Theory-Driven Evaluation: Conceptual Framework, Methodology, and Application

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Purposes of the Presentation

- Introduce basic concepts, conceptual framework, methodology and applications of theory-driven evaluation

- Discuss cutting edge issues and new developments

Black-Box Evaluation and Its Limitations

- Black-Box Evaluation: Assessing the relationship between an intervention outcomes

- Evaluation Question: Did an intervention affect a set of desirable outcomes?

- Focus: Methodological "rigor" in assessment

Intervention	$\longrightarrow$	Outcomes

- Method-driven evaluation: Using a research method (e.g. RCT, survey, etc.) as a basis to guide an evaluation design

Limitations of Black-Box Evaluation or Method-Driven Evaluation

- Provide little information for program improvement

- Provide little information on generalizability or transferability

Black-Box Evaluation: Comic book with anti-smoking information for youngsters

Comic Book → Changing smoking belief, attitude, and behavior
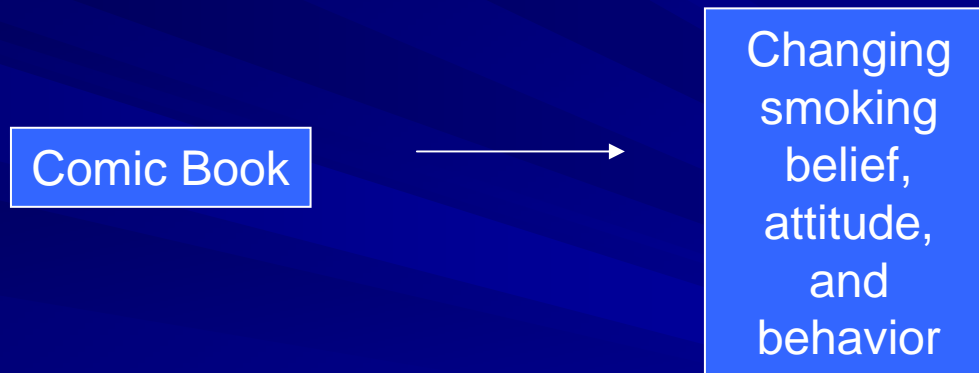
Theory-Driven Evaluation

- **Holistic assessment:** Taking contextual factors and causal mechanisms into consideration in assessment

- **Program theory**: stakeholders' implicit and explicit assumptions on what actions are required to solve a problem and why the problem will respond to the actions (Chen, 2005).

- **Evaluation strategy:** Facilitating stakeholders to clarifying contextual factors and mechanisms essential for their program success. Program theory serves as a conceptual framework for evaluating effectiveness
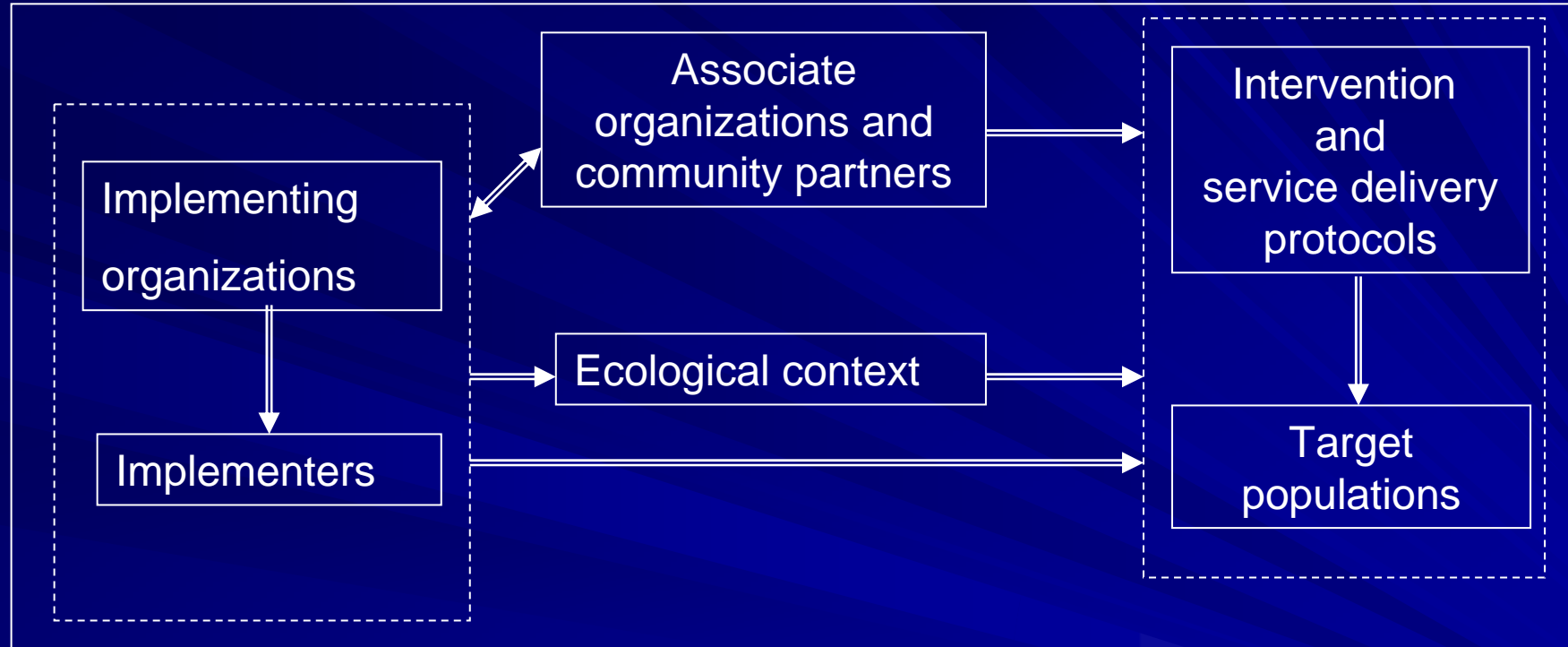
General Questions Asked by Theory-Driven Evaluation

- The conceptual framework asks two general questions:

  Why question: Why does the intervention affect

  the outcomes? (change model)

  How question: How are the contextual factors and

  program activities are organized for implementing

  the intervention and supporting the change

  process? (action model)

Applications of Theory-Driven Evaluation

1. Pinpoint the strengths or weaknesses of a causal chain
2. Assure an evaluation evaluates the right thing
3. Enhance stakeholders' consensus on program theory
4. Assess the action model for program improvement
5. Provide an opportunity for identifying unintended effects
6. New developments: Integrative validity model and bottom-up evaluation approach

1: Pinpoint the strengths or weaknesses of a causal chain

■ Provides information not only on whether a program "failed" or "succeeded", but also on how and why a program "failed" or "succeeded" in reaching its goal, to improve future effectiveness

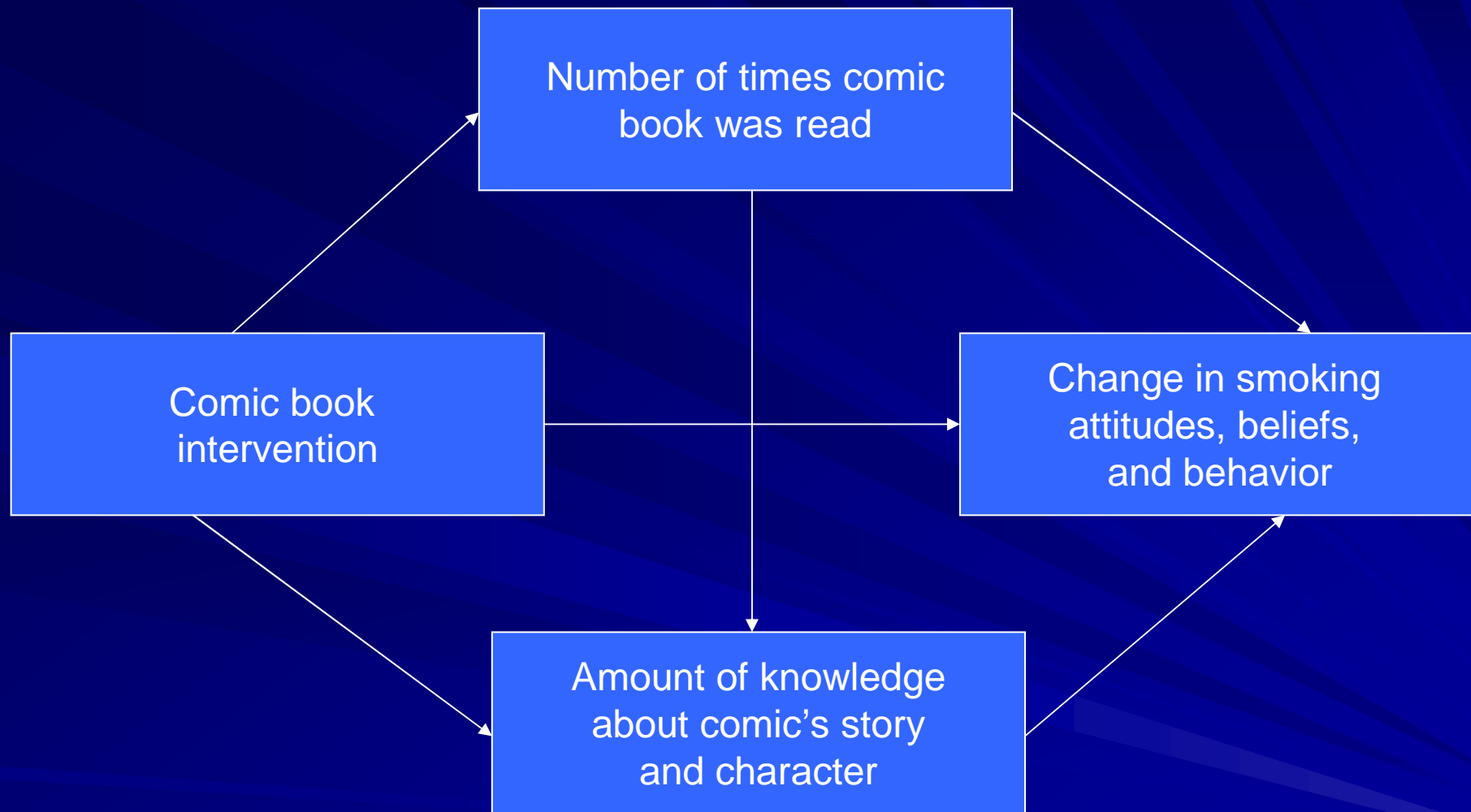# Example: Evaluating an Anti-Smoking Program for Youngsters

- Intervention: Comic book
- Story: Young heroes and heroines fight villains (Ocabbot, Muchoborro, Philip Horrid, etc.) to save the world.
- Target population: Middle school students
- Goals: Reduce pro-smoking related beliefs and attitudes; reduce smoking behavior

Black-Box Evaluation

Comic Book $\longrightarrow$ Changing smoking belief, attitude, and behavior

Change Model Underlying an Anti-Smoking Program

2. Assure an evaluation evaluates the right thing

Family Planning	$\longrightarrow$	Reduce fertility rate

2. Assure an evaluation evaluates the right thing

Family planning program

Increase young couples' knowledge, skills, and favorable values on birth control

Reduce fertility rate

?

3.Facilitate Stakeholder Groups' Consensus on Program theory

■ Decision makers and program implementers may have different versions of program theory on an same intervention

Example: Intervention for Increasing Policemen' Performance

- Police chief was unhappy about patrol officers' patrolling neighborhoods to prevent and control crimes
- The Chief initiated a new policy for checking patrol cars' odometers daily (performance measure)
- After implementing the new policy, patrol car mileage was substantially increased.
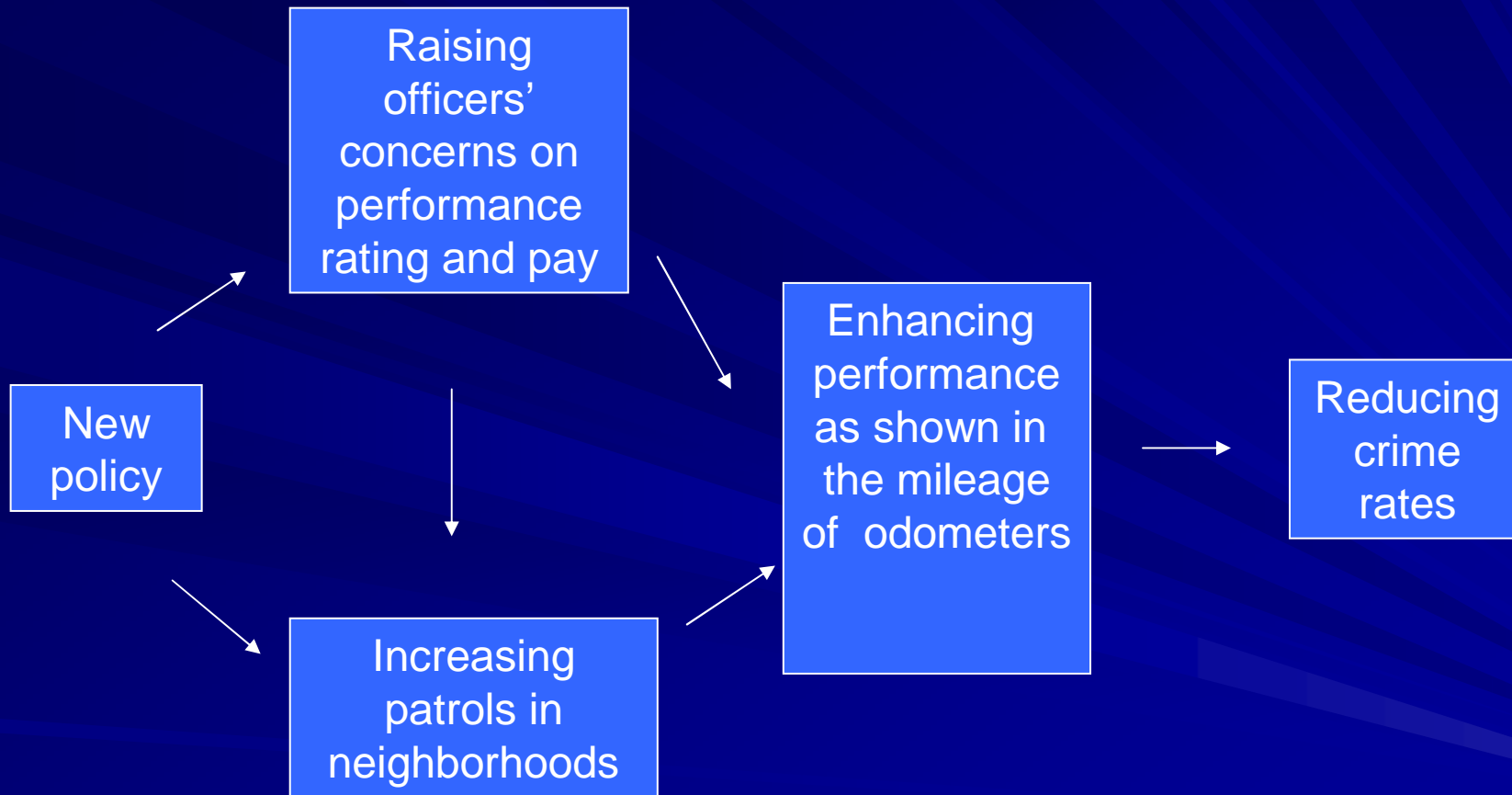- Police chief believed the policy was successful.
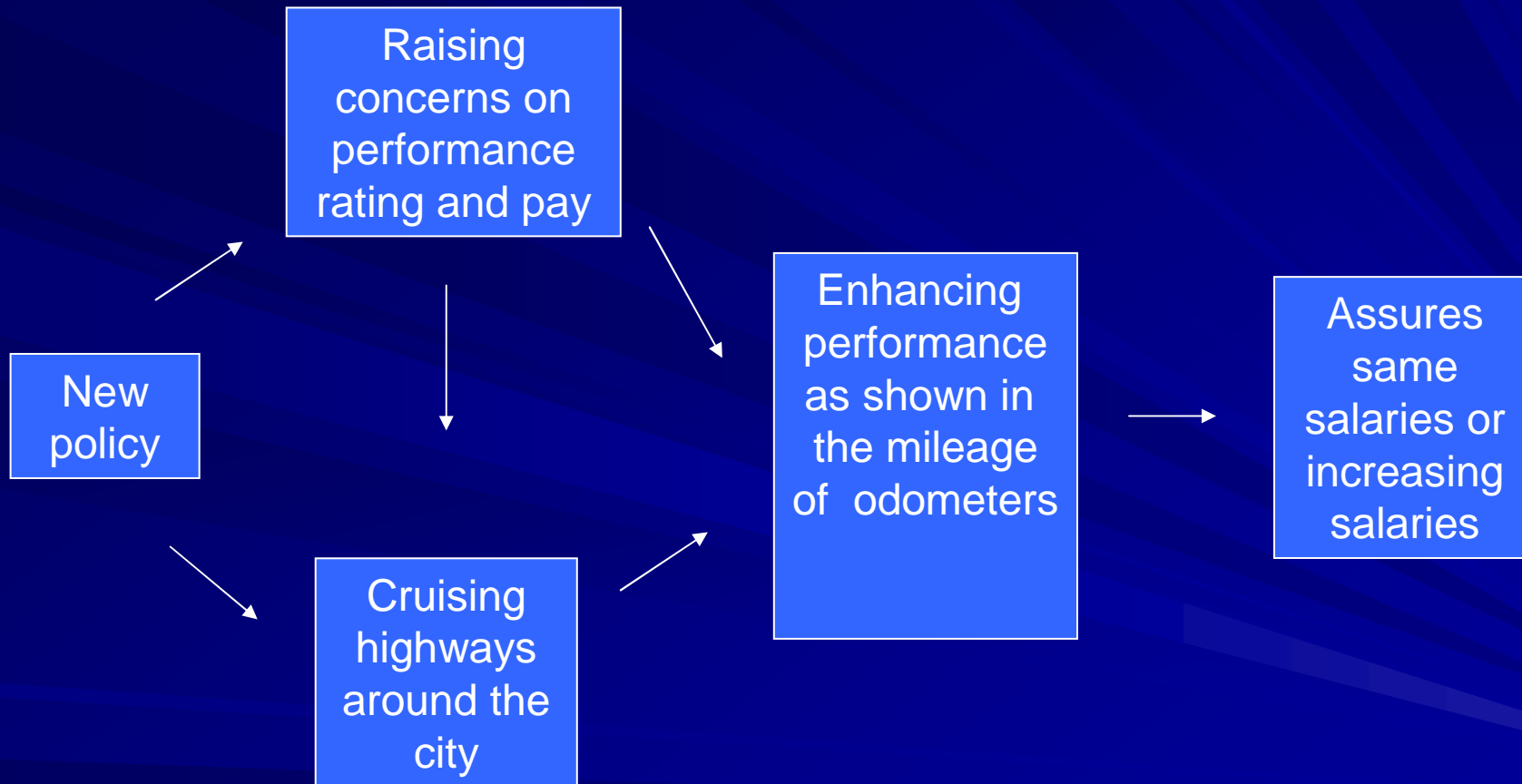
Black Box Evaluation

New policy $\longrightarrow$ Enhancing performance as shown in the mileage of odometers

Patrol Officer's Program Theory

4. Comprehensive evaluating an action model for program improvement

- **Implementing organizations**: Assess, enhance, and ensure its capacities
- **Implementers**: recruit, train, and maintain both competency and commitment
- **Intervention protocol**: Make it available, fidelity
- **Associate organizations**: Establish collaboration
- **Ecological context**: seek its support
- **Target population**: identify, recruit, screen, serve

Example: Learnfare

- The Aid to Families with Dependent Children (AFDC) provide transitional financial assistance to needed families in the United States.

- Policy makers are worrying that AFDC is creating welfare dependency for the current and next generation

- Learnfare is a public policy in which welfare benefits are reduced when children in families receiving AFDC money have poor school attendance

Action Model Underlying Learnfare

Component	Plan	Actual implementation
Target population	AFDC parents understand the letter regarding the policy and sanction	Lack of comprehension
Intervention protocols	Clear system-wide criteria of excusable absences	Criteria varied from school to school
Implementing organization	Welfare agencies	As planned

Action Model Underlying Learnfare (cont)

Component	Plan	Actual implementation
Associate organizations	Schools track absences and report to welfare agencies, timely	Schools lack capacity for tracking and reporting, timely
Implementers	Welfare workers and school staff	As planned
Ecological context	Support from decision makers and the public	As planned, but lacked understanding of scope of program

5. Addressing Issues on Transferability (External Validity)

- A crucial, but is forgotten issue

Example: Farmer Health Insurance Program in Taiwan

- Pilot study: Using a few top farmer associations to run the program. The evaluation showed the program was highly successful.

- Based upon the pilot study, a national program was initiated. What was the outcome of the national program?

Using Action Model for Assessing or Enhancing External Validity

| Program components	Research system	Transferring system
Target population		
Implementing org.		
Implementers		
Intervention and service delivery protocols		
Associated orgs./ partners		
Ecological context		

5. Provide an opportunity for identify unintended effects

- Should unintended effects be included in the evaluation of effectiveness?

- Concept of unintended effects: Negative vs. positive unintended effect

- Strategies for identify possible unintended effects:

    1). Using existing literature

    2). Assessing the implementation of the action model
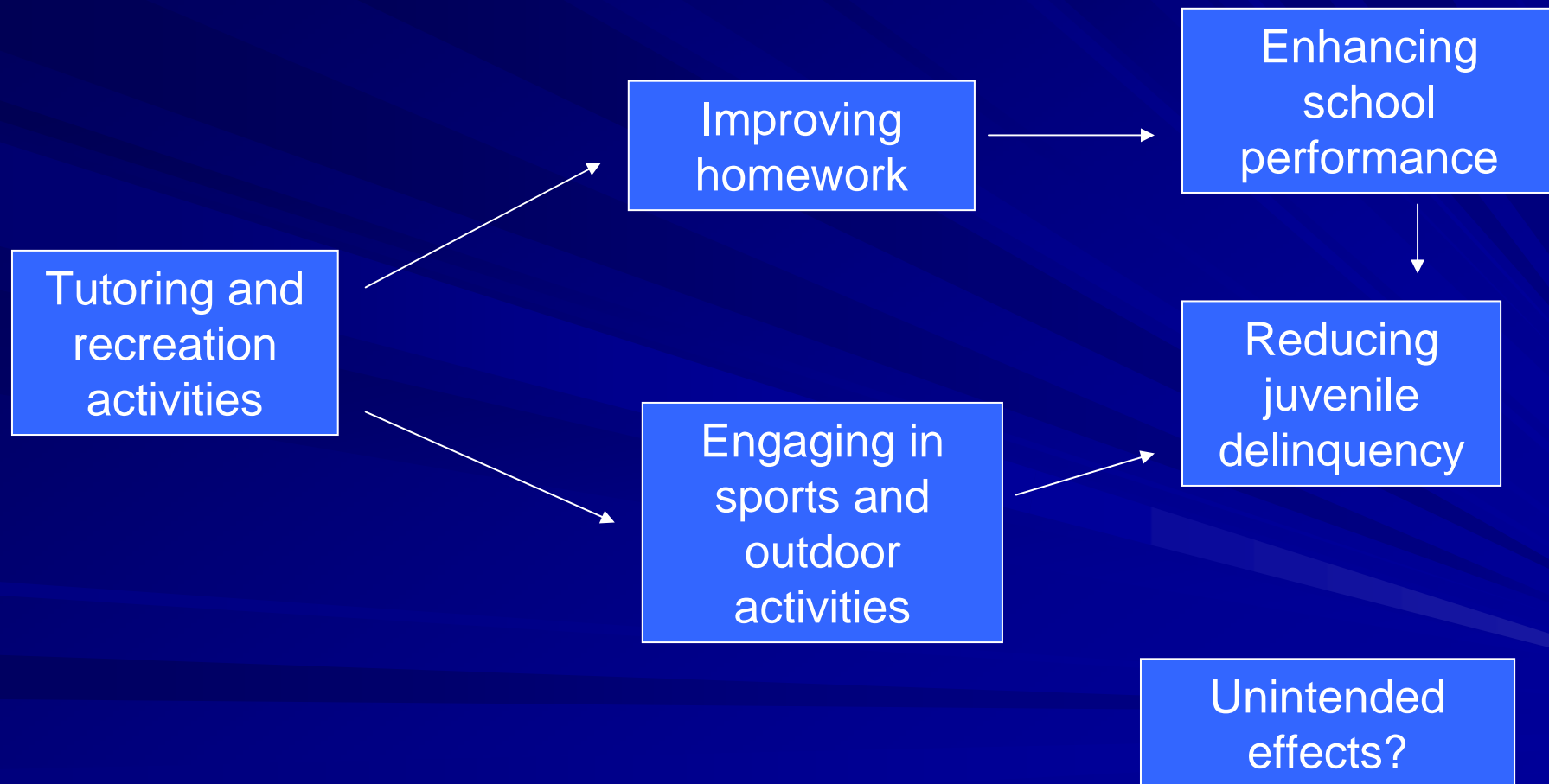
6. Providing a New Perspective of Credible Evidence and Evidence-Based Interventions

- Traditional top-down approach and evidence-based interventions and their limitations
- Integrative validity model
- Bottom-up approach
- Merits of the bottom-up approach

Evidence –Based Interventions (EBIs) and the Top-Down Approach: State of the Art

- EBIs: Interventions proven efficacious by rigorous methods in controlled settings. Rigorous methods usually means randomized controlled trials (RCTs).

- The top-down approach:

  1. Efficacy evaluation (EBIs): Providing strongest evidence of efficacy of an intervention (Maximizing internal validity)

  2. Effectiveness evaluation: Providing evidence of its generalizability (external validity)

  3. Dissemination

Contributions by EBIs and the Top-Down Approach

- They have been long and successfully applied in assessing biomedical interventions.

- Many scientists regard them as the gold standard of scientific evaluation.

- Many funding agencies, researchers and health promotion/social betterment evaluators are attracted to them.

Limitations of the Top-Down Approach and EBIs

Limitations:

1. EBIs are not necessarily to be effective in the real world.

2. EBIs are not relevant to real-world operations.

3. EBIs do not adequately address issues and interests of stakeholders.

4. EBIs can not be implemented by stakeholders with high fidelity in the real-world context.

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Limitation #4: Difficulties in implementing EBIs in the real world

- National Cooperative Inner-City Asthma Study (NCICAS): Trained master's level social workers to provide families asthma and psychosocial counseling.

- NCICAS had features of an efficacy evaluation such as:
    - -- monetary and child care incentives
    - --highly committed counselors,
    - --food/refreshments during counseling,
    - --frequent contacts with participants,
    - --counseling sessions were held at regular hours, etc.

Limitation #4: Difficulties in implementing EBI in the real world   (continued)

- The Inner-City Asthma Intervention (ICAI): Implementing NCICA as an intervention in the real-world.

- Difficulties in delivering the exact NCICAS in the real world: Many adaptations and changes.

   -Were difficulties to contact and meet with families

   -Held sessions in evenings or weekends

   -Provided no monetary and child care incentives

   -Provided no food/refreshments

   - Had difficulties in retaining social workers

- Only 25% of the children completed the intervention

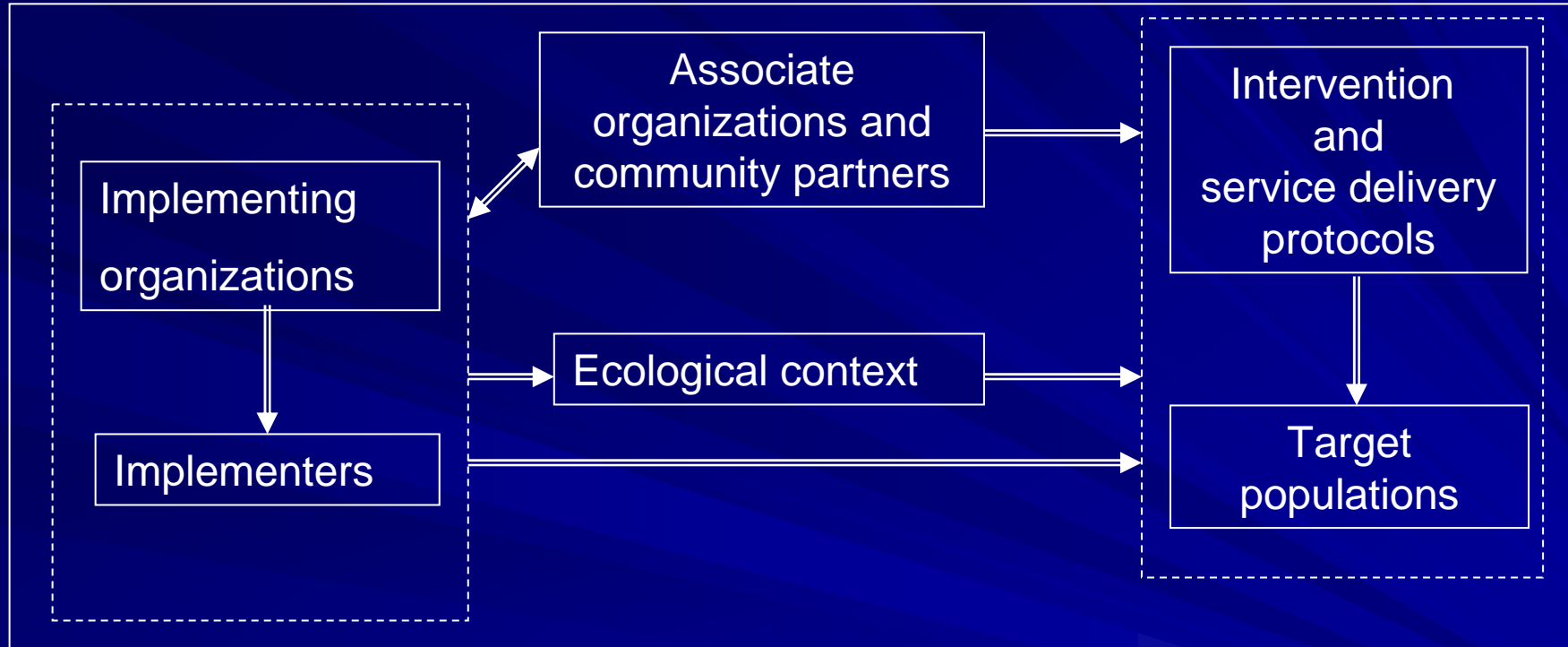# What is a good intervention?

- What is a good intervention according to researchers' view?

  EBI

- What is a good intervention according to stakeholders' view?

PROGRAM THEORY

Action Model

Implementing organizations

Implementers

Associate organizations and community partners

Ecological context

Intervention and service delivery protocols

Target populations

Change Model

Intervention → Determinants → Outcomes
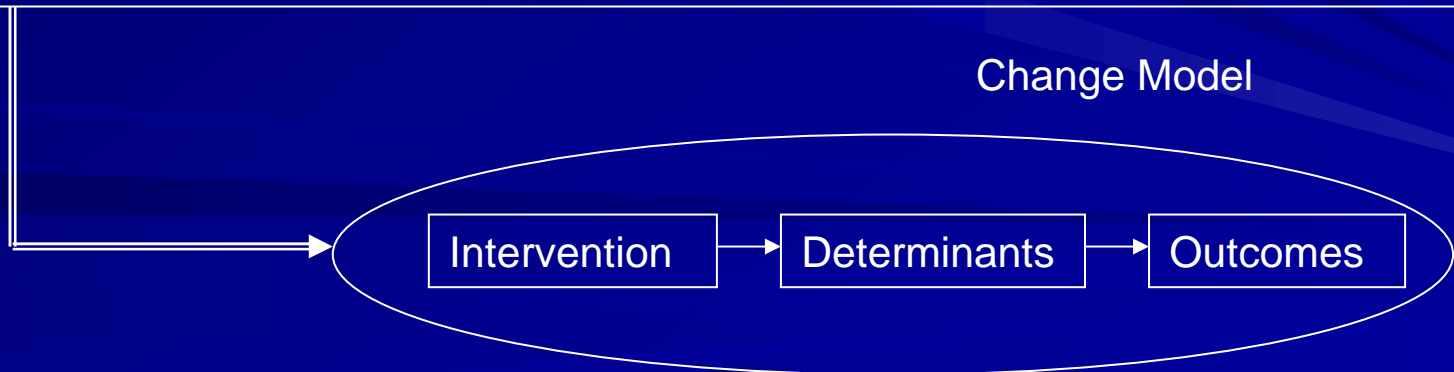
Alternative Perspective: Integrative Validity Model and Bottom-up Approach (continued)

- The top-down approach and EBIs focus mainly on goal attainment issues.

- The integrative validity and bottom-up approach as a new perspective to address both goal attainment and system integration issues.

Integrative Validity Model

- Effectual validity : Evidence on an intervention's effectuality

- Viable validity: Evidence on an intervention's viability

- Transferable validity: Evidence on transferability of an intervention's effectuality and/or viability

* The model is an expansion of the distinction of internal and external validity by Campbell and Stanley's (1963)

An Alternative: Integrative Validity Model and "Bottom-Up" Approach (Continued)

Concept of Viability

    Components:

        Practical, suitable, affordable, evaluable, and helpful.

Prime Priority of Validity: Effectual, viable , or transferable

- Campbell: Internal validity (effectual validity)
- Cronbach: External validity (transferable validity)
- Stakeholders: ?
- Evaluators: ?

An Alternative: Integrative Validity Model and "Bottom-Up" Approach (Continued)

Viability Evaluation

- Assess the extent to which an intervention program is viable in the real world (e.g., practical, suitable, affordable, evaluable, helpful)

- Methodology: Mixed methods (e.g., pretest-posttest, interviews, focus groups, survey)

The Bottom-Up Approach

– Start with addressing viable validity (viable evaluation), optimize effectual and transferable validity (effectiveness evaluation),

   then maximize effectual validity (efficacy evaluation)

– Only *viable* interventions are worthy of *effectiveness evaluation*

– Only those interventions that are *viable*, *effective*, and *capable of transferability* are worthy of *efficacy evaluation*

Top-Down Approach
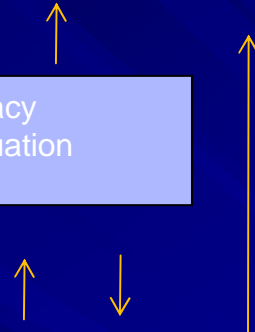
Efficacy Evaluation

Effectiveness Evaluation
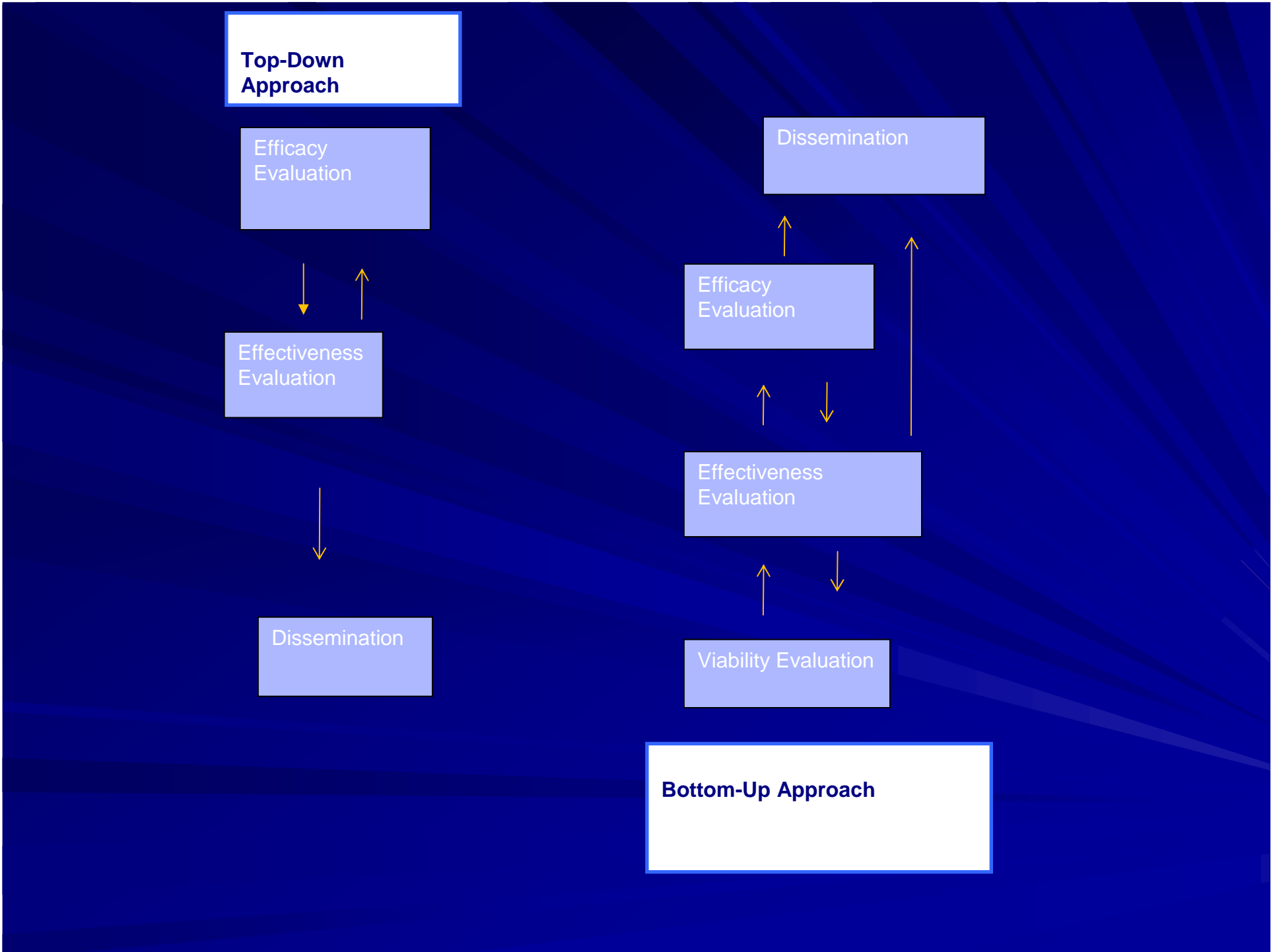
Dissemination

Dissemination

Efficacy Evaluation

Effectiveness Evaluation

Viability Evaluation

Bottom-Up Approach

Why is viability is not a big issue in the top-down approach?

Example:

- HIV prevention program implemented in a agricultural town in the south of China

- Intervention: provide free condoms and educational materials to hotel customers

"Bottom-Up" Approach:
Needle Exchange Programs for Preventing HIV Transmission

- Program started by a NGO (Junkiebond), in the Netherlands in 1984.

- Its harm reduction philosophy, practicality, helpfulness, and affordability (viability) prompted numerous NGOs to adopt it.

- Researchers/evaluators joined the process in conducting effectiveness evaluations.

- Recently, RCTs are used to evaluate the program and confirmed its efficacy.

Types of Interventions for the Bottom-up Approach

- Stakeholders' interventions

- Researchers' innovative interventions

- Interventions jointly developed by stakeholders and researchers

Bottom-Up Approach Provides a Fresh Look of Evaluation Concepts and Strategies

Process Evaluation

Top-Down Approach	Bottom-Up Approach
The protocol of the intervention is finalized in the beginning. Whether an intervention is implemented according to the protocol (fidelity)?	How is an intervention implemented? How to fine-tuning the intervention based upon the implementation experience? How to standardize it?

Focus of Outcome Evaluation

Top-Down Approach	Bottom-Up Approach
Goal attainment	Goal attainment System integration

Helpfulness in Viability
(Progress as indicated in pretest-posttest and qualitative assessment)

Top-Down Approach	Bottom-Up Approach
Rejecting it as evidence	Recognizing it as preliminary evidence, indicating that progress has been made or an intervention is on the right track

Interventions Worthwhile for Intensive Evaluations

Top-Down Approach	Bottom-Up Approach
Researchers' interventions based on academic theories	Interventions with great viability potential as proposed by stakeholders, researchers, or both

Transferable Validity

Top-Down Approach	Bottom-Up Approach
Transferability of effectuality	Transferability of effectuality Transferability of viability

Methods for Disseminating Interventions

Top-Down Approach	Bottom-Up Approach
Uses the carrot-and-stick method	Demonstrates the merits of real-world viability

Advantages of the New Perspective

- Meets scientific and service demands

- Facilitates advancement of transferable validity

- Reconciles controversies in method debates (i.e., qualitative vs. quantitative)

- Provides an alternative funding perspective

- Facilitates advancement of program evaluation theory, methodology, and practice

References

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References

- Chen HT. 2010. "The bottom-up approach to integrative validity: a new perspective for program evaluation." Evaluation and Program Planning 33(3): 205–14.

- Chen HT, Donaldson S, Mark M, (Eds.) <u>Advancing Validity in Outcome Evaluation: Theory and Practice.</u> New Directions for Evaluation (forthcoming).

- Chen HT and Garbe, P, "Assessing program outcomes from the bottom-up approach: An innovative perspective to outcome evaluation", in Chen HT, Donaldson S, Mark M, (Eds.) <u>Advancing Validity in Outcome Evaluation: Theory and Practice.</u> New Directions for Evaluation (forthcoming).