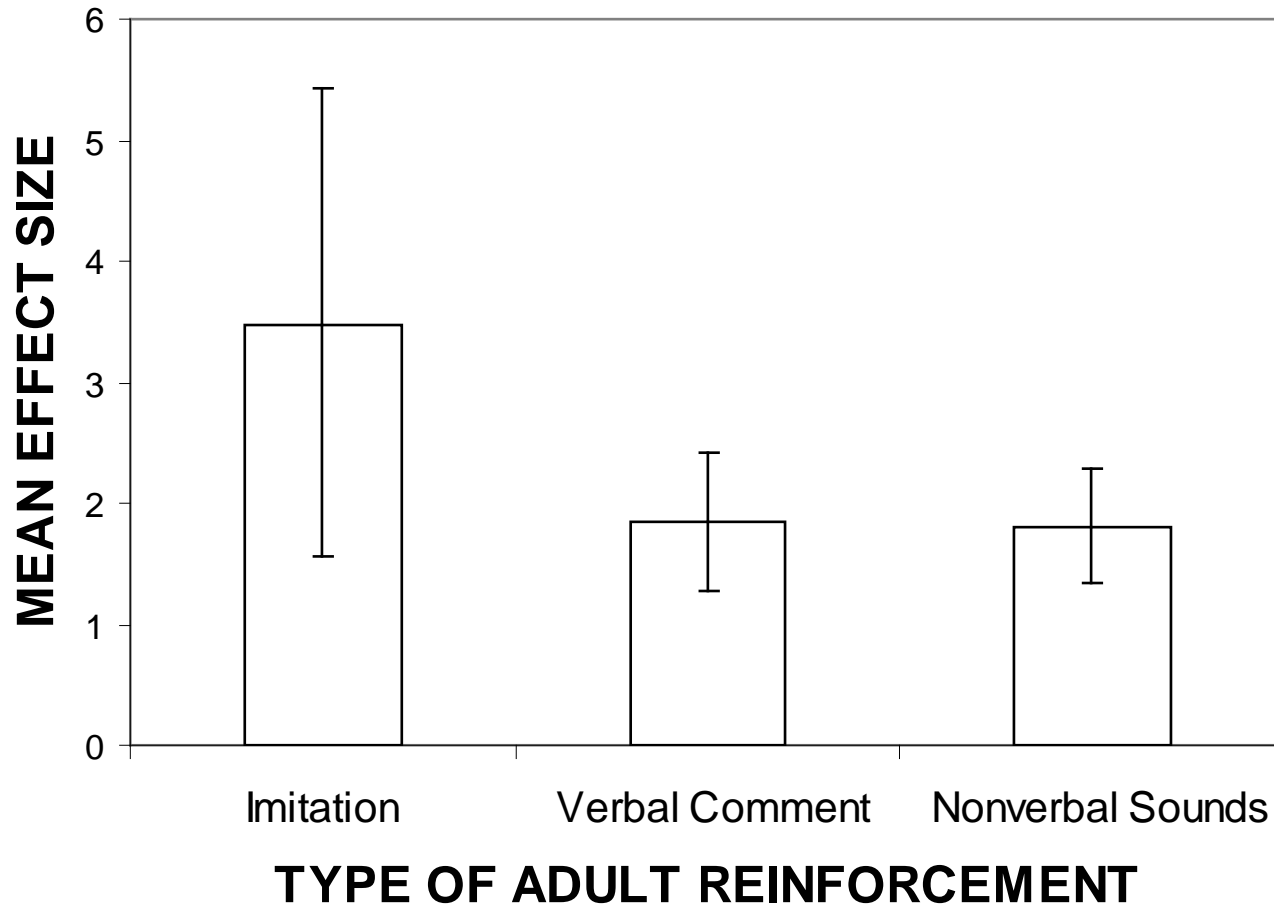Infant Vocalization for Two Different Types of Studies

Effects of Contingent Responsiveness on Increases in Infant Vocalizations for Children With and Without Disabilities

Relative Effectiveness of the Three Types of Adult
Reinforcement on Increases in Infant Vocalizations

Effects of Adult Social Concomitant Behavior on Increases in Infant Vocalizations
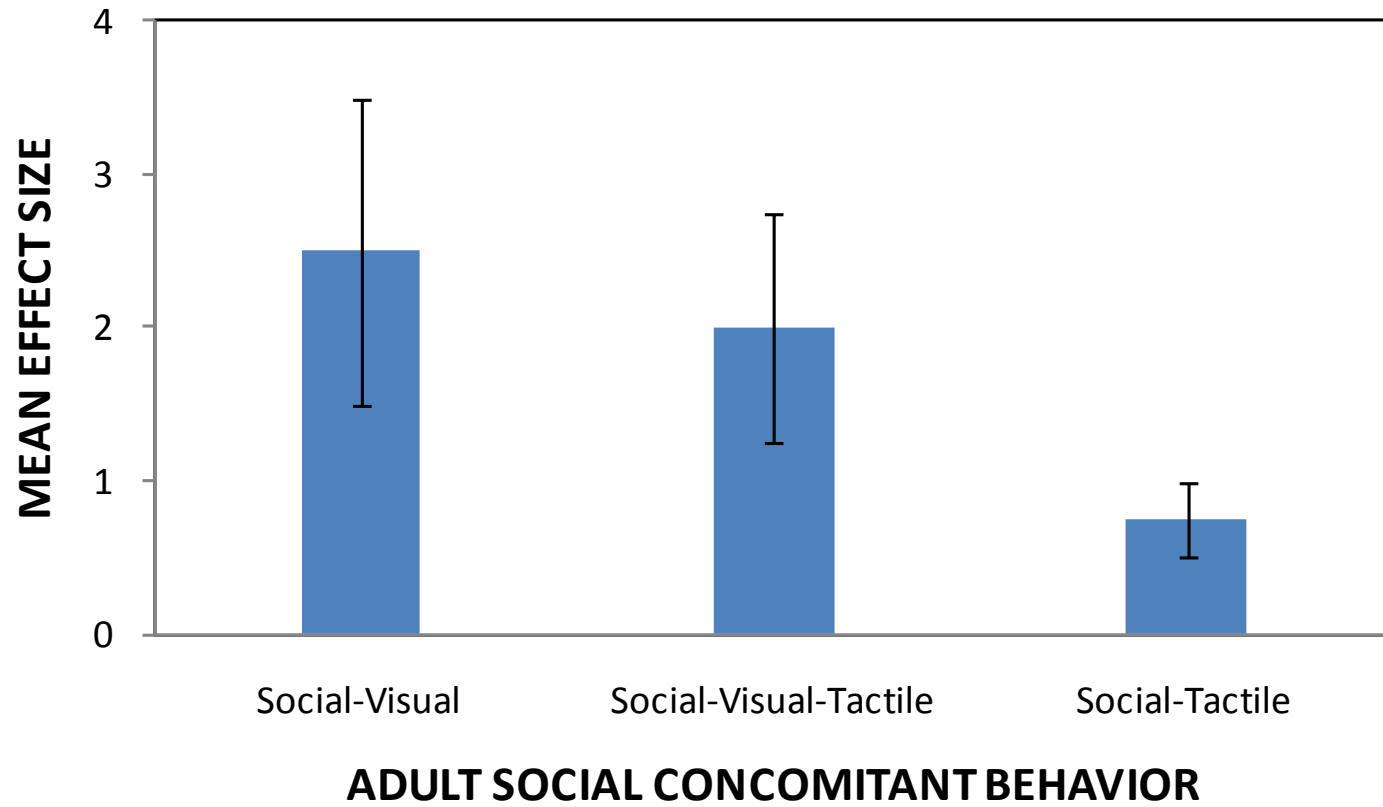
Implications for Practice

- Imitating an infants' vocalizations is a practice that will increase his or her rate of vocalization. This is especially the case among infants with disabilities and infants who produce very few sounds

- Imitation should be paired with positive social and visual adult responses to make the vocal interchanges fun and enjoyable

- The amount of vocalizations and concomitant behavior used to reinforce infant vocalizations should be proportional to the amount of infant vocalizations and social-affective behavior

- After imitation increases infant vocalizations, the adult vocal behavior should be varied to maintain the infant's interest and to elicit variations in the child's vocalizations

Practice-Based Research Syntheses
of Family-Centered Help-giving Practices

Carl J. Dunst, Carol M. Trivette, and Deborah W. Hamby

- Meta-analysis of 52 studies conducted by more than 20 researchers and research teams in seven countries[a,b]

- Meta-analysis of 18 studies conducted by in one early childhood intervention and family support program[c]

---

[a] Meta-analysis of family-centered help-giving practices research. *Mental Retardation and Developmental Disabilities Research Reviews*, 13, 370-378.

[b] *Research synthesis and meta-analysis of studies of family centered practices.* Winterberry Press Monograph Series. Asheville, NC: Winterberry Press.

[c] *Family support program quality and parent, family and child benefits.* Winterberry Press Monograph Series. Asheville, NC: Winterberry Press.

Selected Characteristics of the Study Participants

	Number of Participants	Percent Mothers	Age Range (Years)	Formal Education (Years)
Synthesis 1	11,500+	63-100	15-60+	3-20+
Synthesis 2	1,100	95	16-50+	5-20+

Two Types of Family-Centered Help Giving Practices

Our research has consistently found that there are two clear discernable kinds of practices that "fall into" distinct subcategories of help-giving practices:

- Relational help-giving practices
- Participatory help-giving practices

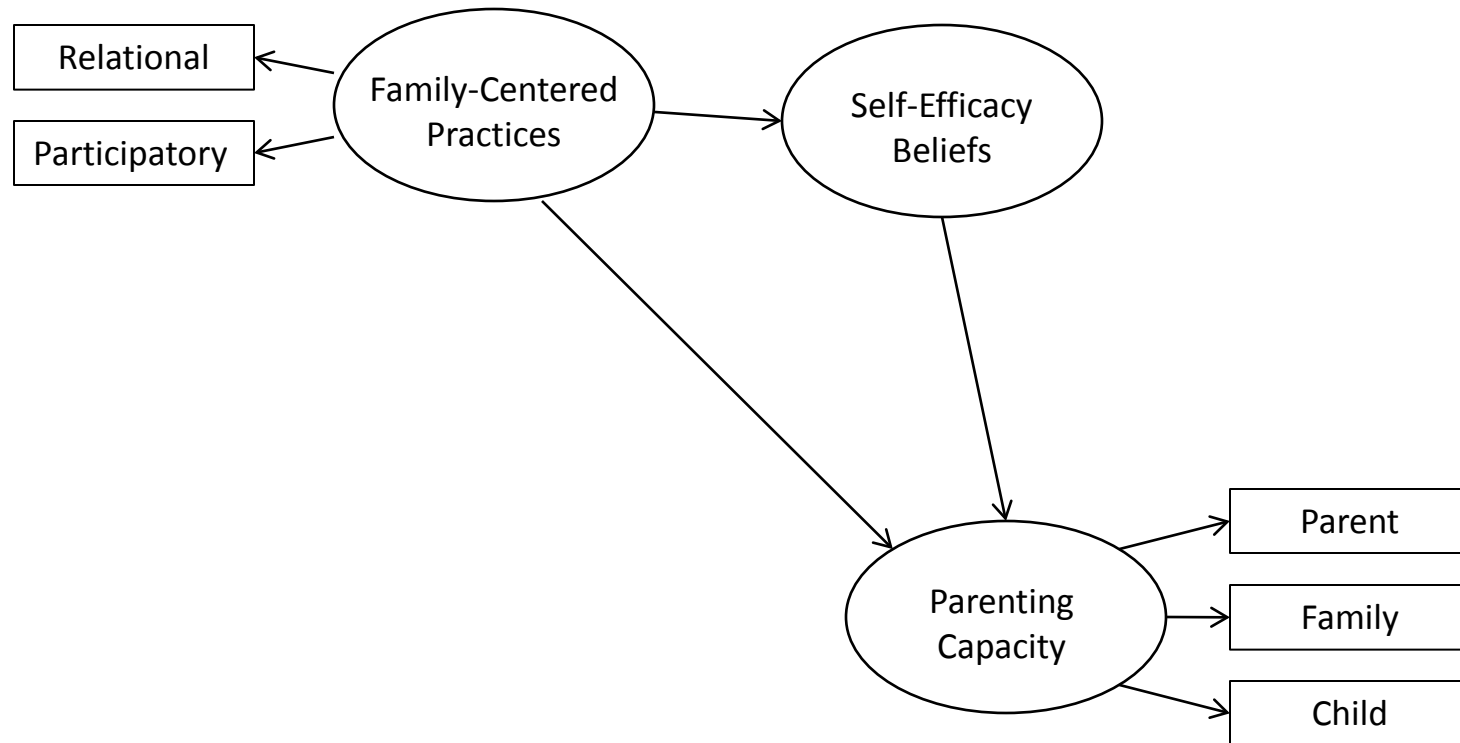# Relational Family-Centered Practices

- Relational practices include behavior typically associated with effective clinical practice, including, but not limited to, compassion, active and reflective listening, empathy, and effective communication

- Relational practices also include practitioner beliefs and attitudes about family and cultural strengths, values, and attitudes, and practitioner sensitivity to these beliefs and values as part of intervention practices
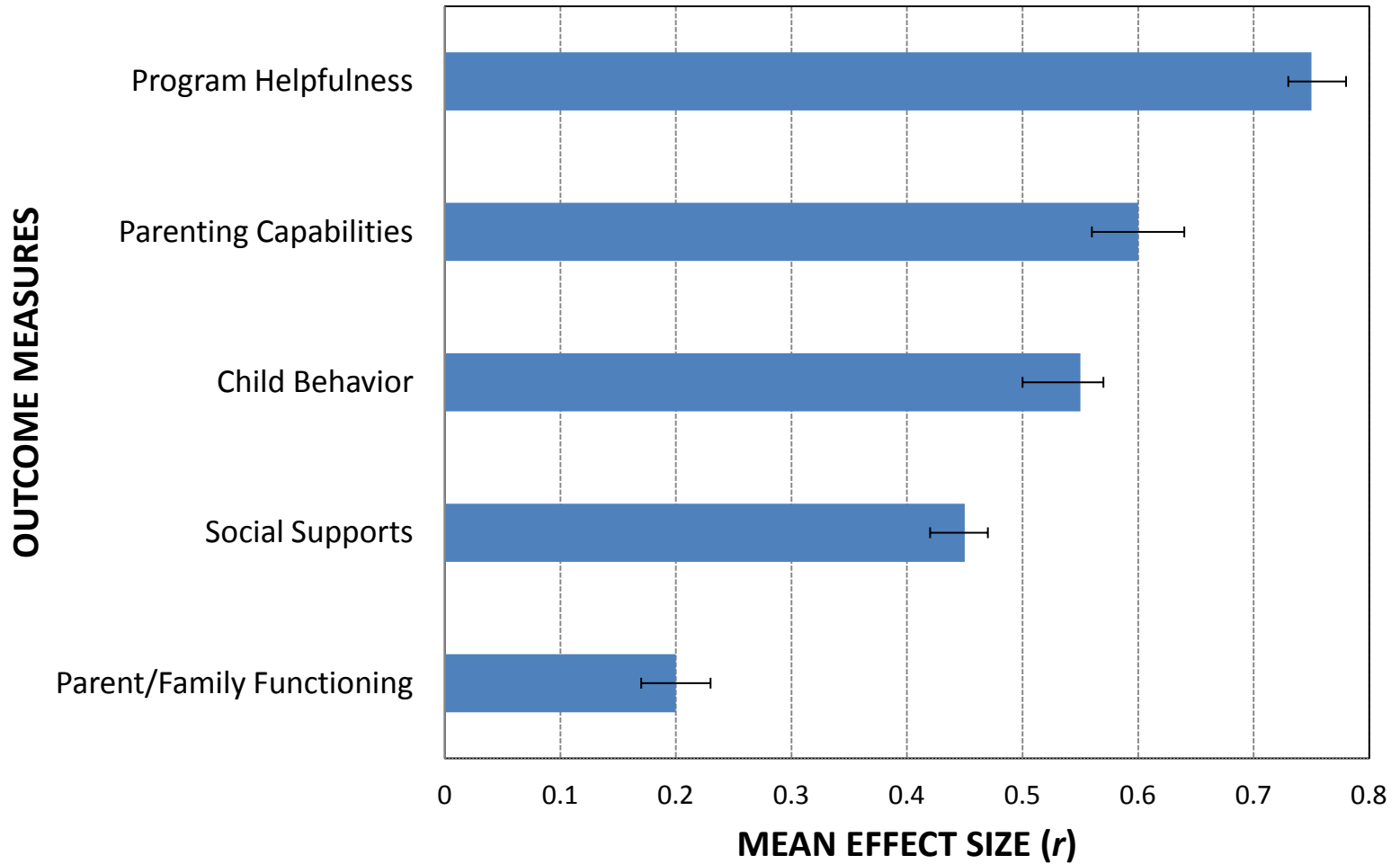
Participatory Family-Centered Practices

- Participatory practices include behavior that actively involve family members in (a) informed choice and decision making and (b) using existing strengths and abilities as well as developing new capabilities needed to obtain resources, supports, advice, etc.

- Participatory practices also include practitioner responsiveness to and flexibility in how help is provided to children and their families

Framework for Investigating the
Influences of Family-Centered Practices
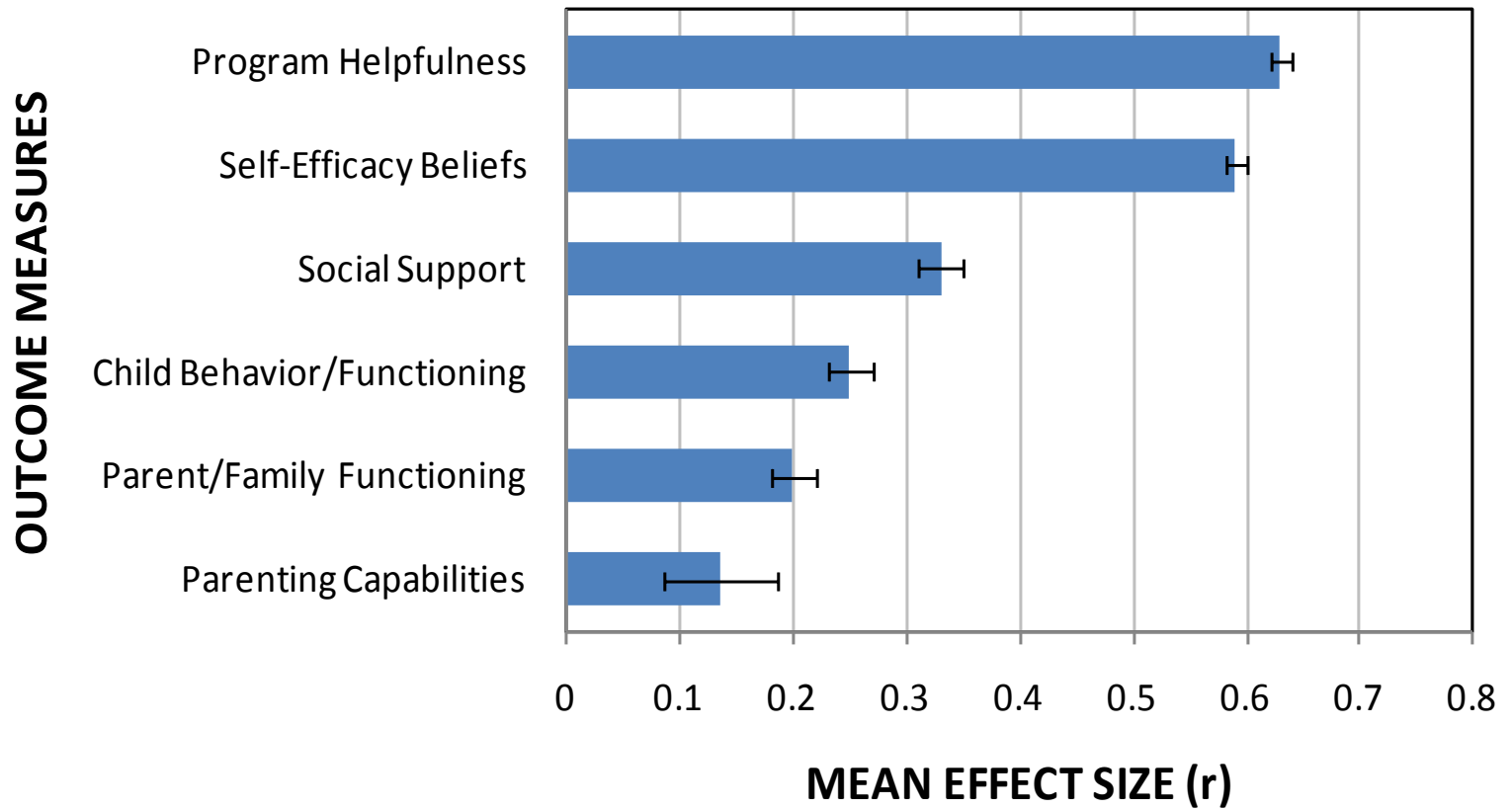
Direct Effects of Family-Centered Help-giving Practices on
Parent, Family, and Child Behavior and Functioning

Direct Effects of Self-Efficacy Beliefs on
Parent, Family, and Child Behavior and Functioning

Relationships Between Family-Centered Relational and Participatory Practices and Parenting Capabilities (Confidence, Competence & Enjoyment)

- The influences of family-centered practices on parenting capabilities is indirect mediated by parents' self-efficacy beliefs

- Participatory family-centered practices are more important than relational practices in terms of changing or improving parenting capabilities

- Parenting self-efficacy beliefs are important sources of whether parents' view interactions with their children as likely to make positive benefits

- Family-centered practices checklists provide practitioners and coaches (supervisors, peers, etc.) a way of evaluating actual practices against evidence-based helpgiving practices indicators [a]

- Optimal positive benefits from family-centered practices are likely to be realized in terms of parent capacity building when participatory practices are used to support and strengthen parenting competence and confidence

---

[a] Wilson, L.L., & Dunst, C.J. (2005). Checklist for assessing adherence to family-centered practices *CASEtools*, 1(1). Available at www.fippcase.org

Influences of Family-Centered Practices on Parenting Capacity
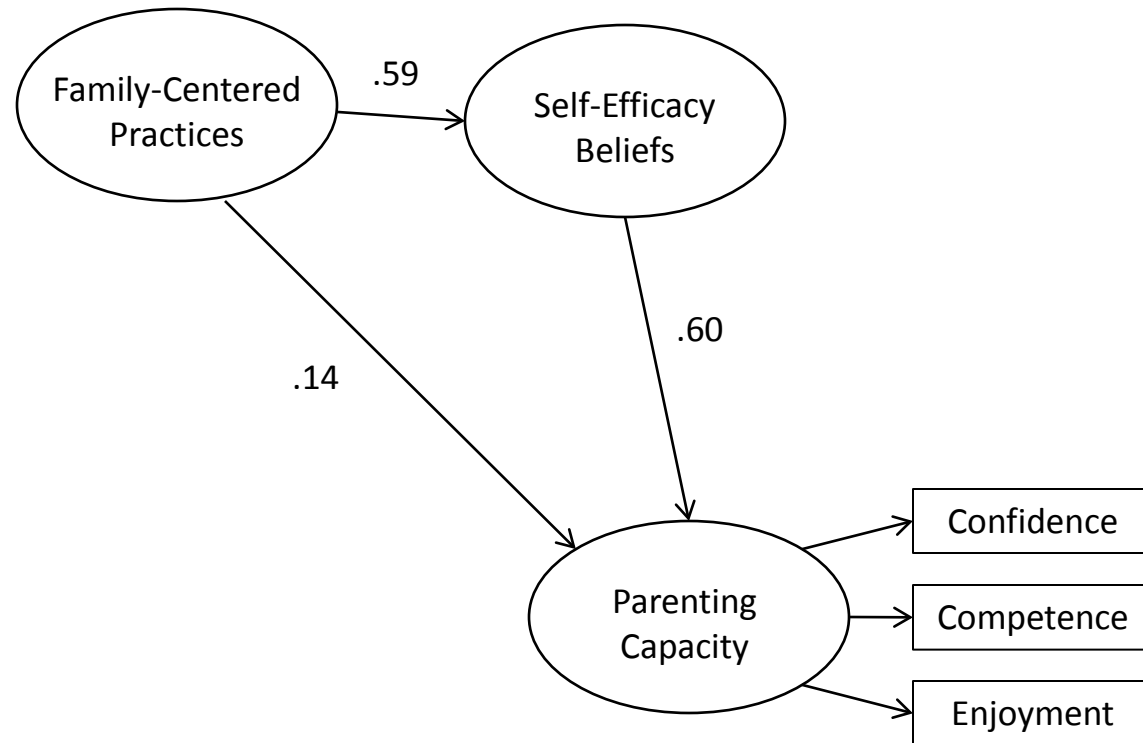
Family-Centered Practices Checklist

	The following kinds of family-centered practices should be used as part of parent-practitioner interactions:
Interpersonal Skills	Communicate clear and complete information in a manner that matches the family's style and level of understanding.
	Interact with the family in a warm, caring, and empathetic manner.
	Treat the family with dignity and respect and without judgment.
Asset-Based Attitudes	Communicate to and about the family in a positive way.
	Honor and respect the family's personal and cultural beliefs and values.
	Focus on individual and family strengths and values.
	Acknowledge the family's ability to achieve desired outcomes.
Family Choice and Action	Work in partnership with parents/family members to identify and address family-identified desires.
	Encourage and assist the family to make decisions about and evaluate the resources best suited for achieving desired outcomes.
	Seek and promote ongoing parent/family input and active participation regarding desired outcomes.
	Encourage and assist the family to use existing strengths and assets as a way of achieving desired outcomes.
	Provide family participatory opportunities to learn and develop new skills.
Practitioner Responsiveness	Assist the family to consider solutions for desired outcomes that include a broad range of family and community supports and resources.
	Support and respect family member's decisions.
	Work with the family in a flexible and individualized manner.
	Offer help that is responsive to and matches the family's interests and priorities.
	Assist the family to take a positive, planful approach to achieving desired outcomes.

Conclusions

- Of all the approaches to identifying evidence-based practices, practice-based research syntheses are more useful for identifying the characteristics of practices that matter most in terms of influencing the outcomes of early childhood intervention and family support

- Several common themes that emerge from almost every practice based research synthesis is the importance of active learner participation in interest-based learning opportunities

- Some type of performance checklist or set of standards that include evidence-based indicators facilitates the adoption and use of research-informed practices

- These kinds of checklists or performance standards can be especially useful as tools for assessing whether a practitioner's intervention practices mirror the characteristics of evidence-based practices