Conceptual Overview: Natural and Systematic Variation in Treatment

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What Works ...?
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Program components and procedures

Proximal Outcomes; e.g., knowledge, skills, motivation, self-efficacy

Intermediate Outcomes; e.g., behavior change (child care, safe sex, job seeking)

Distal Outcomes; policy relevant effects; e.g., healthy children, reduced teen pregnancy, increased employment, income
Two Distinct Parts to the Theory of Change

Instigating Intervention

Program
Program components and procedures

Change Pathway

Proximal Outcomes; e.g., knowledge, skills, motivation, self-efficacy

Intermediate Outcomes; e.g., behavior change (child care, safe sex, job seeking)

Distal Outcomes; policy relevant effects; e.g., healthy children, reduced teen pregnancy, increased employment, income
Within the Theory of Change, an Action Theory and a Conceptual Theory can be Distinguished.

**Action Theory**
- Program components and procedures
- Proximal Outcomes; e.g., knowledge, skills, motivation, self-efficacy

**Conceptual Theory**
- Intermediate Outcomes; e.g., behavior change (child care, safe sex, job seeking)
- Distal Outcomes; policy relevant effects; e.g., healthy children, reduced teen pregnancy, increased employment, income
Inside the Black Box: Constructs for Program Description

• Core components: Essential principles or functions, and associated elements and activities, judged necessary to produce the desired outcomes (Blase & Fixen, 2013)
  – E.g., Principles: “providing the youth with a consistent reinforcing environment where he or she is mentored and encouraged” (Multidimensional Treatment Foster Care).
  – E.g., Functions: teaching problem-solving skills, reinforcing appropriate behavior

• Program components (Kaminski et al., 2008):
  – Content; e.g., positive interactions with child, emotional communication
  – Delivery; e.g., instruction, rehearsal/role playing
Inside the Black Box: More Constructs for Program Description

• Modules: Freestanding procedures that address specific clinical issues and are sequenced into the full treatment regimen; e.g., for self-calming, modifying negative cognitions, increasing compliance with parents’ instructions (Weisz et al., 2012).

• Kernels: Fundamental indivisible behavior influence-procedures shown to affect one or more specific behaviors; e.g., time out, written praise notes, nasal breathing/”doing turtle” (Embrey & Biglan, 2008)

• Practice elements: Discrete treatment techniques or strategies used as part of a larger intervention plan; e.g., goal-setting, modeling, therapist praise/rewards (Chorpita & Daleiden, 2009).
No Consensus on How to Describe the Contents of the Program Package

Some criteria for any useful descriptive constructs:

• Generality: Should be applicable across the variants of a generic program type

• Discriminability: Should differentiate program variants

• Meaningfulness: Should be practical, recognizable, and operationalizable in routine practice

• Combinatorial: Should allow both mix & match and ensemble/integrative combinations

• Influential: Variation should matter to some outcome
  – That outcome might be essential or enabling/supportive
Empirical validation: Does variation matter?

Program Component(s) → Proximal Outcomes → Distal Outcomes

Enabling Outcomes
Methods for investigating component-outcome relationships: Natural variation in fidelity

Analysis of the relationship between fidelity measures that represent intended program components and procedures and outcomes within a study.

• E.g., differential gain across treatment sites, treatment subgroups, or treated individuals in relation to exposure to implementation of different components
• Usually lacks counterfactual comparison and associated effect estimates
• Correlational and limited to natural variation
Methods for investigating component-outcome relationships: Natural variation across sites/studies

Investigating the relationship between the presence or absence of certain program components and the effects of the program on the outcome variable(s)

• Meta-analysis across studies with natural variation in the mix of components (Jennifer Kaminsky; Kimberly Becker)

• Comparison of effects across sites/blocks in multi-site studies with natural or planned variation in the mix of components (Eleanor Harvill)

• Correlational and usually limited to natural variation
Methods for investigating component-outcome relationships: Systematic variation

Systematic variation of components in controlled studies.

• Studies of single freestanding components (e.g., kernels, modules)

• Studies of programs in which one or more components are systematically varied—added or subtracted
  – Prior variation & optimization: MOST (Linda Collins)
  – Adaptive variation within a trial: SMART (Kelly Kidwell)
  – Variation on successive implementations: Rapid Cycle Evaluation (Scott Cody)

• Few studies of this sort; difficult to investigate very many program components and combinations in a single study
A Few Conclusions

• Unpacking the program black box and “what works” questions should be conceptualized within the framework of causal program theory.

• There are many different ways of representing what’s in program packages and no consensus on which are most informative and useful.

• The least definitive, but most accessible forms of research investigate natural rather than systematic variation in program components and are essentially correlational.

• Research about the program features that are instrumental in producing positive effects is limited even in the most well-developed intervention areas.