Using Implementation Science to Improve Research and Practice in K-12 Schools

Center for Behavioral Education & Research

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Evidence-based Practices

- Academic
- Social
- Emotional
- Behavioral
I'm back from training.

I got a big binder.

The training is already forgotten, but the binder will last forever.

A living monument to temporary knowledge!
Time lag and knowledge gap from research to practice

Percentage of available research evidence in practice from 1 to 17 years (Green, Ottoson, Garcia, & Hiatt, 2009; Trochim, 2010; Westfall, Mold, & Fagnan, 2007)
Implementation Science

“...scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice...to improve the quality and effectiveness of...services”

(Eccles & Mittman, 2006, p.1)
Time lag and knowledge gap from research to practice

Attending to Implementation = “Making it Happen”

Business as usual = “Letting it Happen”
Implementation Science

tailoring methodology research designs and analyses the theories, models, and frameworks measures of implementation outcomes implementation determinants and strategies
Theories, Models, Frameworks (Nilsen et al., 2015, p.3-4)
### Process models

**Specify steps (stages, phases) in the process of translating research to practice, including the implementation and use of research.**

**To describe and/or guide the process of translating research to practice**

**Examples**

- Knowledge-to-Action Model
- Iowa Model
- Ottawa Model
- Quality Implementation Framework

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**System-level assessment**
- Funding/resources
- Internal or contracted services
- Politics
- Policies

**Organization-level assessment**
- Training space and resources
- Senior leadership buy-in
- Team-level leadership
- Culture/climate

**Provider assessment**
- Education level
- Primary discipline
- Experience w/ EBPs
- Dispositional innovativeness
- Attitudes toward EBP

**Client characteristics**
- Age/gender
- Culture
- Previous treatment
- Co-occurring problems
- Mental health

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**Implementation Resource Team**
- Academic researchers
- Intervention developers
- Trainers/coaches
- Administrators
- Clinicians
- Clients/patients

**Ad hoc adaptation**
- Client-emergent issues
- Provider knowledge
- Provider skills & abilities
- Available resources
- Organization adaptation

**Outcomes**
- Fidelity
- Client/patient satisfaction
- Provider retention
- Provider satisfaction
- Initiating treatment
- Completing treatment

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**EBP**
- Training and coaching with context-driven adaptation support

**Ongoing feedback**
Theories, Models, Frameworks (Nilsen et al., 2015, p.3-4)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Goal</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determinant</td>
<td>Specify types of determinants, which act as barriers and enablers that influence implementation outcomes</td>
<td>To understand and/or explain influences on implementation outcomes</td>
<td>PARIHS, Ecological Framework, CFIR</td>
</tr>
</tbody>
</table>

**Diagram: Implementation**

- **Characteristics of the intervention**
  - Intervention source
  - Evidence strength and quality
  - Relative advantage
  - Adaptability
  - Trialability
  - Complexity
  - Design quality
  - Cost

- **Inner Setting**
  - Structural characteristics
  - Networks and communications
  - Culture
  - Implementation climate

- **Outer Setting**
  - Patient needs and resources
  - Cosmopolitanism
  - Peer pressure
  - External policies and incentives

- **Individuals involved**
  - Knowledge and beliefs about the intervention
  - Self-efficacy
  - Individual stage of change
  - Individual identification with organisation
  - Other personal attributes

- **Implementation Process**
  - Planning
  - Engaging
  - Executing
  - Reflecting and evaluating
Theories, Models, Frameworks (Nilsen et al., 2015, p.3-4)

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<tr>
<td>Classic theories</td>
<td>Theories that originate from fields external to implementation (e.g., psychology, sociology, organizational theory).</td>
<td>To provide understanding and/or explanation of aspects of implementation</td>
<td>Theory of Diffusion, social cognitive theories, social capital theories</td>
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Theories, Models, Frameworks (Nilsen et al., 2015, p.3-4)

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<tr>
<td>Implementation</td>
<td>Theories developed by implementation researchers</td>
<td>To provide understanding and/or explanation of aspects of implementation.</td>
<td>Implementation Climate, Organizational readiness, COM-B</td>
</tr>
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<td>Category</td>
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<td>Examples</td>
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<td>--------------</td>
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<tr>
<td>Evaluation</td>
<td>Specify aspects of implementation that could be evaluated to determine</td>
<td>RE-AIM, PRECEDE-</td>
<td></td>
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<tr>
<td></td>
<td>implementation success</td>
<td>PROCEED</td>
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**Diagram: PRECEDE evaluation tasks**

- **PHASE 1**: Social Assessment
- **PHASE 2**: Epidemiological assessment
- **PHASE 3**: Educational & ecological assessment
- **PHASE 4**: Administrative and policy assessment and intervention alignment
- **PHASE 5**: Implementation
- **PHASE 6**: Process evaluation
- **PHASE 7**: Impact evaluation
- **PHASE 8**: Outcome evaluation

**PRECEDE evaluation tasks:**

- Specifying measurable objectives and baselines
- Monitoring & Continuous Quality Improvement
Implementation Outcomes  (Proctor et al., 2011)

- Acceptability
- Adoption
- Appropriateness
- Costs
- Feasibility
- Fidelity
- Penetration
- Sustainability

- Efficiency
- Safety
- Effectiveness
- Equity
- Patient-centeredness
- Timeliness

- Satisfaction
- Function
- Symptomatology

*IOM Standards of Care*
<table>
<thead>
<tr>
<th>Construct</th>
<th>Performance Evaluation</th>
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<tbody>
<tr>
<td>Acceptability</td>
<td>Needs Improvement</td>
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<tr>
<td>Adoption</td>
<td>Unsatisfactory</td>
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<tr>
<td>Appropriateness</td>
<td>Outstanding</td>
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<tr>
<td>Cost</td>
<td>Commendable</td>
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<tr>
<td>Feasibility</td>
<td>Satisfactory</td>
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<tr>
<td>Fidelity*</td>
<td></td>
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<tr>
<td>Penetration</td>
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<td>Sustainability</td>
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Lewis et al. (2015)
Implementation Determinants

CFIR Subconstructs

Process

Planning
Executing
Reflecting & Evaluating

Opinion Leaders
Appointed Internal Impl. Leaders
Champions
External Change Agents

Engaging

Process
Implementation Strategies & Tailoring

Implementation strategies are the methods or techniques used to enhance the adoption, implementation, and sustainability of clinical program or practice. (Proctor et al. 2013)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Definitions</th>
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<tr>
<td>Access new funding</td>
<td>Assess new or existing sources to facilitate the implementation</td>
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<td>Alter incentive/allowance structures</td>
<td>Work to incentivize the adoption and implementation of the clinical innovation</td>
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<td>Alter patient/consumer fees</td>
<td>Create fee structures where patients/consumers pay less for preferred treatments (the clinical innovation) and more for less-preferred treatments</td>
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<td>Assess for readiness and identify barriers and facilitators</td>
<td>Assess various aspects of an organization to determine its degree of readiness to implement, barriers that may impede implementation, and strengths that can be used in the implementation effort</td>
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<td>Audit and provide feedback</td>
<td>Collect and summarize clinical performance data over a specified time period and give it to clinicians and administrators to monitor, evaluate, and modify provider behavior</td>
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<td>Build a coalition</td>
<td>Recruit and cultivate relationships with partners in the implementation effort</td>
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<td>Capture and share local knowledge</td>
<td>Capture local knowledge from implementation sites on how implementers and clinicians made something work in their setting and then share it with other sites</td>
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<td>Centralize technical assistance</td>
<td>Develop and use a centralized system to deliver technical assistance focused on implementation issues</td>
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<tr>
<td>Change accreditation or membership requirements</td>
<td>Strive to alter accreditation standards so that they require or encourage use of the clinical innovation. Work to alter membership organization requirements so that those who want to affiliate with the organization are encouraged or required to use the clinical innovation</td>
</tr>
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Implementation Research Designs

- Clinical research
- Implementation research
- Hybrid Designs

Hybrid type I
Test clinical intervention while gathering information on implementation

Hybrid type II
Test clinical intervention while studying implementation strategy

Hybrid type III
Test implementation strategy while gathering information on clinical intervention
Summary

• Implementation science has developed quite a robust literature since 2006

• Great deal of the research and approaches are applicable to education research, but are not being utilized widely.

• May be able to increase public health benefits of educational interventions by attending to implementation science research.