Once more, with feeling: Examining multiple facets of intervention implementation

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Welcome and Introductions
Objectives

You will leave this session, with an increased:

- understanding of different critical variables that impact implementation
- familiarity of methods and measures for assessing implementation of school-based interventions
- knowledge of how implementation is reported within the single-case research focused on implementation of function-based interventions within schools
Key Concepts

Systematic Review

Implications for Practice
Implementation

A complex, multi-dimensional **process** in which implementation variables influence intervention outcomes

(Durlak & DuPre, 2008; Dane and Schneider, 1998; Fixen et al., 2005; Forman et al., 2013; Sanetti & Kratochwill, 2014)
In your work, what helps support effective implementation?
Factors Influencing Implementation

(Durlak & DuPre, 2208; Fixen et al., 2005; Forman et al., 2013; Sanetti & Kratochwill, 2009; Sanetti & Collier-Meek, 2019)
Aspects of Implementation

- Adherence/Fidelity*
- Dosage
- Quality
- Program Differentiation
- Adaptation
- Program Reach
- Participant Responsiveness
- Control/Comparison

(Adapted from Dane and Schneider, 1998; Durlak and DuPre, 2008)
Measuring Implementation

• How
  • Direct observation
  • Self report
  • Archival record
  • Interview

• Method
  • Checklist
  • Discrete behavioral observation
  • Global rating scale

Others?
Take Aways

• Although some aspects of implementation have a robust body of research behind them (i.e., adherence, dosage), others have received limited attention (i.e., participant responsiveness, program differentiation).

• Aspects of implementation need to be studied both individually and concurrently to determine their interactions as part of the broader construct of implementation.

• Implementation may also be better conceptualized to include not only the implementation of intervention strategies, but also the degree to which educators are implementing the assessment, training, on-going coaching, and progress monitoring that is inherent to the broader assessment-informed intervention process.
FBA/BIP within a problem-solving framework has been established as an effective process for supporting individualized student needs.

(Cook et al., 2012; Filter & Horner, 2009; Ingram, et al., 2005; Newcomer & Lewis, 2004)
Determine the Behavior's Function

• Team-based approach
• Define the behavior
• Data collection
  • Direct observation
  • Interview (Parent, Student, Teacher)
  • Behavior rating scales
  • Archival records, permanent products
• Identify the function / develop hypothesis
Develop Intervention

- Match perceived function
- Develop a plan
  - Antecedent manipulation
  - Teach new skills
  - Reinforcement
- Strategies are clearly written
  - Frequency, Duration, Dosage, etc
- Plan for implementation
Plan Implementation

• Measure behavior change AND implementation
  • Adherence/fidelity
  • Dosage
  • Quality
  • Participant responsiveness

• Plan for measurement
  • Who
  • How

• Training and coaching

• Social validity
Single-Case Design
Single-Case Design

• Focus on applied, behavioral research that results in meaningful and durable outcomes.

• Underscores the importance of demonstrating experimental control by documenting an effect through:
  • Repeated measurement of a dependent variable
  • Technical precision of the independent variable
    • Including providing clear and easily interpretable descriptions of both procedures and the behavioral principles underlying an intervention

(Baer, Wolf, & Risley, 1968)
Single-Case Design

• Often used in classroom settings
• Well suited to measuring interventions that have been individualized or that take into account student-level variables
Designs

- Multiple Baseline
- Reversal/Withdrawal
- Alternating Treatment
- Changing Criterion

With all single-case designs:

- Case is the unit of intervention – can be one or multiple participants
- Case provides its own control
- Outcome is measured repeatedly within and across different conditions or levels of the IV (phases)
  - Demonstrate clear baseline(s)
  - Demonstrated change that accompanies manipulation of the IV at least three points in time
  - Examine trend, variability, immediacy of effect
- Determine whether a causal relation exists and the effect of altering a component

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What is (or can be) measured?

- Assessment
- Training
- Intervention
- Comparison conditions
- Communication
- Coaching
- Social validity
At issue...

• Most single-case studies include:
  • Detailed descriptions of the participants and study context
  • Some aspects (e.g. dosage) inherent to the research design

• School-based intervention also might include:
  • Assessment procedures and outcomes
  • Implementers training
  • Follow-up coaching provided by researchers.

Questions remain about the extent to which these additional aspects of implementation are measured in single-case research and how this information might be used to better inform practice.
Key Concepts

Systematic Review

Implications for Practice
• Examine how implementation is measured

• Function-based interventions in schools as context

• Single-case design focus due to conceptual fit

• Individualized interventions for students identified as at risk or having SpEd classification
Search Terms

• Single-case (e.g., multiple baseline design)

• Functional assessment (e.g., function-based intervention)

• School-based setting (e.g., school, classroom)

• PsycInfo, ERIC, Academic Search Premier
Inclusion Criteria

• Used single-case research design

• A functional assessment was conducted to guide the intervention

• The study was conducted in a school setting in the US

• At least half participants were K-12 (or 5-21 years old)
Literature Search

- 1999 – 2022
- Initial search – 127
- Included – 55
Article Coding

• General study characteristics (e.g., participants, int. agents)

• Implementation measurement (e.g., adherence, dosage, responsiveness)

• Measurement approach (e.g., direct observation, self-report)

• 20 articles (36%) double coded for IOA, 89.2% agreement – disagreements reviewed and discussed until 100% consensus
Participant Characteristics

• Setting – 49% SpEd, 25% GenEd, 18% mixed

• Primarily male, 5 – 19yo ($M = 8.9$); K – 9th ($M = 3.3$)

• 54.7% participants receiving SpEd services
  • 30% EBD, 18.8% ASD, 16.3% SLD; 8.8% ID; 6.3% OHI; 20% Other or NR
Target Behaviors

85% of studies targeted a behavior for reduction
• 43% disruptive behavior, 16% off-task, 7% aggression, 25% combination

69% of studies targeted a behavior for increase
• 74% academic engagement, 10% social behavior

Both almost exclusively measured using interval recording (e.g., MTS), some frequency/rates
89% of studies used multi-method approach

Interviews (91%) and observation (78%) most common

Records review (31%), rating scales (29%), and FA (25%) less common
Less than half (42%) used team-based approach

Attention and Escape maintained 91% of challenging behaviors

Tangible and Automatic reinforcement represented once each
Intervention

- Most (71%) taught replacement/appropriate behavior
- Most (67%) modified antecedent and consequence conditions
- Few were antecedent interventions (18%) or consequent interventions (13%)
Adherence / Fidelity

• Any measure of whether the intervention was delivered as intended

Direct: 75%

Additional: 47%

Campell & Anderson (2008)
Dosage

• Any measure of the amount of the original program that was delivered

Lane et al. (2009)
Quality

- Any measure of how well program components are delivered, which can encompass measures of implementation clarity and correctness, perceived effectiveness, or more qualitative variables

Direct: 9%

Additional: 36%

Restori et al. (2007)
Program Differentiation

• A measure of the extent to which the critical components of the program (e.g., theoretical framework, specific practices) can be measured as unique and distinguishable from comparison programs.

Direct: 0%

Additional: 35%

Restori et al. (2013)
Adaptation

- Any measure of the changes made to specified programs during actual delivery.

Direct: 0%

Additional: 33%

Stahr et al. (2006)
Program Reach

• Any measure of the rates of participation across populations of participants, and the scope of the program during delivery.

Direct: 0%

Additional: 56%

Kern et al. (2007)
Participant Responsiveness

• Any measure of the degree to which participants respond to the implementation of the program

*Direct: 100%

Additional: 47%

Lane et al. (2007)
Control / Comparison

• Any comparison of treatment and control groups in an effort to measure program effects.

Direct: 0%

Additional: 33%

Todd et al. (1999)
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Implications for Practice

- Applications of single-case design (e.g., progress monitoring) offer opportunity to evaluate implementation beyond adherence.
- Measure aspects of implementation that may be most relevant to your work.
- Identify and implement supports to foster comprehensive implementation.
Thank you! Questions?

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Selected References


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