Framework for Conceptualizing the Relationship Between Evidence-Based Implementation and Intervention Practices

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Purpose

- Describe a framework for differentiating between implementation and intervention practices

- Describe the manner in which the use of evidence-based implementation practices can increase the likelihood of practitioner and parent adoption and use of evidence-based intervention practices

- Illustrate how variations in implementation fidelity can be used to predict practitioner and parent adoption and use of evidence-based intervention practices

Implementation Science

Implementation science is concerned with an understanding of the processes and procedures that promote or impede the transfer and adoption and use of evidence-based intervention practices in real-world contexts (Kelly & Perkins, in press).

Implementation research is "the scientific study of methods to promote the systematic uptake of clinical [intervention] research findings and other evidence-based practices into routine practice" (Eccles et al., 2009, p. 18).

Kelly, B., & Perkins, D.F., (Eds.). (in press). *Handbook of implementation science for psychology in education*. Cambridge, England: Cambridge University Press.

Eccles, M. P. et al. (2009). An implementation research agenda. *Implementation Science, 4*, 18-25.
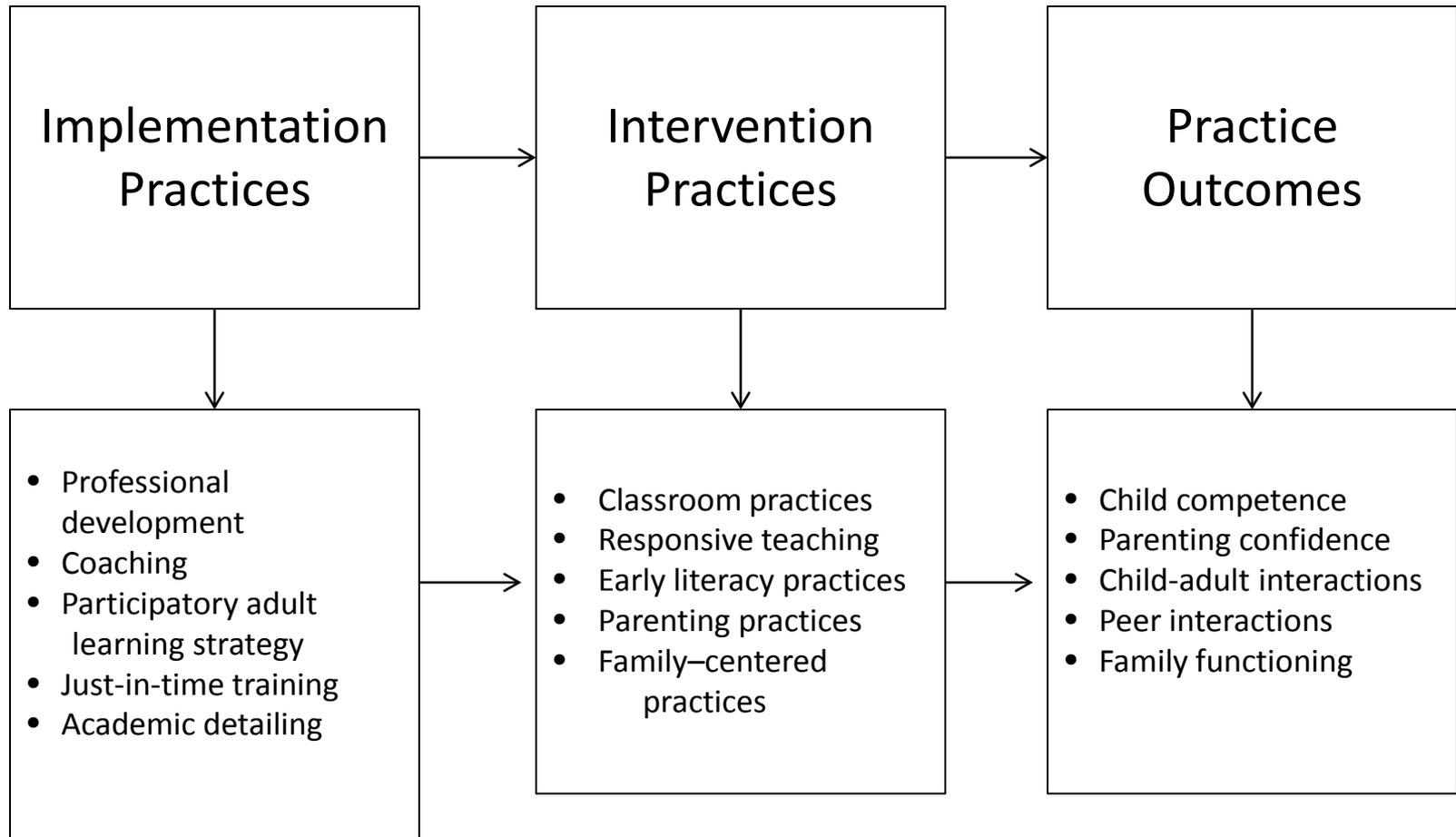
Differences Between Intervention and Implementation Practices

- ***Intervention practices*** include methods and strategies used by intervention agents (teachers, therapists, clinicians, parents, etc.) to affect changes or produce desired outcomes in a targeted population or group of recipients (e.g., infants and toddlers with disabilities).

- ***Implementation practices*** include methods and procedures used by implementation agents (trainers, coaches, instructors, supervisors, etc.) to promote interventionists' use of evidence-based intervention practices.

Relationship Between Implementation and Intervention Practices

| Implementation Practices | → | Intervention Practices | → | Practice Outcomes |

Examples of the Two Types of Practices and Outcomes

Implementation Practices	→	Intervention Practices	→	Practice Outcomes

- Professional development
- Coaching
- Participatory adult learning strategy
- Just-in-time training
- Academic detailing

→

- Classroom practices
- Responsive teaching
- Early literacy practices
- Parenting practices
- Family–centered practices

→

- Child competence
- Parenting confidence
- Child-adult interactions
- Peer interactions
- Family functioning

Toward a Better Understanding of Evidence-Based Implementation and Intervention Practice Characteristics[a]
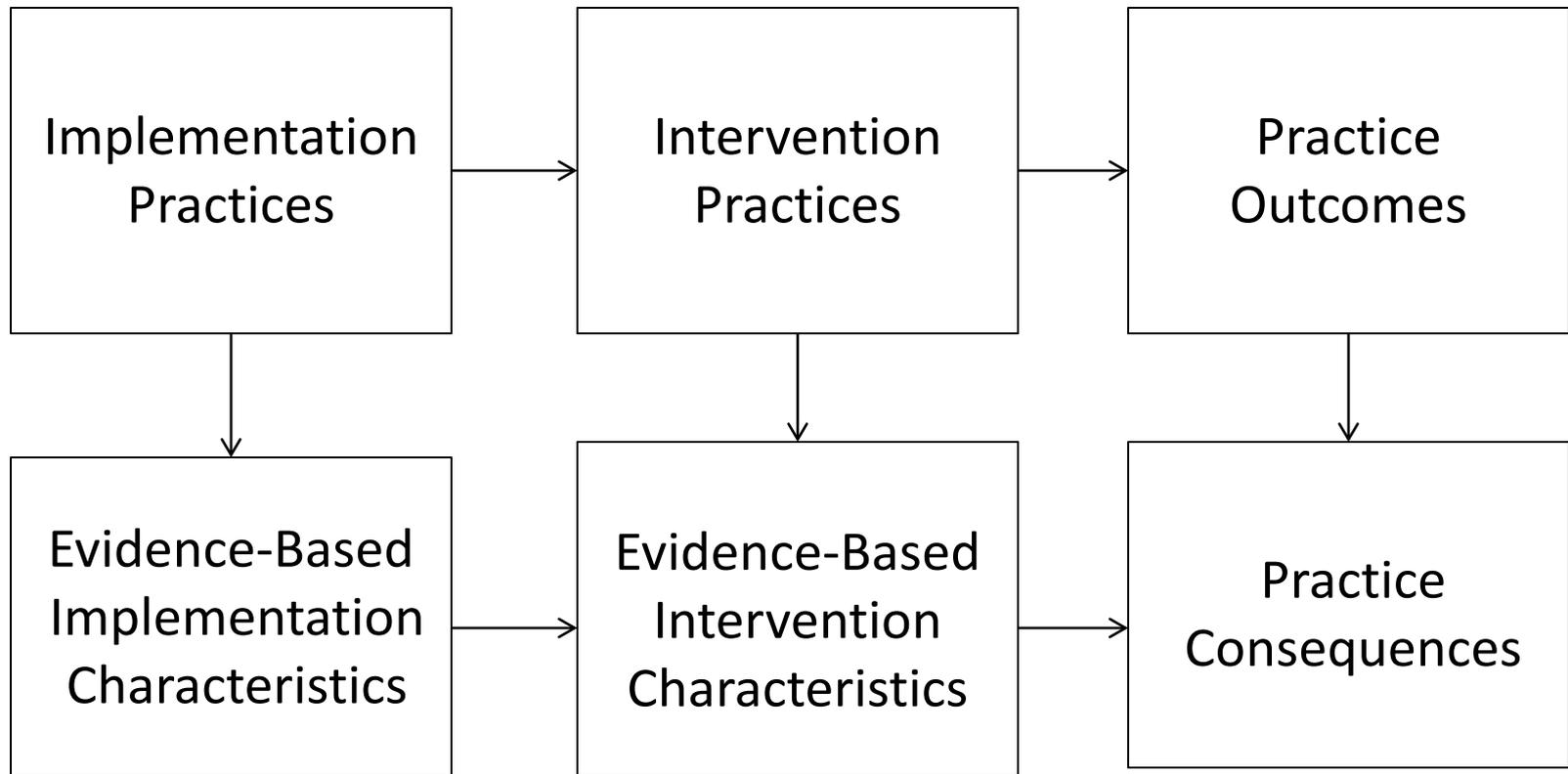
Examples of Evidence-Based Implementation
and Evidence-Based Intervention Practices

Evidence-Based Implementation Practices

- Participatory adult learning strategy (PALS)
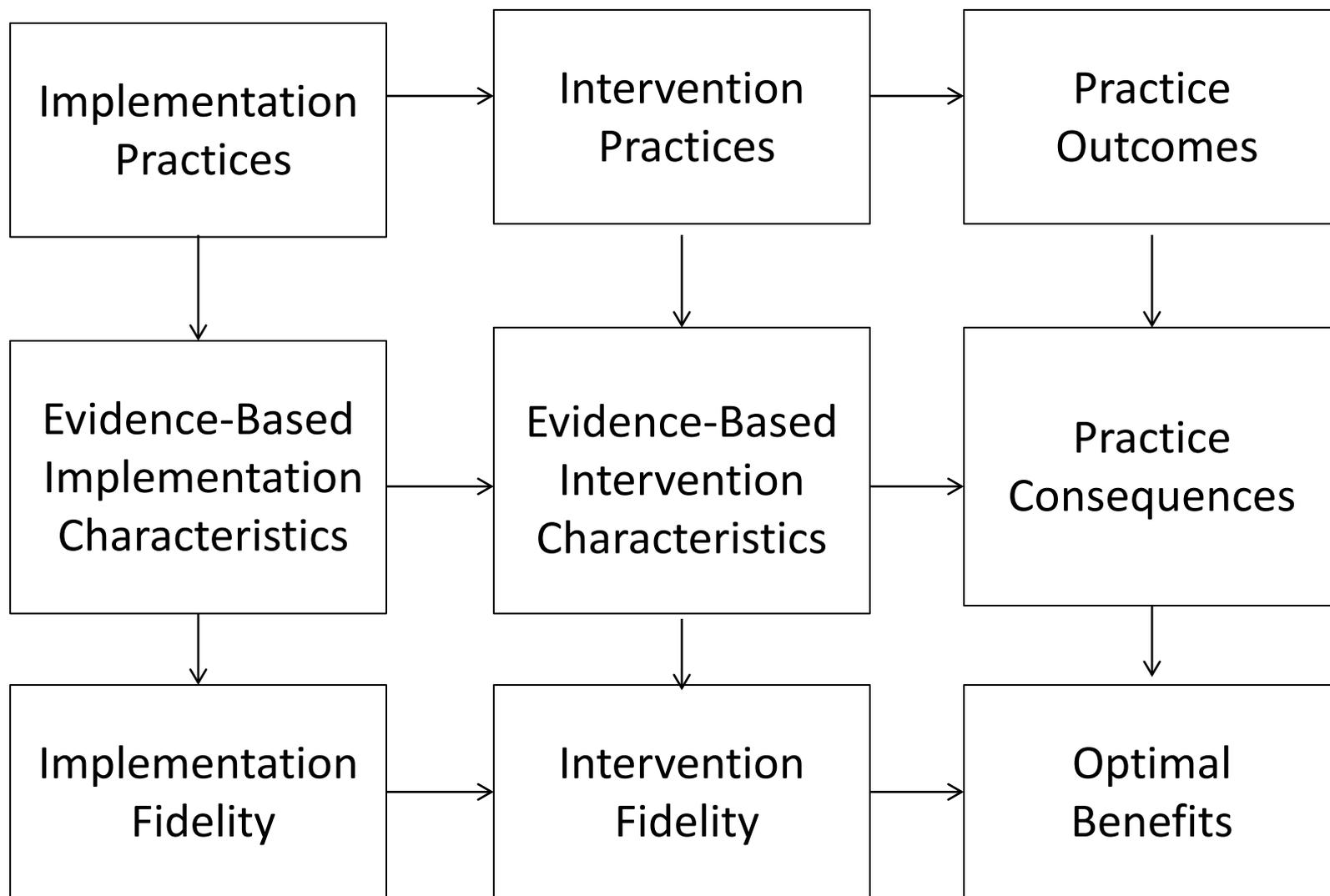- Educational outreach (academic detailing)
- Coaching

Evidence-Based Intervention Practices

- Response-contingent child learning
- Naturalistic teaching methods (incidental teaching, responsive teaching, milieu teaching, etc.)
- Parent-mediated joint book reading
- Caregiver sensitivity and child attachment

Fidelity of Evidence-Based Implementation and Evidence-Based Intervention Practices

- ***Implementation fidelity*** refers to the degree to which coaching, inservice training, and other kinds of professional development are conducted and implemented in ways that promote adoption and use of evidence-based intervention practices.

- ***Intervention fidelity*** refers to the degree to which evidence-based practices are adopted and used in an intended manner by practitioners or parents and have expected or hypothesized effects.

Expanded Framework of Implementation and Intervention Practices

Implementation Practices	→	Intervention Practices	→	Practice Outcomes
↓		↓		↓
Evidence-Based Implementation Characteristics	→	Evidence-Based Intervention Characteristics	→	Practice Consequences
↓		↓		↓
Implementation Fidelity	→	Intervention Fidelity	→	Optimal Benefits

Hypothesized Relationships Among the Fidelity Measures

- *Variations in implementation fidelity should be related to variations in intervention fidelity*. Tests of the hypothesis include evaluation of the relative importance of the *quantity* and *quality* of implementation fidelity, and the interactions between the types and elements of fidelity.

- *Variations in intervention fidelity should be related to variations in practice outcomes.* Tests of the hypothesis include evaluation of the relative importance of the *quantity* and *quality* of intervention fidelity, and the interactions between the types and elements of fidelity.

- *Variations in intervention fidelity should mediate the relationship between implementation fidelity and practice outcomes.* Tests of the hypothesis include evaluation (to the extent possible) of the complex relationships between the *quantity* and *quality* of implementation and intervention fidelity and the outcomes of evidence-based practices.

Example of an Evidence-Based Implementation Practice

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, practices, skills, attitudes, and self-efficacy beliefs

- The influence of the adult learning methods on the learner outcomes was estimated by weighted Cohen's d effect sizes for the differences on the post test scores 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.

Characteristics Used to Code and Evaluate the Implementation Studies[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.

Most Effective Adult Learning Method Practices

Characteristic	Practice	Mean Effect Size
Introduction	Out-of-class learner activities/self-instruction	0.64
	Classroom/workshop presentations	0.63
	Pre-class learner exercises	0.54
Illustration	Trainer role playing/simulations	0.55
	Learner informed input	0.53
Practicing	Real-life learner application	0.94
	Real-life learner application/role playing	0.86
Evaluation	Self assessment of 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 Different Combinations of the Most Effective Adult Learning Method Practices

MEAN EFFECT SIZE

NUMBER OF ADULT LEARNING METHOD PRACTICES
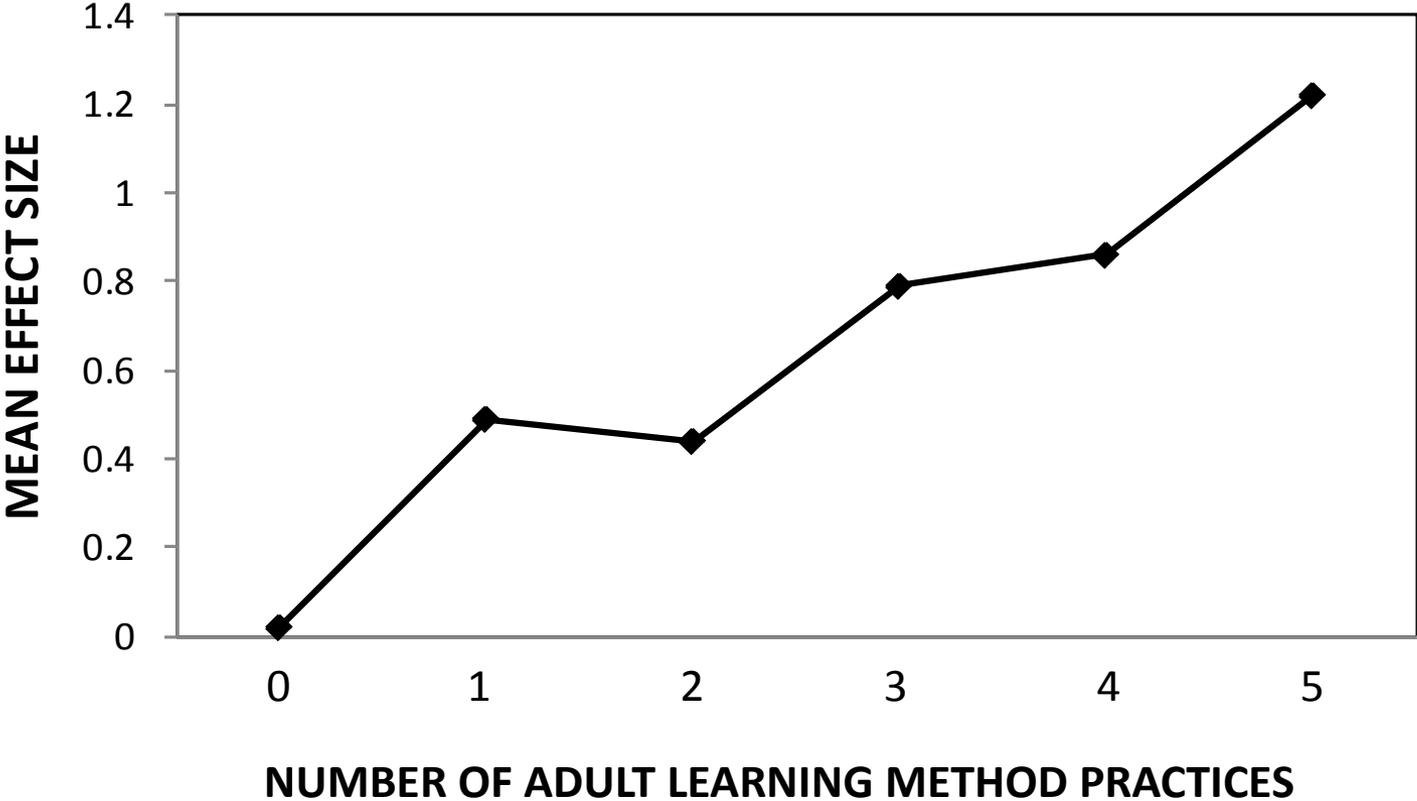
Other Important Findings from the Meta-Analysis

- Training provided to a small number of learners (< 10) was much more effective than training provided to a larger number of learners.

- Training provided on multiple occasions over a period of time (> 10 weeks) for more than 10 hours was more effective than one-time training.

- Training provided in the context of real-life application in learners' work settings was more effective than "outside" (noncontextual) learning opportunities.

Dunst, C. J., & Trivette, C. M. (2011). Disaggregating adult learning practices to identify what works best in explaining learner outcomes. In C. Prachalias (Ed.), *Proceedings of the Seventh International Conference on Education (Vol. 1) (pp. 55-61). Athens, Greece: National and Kapodistrian University of Athens.*

Dunst, C. J., & Trivette, C. M. (2012). Moderators of the effectiveness of adult learning method practices. *Journal of Social Sciences, 8, 143-148. doi:10.3844/jssp.2012.143.148*

From Meta-Analysis to Practice

Findings from the adult learning method meta-analysis as well as other research and practice have been used to develop an implementation practice used to promote practitioner and parent adoption of different kinds of early childhood intervention practices. These include, but are not limited to:

- Family-systems intervention practices[a]
- Early childhood classroom practices[b]
- Early childhood communication interventions[c]
- Parent-mediated natural environment practices [d]

[a] Dunst, C. J., Trivette, C. M., & Deal, A. G. (2011). Effects of in-service training on early intervention practitioners' use of family systems intervention practices in the USA. *Professional Development in Education, 37, 181-196.*

[b] Trivette, C. M., Raab, M., & Dunst, C. J. (in press). An evidence-based approach to professional development in Head Start classrooms. *NHSA Dialog: A Research-to-Practice Journal for the Early Childhood Field.*

[c] Raab, M., Dunst, C. J., & Trivette, C. M. (2010). Adult learning process for promoting caregiver adoption of everyday child language learning practices: Revised and updated. *Practically Speaking, 2(1), 1-8.*

[d] Swanson, J., Raab, M., & Dunst, C. J. (2011). Strengthening family capacity to provide young children everyday natural learning opportunities. *Journal of Early Childhood Research, 9, 66-80.*

Conclusions

- Equal attention to evidence-based implementation practices and evidence-based intervention practices ought to increase the likelihood of the adoption and use of early childhood interventions that have optimal child, parent, and practitioner benefits

- Research on implementation practices in early childhood intervention has reached the forefront in terms of a better understanding of the effectiveness of the characteristics of different kinds of professional development

- Meta-analyses and research syntheses of implementation research[a] can help inform the ways in which professional development, preservice and inservice training, coaching and mentoring, and other types of implementation practices can be used to promote adoption and use of evidence-based intervention practices

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[a] Dunst, C. J., & Trivette, C. M. (in press). Meta-analysis of implementation practice research. In B. Kelly & D. F. Perkins (Eds.), *Handbook of implementation science for psychology in education. Cambridge, UK: Cambridge University Press.*

"Framework for Conceptualizing the Relationship Between Evidence-Based Implementation and Intervention Practices"
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