Characteristics and Consequences of Evidence-Based Implementation Practices

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Introduction

No intervention practice, no matter its evidence base, is likely to be adopted and used if the implementation methods used to teach or train practitioners to use the practice are themselves effective. Therefore concern for the characteristics of implementation practices that are associated with optimal learner and practitioner outcomes should be of paramount importance as part of implementation research.

Purpose

- Describe the results from two meta-analyses of implementation studies that focused on the characteristics of adult learning teaching methods and training procedures that were used to influence learner and practitioner knowledge, skills, efficacy beliefs, and attitudes.

- Illustrate that a combination of particular kinds of practices is associated with optimal learner and practitioner outcomes.

Meta-Analyses of Implementation Research

- Research synthesis of studies of different adult learning methods. More than 30 different types of practices were used in the studies.

- Research synthesis of studies promoting parent and practitioner adoption and use of assistive technology with young children with disabilities. Twenty-seven different types of training methods were used in the studies.

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.

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 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.

Research Synthesis of Assistive Technology Studies[a]

- Research synthesis of studies promoting parent and practitioner adoption of assistive technology with young children with disabilities
- 35 experimental and quasi-experimental studies conducted in home, school and hospital settings
- 839 study participants (parents and early childhood practitioners)
- Learner outcomes included frequency, fidelity, and confidence using the assistive technology
- The influence of the training methods on the learner outcomes was estimated by Cohen's *d* effect sizes for between group or between condition comparisons

[a] Dunst, C.J., Trivette, C.M., Meter, D., & Hamby, D.W. (2010). *Influences of contrasting types of training on practitioners' and parents' use of assistive technology and adaptations with infants, toddlers and preschoolers with disabilities.* Unpublished paper.
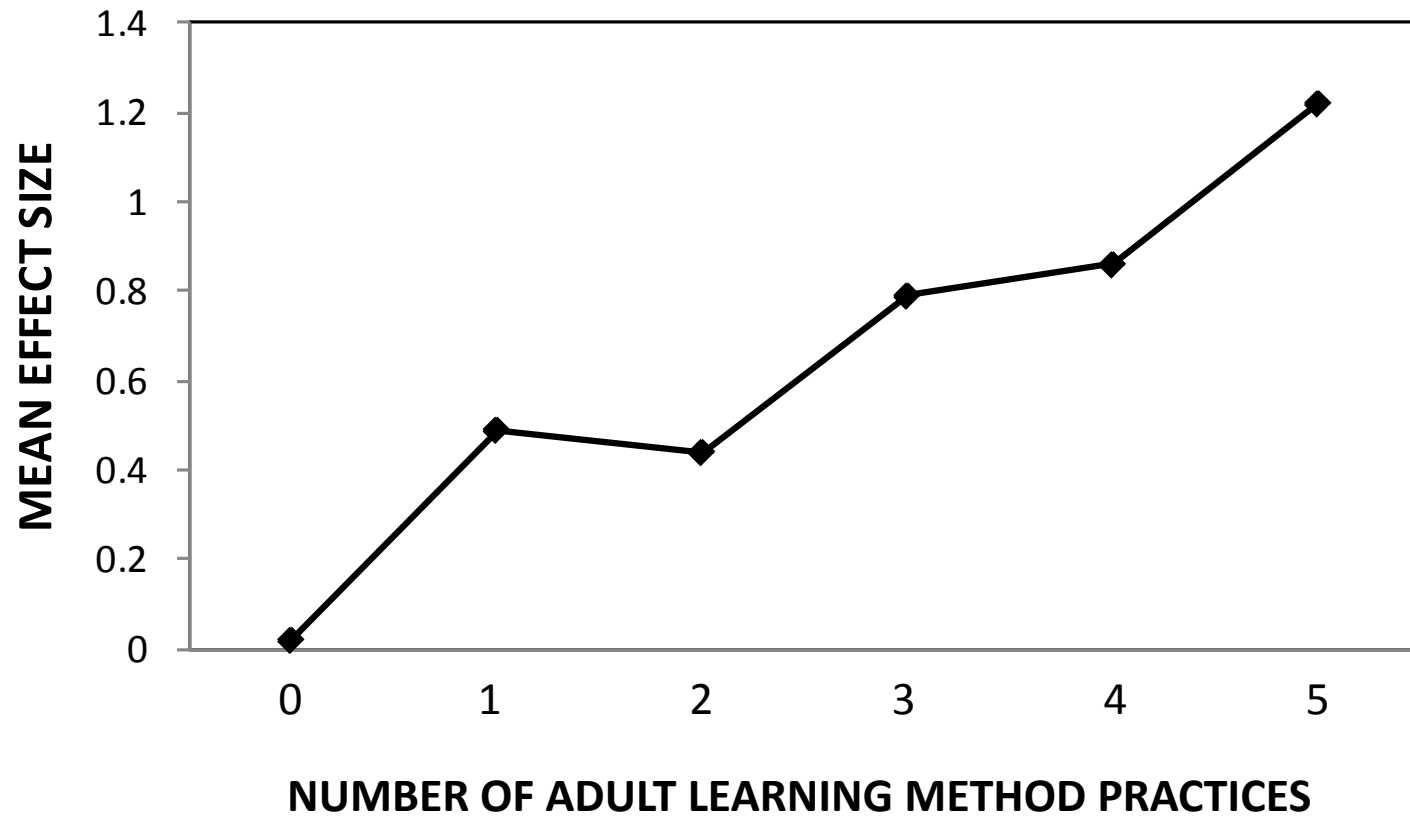
Most Effective Adult Learning Method Practices

| 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

Most Effective Assistive Technology Training Methods

Characteristic	Practice	Mean Effect Size
Introduction	Parent/practitioner needs assessment	1.48
	Classroom/workshop presentations	1.07
Illustration	Real life instructor demonstration	1.69
	Trainer role playing	1.89
	Learner informed input	1.50
Practicing	Real life parent/practitioner application	1.75
	Trainer-guided practice	1.49
Evaluation	Trainer feedback to parents/practitioners	1.50
	Trainee requested feedback	0.83
Reflection	Performance improvement discussions	0.54
	Journaling	0.63
Mastery	Standards-based assessment	2.49
	Generalization opportunities	1.89

Cumulative Effects of Different Combinations of the Most Effective Adult Learning Method Practices

Cumulative Effects of Different Combinations of the Most Effective Assistive Technology Training Methods
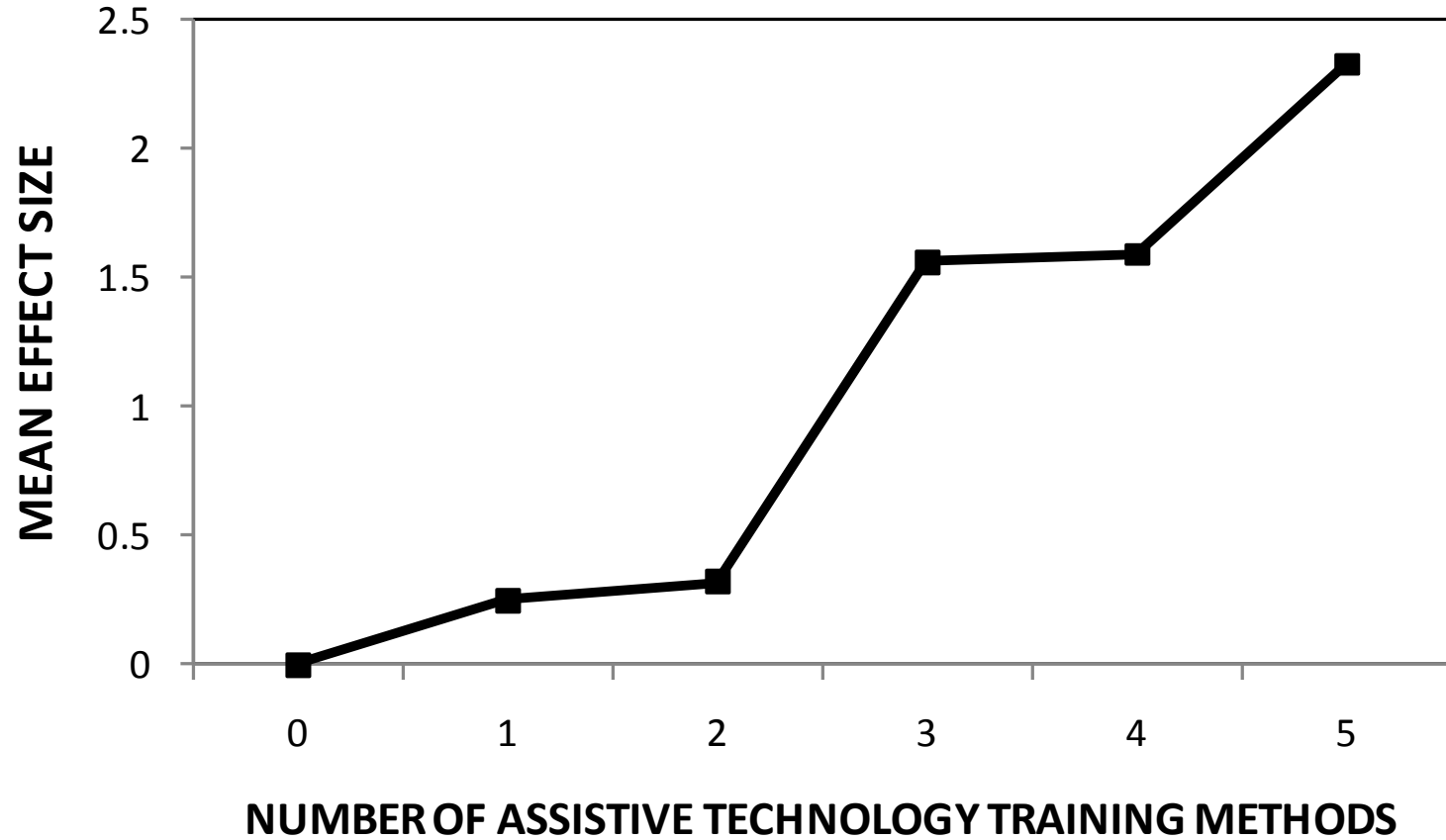
Moderator Analyses

- Optimal learner benefits were realized when 4 or 5 of the most effective practices were used with a small number of learners (< 10) for more than 20 hours distributed across time.

- The adult learning methods in both syntheses were more effective when used in real-life settings where the learners had immediate opportunities to apply the newly acquired knowledge and skills.

Conclusions

- Specific practices for each of the six characteristics (introduction, illustration, practicing, evaluating, reflection, mastery) used to code and analyze the studies were found to be associated with optimal learner outcomes.

- A combination of the most effective practices were found to be associated with the largest average effect sizes.

- Active learner participation in the learning process was found to be especially important in accounting for learner outcomes.

Implications

Results from the meta-analyses as well as other implementation research were used to develop an approach to adult learning called PALS (Participating Adult Learning Strategy)[a] as well as checklists for developing and implementing training procedures to promote early childhood practitioner adoption and use of evidence-based intervention practices. PALS and the checklists provide instructors and trainers a framework for including those implementation practices found most effective in research investigating methods used to promote adoption of evidence-based practices.

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[a] Dunst, C.J., & Trivette, C.M. (2009). Let's be PALS: An evidence-based approach to professional development. *Infants and Young Children*, 22(3), 164 – 175.