Overcoming Barriers to Effective Implementation of Prevention Programs in Schools for Bullying and Other Externalizing Behaviors

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Acknowledgments

- **NIDA** P30DA027828 (Brown) Center for Prevention Implementation Methodology for Drug Abuse and HIV Sex Risk Behavior

- **NIDA** R01DA030452-01 (Poduska) Prevention Services for Early Drug Abuse Risk: Teachers Implement, Sustain, Adapt

- **SAMHSA**
  - Prevention Practices in Schools (PPS)
  - GLS Suicide Prevention
  - Strategic Prevention Framework (SPF-SIG)
  - Drug Free Communities
Four Stages Implementation (IOM 2009, Aarons et al., 2011)

- Dissemination and Implementation Studies
- Adoption / Preparation
- Exploration
- Implementation
- Sustainment

- Generalizable
- Local Evaluation

Translation pipeline

Real World Relevance

Does a Program Work?

Could a Program Work?
1. Implementing Prevention in Schools

- Key Challenges
  1. Making prevention an integral part of the school mission: Sustainability from the Beginning
  2. Delivering programs that address multiple prevention targets
  3. Building and Maintaining a Fidelity Monitoring System
     - Semi-Automated Fidelity Monitoring Using Computational Longuistics

- Two Illustrations
  - Good Behavior Game (GBG)
  - Familias Unidas
Five Dimensions Involved in Successful Implementation to Impact Communities: RE-AIM*

Reach: Proportion of population exposed
Effectiveness: Does program work on outcomes?
Adoption: Do organizations take this up?
Implementation: Is program delivered with fidelity?
Maintenance: Is program sustained over time?

Research one or all of these, but all must come together for successful implementation

\[ \text{Effect} = R \times E \times A \times I \times M \]

1. Making prevention an integral part of the school mission: Sustainability from the Beginning

• “Partnerships are the foundation on which public health is built” Kellam, 2012 Adm MH Policy

School District, Community Organizations, Researchers, Policy Makers

1. Analyze which agencies’ and community organizations’ support is required.
2. Determine the order of engaging with each leader.
3. When trust has been established with each leader suggest bringing together the needed partners around the determined mutual self-interests in a mutually agreed upon site.

... 

9. The intervention program leader’s role is that of technical/scientific staff leader with the Community Board sitting as overseer and adviser to insure community values and service agency guidelines are protected.
## Prevention Programs that Benefit Minorities

### Impact of Two Interventions Across Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Target</th>
<th>Drug Use or Dep/Abuse</th>
<th>HIV Risk Behaviors Condom Use</th>
<th>Drugs with Unprot Sex</th>
<th>Depressive Symptoms</th>
<th>Suicide Attempts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Familias Unidas</strong></td>
<td>Hispanic Adolescents</td>
<td>40% Less Drug Use</td>
<td>60% More</td>
<td>64% Less</td>
<td>Moderated by Poor Family Communication</td>
<td>------</td>
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<tr>
<td><strong>Good Behavior Game</strong></td>
<td>1st Graders in Urban Schools (80% African American) Through Age 19-21</td>
<td>63% Less Abuse/Dependence Disorders for Males</td>
<td>10 Times More Likely for High Risk Youth</td>
<td>76% Less</td>
<td>NS</td>
<td>70% Less</td>
</tr>
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</table>

Mediation of Good Behavior Game on Age 19-21 Drug Abuse/Dep

-1.6

Fights

-5.8

Offtask

-2.5

Aggr/Disr

-0.7

Teacher

1.5

Drug Dx

0.1

1.2

0.03
Evaluation Guided by How a Program Should Work

- Community Context
- Intervention Agency
- Intervention Agent
- Participation
- Fidelity
- Target
- Distal Outcome
- Proximal Outcome
Schools Don’t Have Resources to Develop or Maintain Fidelity Monitoring and Feedback Systems
Fidelity in
Familias Unidas

• Familias Unidas is a parent training intervention for middle school Hispanic youth, delivered in parent groups in schools and family visits at home.

• The current stage is an effectiveness study delivered by school counselors with a research team providing monitoring and feedback.

• Full scale implementation requires a cost effective/reliable/valid fidelity assessment system.

• Joining: Facilitator engages each member in the session by communicating acceptance, respect, and trust.
Familas Unidas Intervention

Human Ratings (video-level)

30 min videos

Fidelity Coding

Fidelity Ratings are used for monitoring and supervision of counselors and training of counselors.
Computational Logistics Machine Rating of Joining

Familias Unidas Intervention

Fidelity trained Human Rater
(weeks to process per tape)

Machine Rater
(minutes to process per tape)

Phonetic Analysis

Speech Recognition

Syntactic Recognition

Conversational Modeling

Validation:
Testing Set of audiotapes

Fidelity Ratings

8% audiotapes

100% audiotapes
<table>
<thead>
<tr>
<th>Linguistic structures</th>
<th>Statements</th>
<th>“I like sports” (Subject + Verb + Complement)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Yes/No Questions</td>
<td>“Do you like sports?” (Aux + Subject + Verb)</td>
</tr>
<tr>
<td></td>
<td>Open-Ended Questions</td>
<td>“What do you like about sports?” (Wh + Aux + Subject ...)</td>
</tr>
</tbody>
</table>
DECISION TREE FOR MACHINE RATING
Of Open-Ended Questions: Joining
Reliability

• Utterance Level Human – Machine Kappa = 0.83
• Total Joining Rating Human – Machine Corr = 0.84

Semi-Automated Monitoring and Feedback System

Step 3
- Fidelity Ratings
- Utterance Level
- Family Attendance
- Family Satisfaction
- Stage Matrix

Step 4
- Quality Monitoring Classifier
- Good Fidelity
- Poor Fidelity
- Uncertain Fidelity

Supervisor response
Summary

1. **Making prevention an integral part of the school mission:**
   Prevention needs to further school’s primary mission
   Trust, mutual self interest need to be established before research agenda

2. **Delivering programs that address multiple prevention targets**
   Prioritize programs that can be integrated into schools and have outcomes across multiple dimensions

3. **Building and Maintaining a cost-effective Fidelity Monitoring System**
   Monitoring and feedback of a complex behavioral intervention essential
   “Normative’ In contrast with “ameliorative” or “reparative” systems,
   Schools and other “normative” service delivery systems that serve as homes for prevention cannot maintain such monitoring systems on their own
   Proof of concept that computational linguistics and signal processing could be used to automate much of the work.
References


