

# A Low-cost Model for Improving Implementation Quality:

## A Pilot Efficacy Trial

Brian K. Bumbarger

The EPISCenter, Prevention Research Center, Penn State University



### Introduction

#### Implementation Quality and Public Health Impact

- Though high-quality implementation has been shown to be possible in controlled studies, it appears to be more difficult to achieve in natural settings.
- As evidence-based programs go to scale, maintaining sufficient implementation quality becomes a barrier to impacting public health outcomes.
- The relationship between implementation quality and positive outcomes has been clearly established in the research literature.
- In natural conditions, most adaptation is reactive and represents program drift, likely negatively impacting program effectiveness
- In addition to its relationship to outcomes, in non-experimental contexts fidelity is important for attributing outcomes to the intervention.

#### Improving the Implementation and Dissemination Status Quo

- The traditional paradigm of pre-implementation training appears to be insufficient for ensuring quality implementation and uniformity across implementers.
- Monitoring of implementation quality is also uncommon in natural (non-research) settings, and there is little infrastructure to promote and support ongoing quality assessment.
- The prevention support system should seek to improve overall implementation quality, AND reduce variability across implementers.

### Intervention and Study Purpose

*Purpose was to develop and test the efficacy of a low-cost, low-intensity model for providing implementation support*

- Must require little effort and investment on the part of implementers
- Must not result in significant additional cost to implement the program

#### The Intervention

- Weekly 20-minute facilitated group discussion via web-based video conference
  - Facilitated by research assistant experienced with the curriculum
  - Review last lesson, then focus on upcoming week's lesson(s)
  - Goals, key points & activities; where does the lesson fit in the logic model?
  - Suggestions for interactive teaching and problem solving
- Lesson-specific podcasts accessed individually
  - 2-3 minute audio review accompanied by 2-3 slides

### Methods

#### Design & Participants

- Implementation support intervention tested in the context of Botvin's LifeSkills Training middle school drug prevention curriculum.
- 19 classroom teachers from 6 schools in one Pennsylvania county.
- Random assignment to implementation support or "typical implementation" condition.
- Both groups jointly received the standard pre-implementation training, using certified LST trainers.
- Implemented over the course of one school year with ~3,000 students in grades 7-9 .
- Comparison teachers implemented without additional support, intervention teachers participated in weekly group discussion and accessed podcasts.

**Hypothesis: Teachers who participate in the intervention will have higher mean levels of implementation quality and fidelity, and less variability across implementers**

#### Measures

- Post-training baseline assessment measuring:
  - Demographics/personal characteristics
  - Experience (general teaching and prevention)
  - Basic knowledge of good prevention practice
  - Perceptions regarding prevalence of adolescent ATOD use
  - Motivation/support for implementing LST
  - Perceived efficacy of EBPs and LST
- Teacher self-reports completed after each lesson
  - implementation quality & fidelity
  - students' receptivity and participation
  - adaptations and barriers to implementation
- Videotaped Observations coded by nationally certified LST trainers
  - 16 items measuring fidelity/adherence, quality of delivery, and student responsiveness
  - Each videotaped observation scored by multiple coders
  - Coders blinded to condition
- Student self-report surveys to assess program impact on student outcomes

### Results

- No statistically significant baseline differences between groups

#### Teacher Self-Reports of Implementation

- Significant group differences favoring the intervention group on:
  - Completion of the lesson
  - Students' attitude toward the curriculum
  - Students' sustained interest in the program materials and activities
  - Students displaying appropriate/on-task classroom behavior
  - Students' willingness to discuss and process the lesson
- No significant differences favoring the comparison group

#### Coded Observations

Item	Intervention	Comparison	Sig.
Percent Fidelity/Adherence	76	65	.009
Teacher's Positive Attitude Toward Students	4.31	4.08	.156
Teacher's Positive Attitude Towards LST Curriculum	4.23	3.93	.066
Teacher Appears Adequately Prepared	4.08	3.73	.123
Teacher Maintains Order in the Classroom	4.51	4.11	.068
Teacher Uses Specific Positive Reinforcement	3.92	3.58	.123
Teacher Has the Class Deal With Questions Posed by Students	3.05	2.47	.007
Teacher's Delivery Style Was Interesting and Engaging	3.66	3.30	.099
Students Were Engaged and Participated in Discussion	4.08	3.52	.005
Teacher Added Supplemental Information That Was NOT in the LST Curriculum	3.56	2.80	.007
Supplemental Information Added Was NOT in Conflict With the Program's Theory	3.62	3.17	.082
Teacher Asked Open Ended Questions	3.47	3.00	.003
Teacher Used Encouragement and Positive Reinforcement to Support Students	3.38	2.92	.012
Teacher Encouraged Student Involvement and Participation	3.63	3.14	.001
Teacher Stimulated Active Discussion	3.31	2.58	.000
Teacher Primarily Used Lecture/Didactic Instruction	2.98	3.22	.120
Global Rating of Overall Delivery	3.66	3.26	.055

### Conclusions & Future Directions

- Significant effects of the intervention on teacher implementation quality
- No clear dose/response relationship of the intervention
- No main effect on student outcomes by the teacher support intervention
- Supports the hypothesis that forms of low-cost, low-intensity support may be effective in improving implementation quality in natural settings

PENN STATE

