

HOW TO APPLY THE MULTIPHASE OPTIMIZATION STRATEGY (MOST) IN YOUR INTERVENTION DEVELOPMENT RESEARCH

Module 2

The preparation phase: Laying the foundation for successful optimization

Lesson 1: Basics of the conceptual model



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Intervention Optimization Initiative

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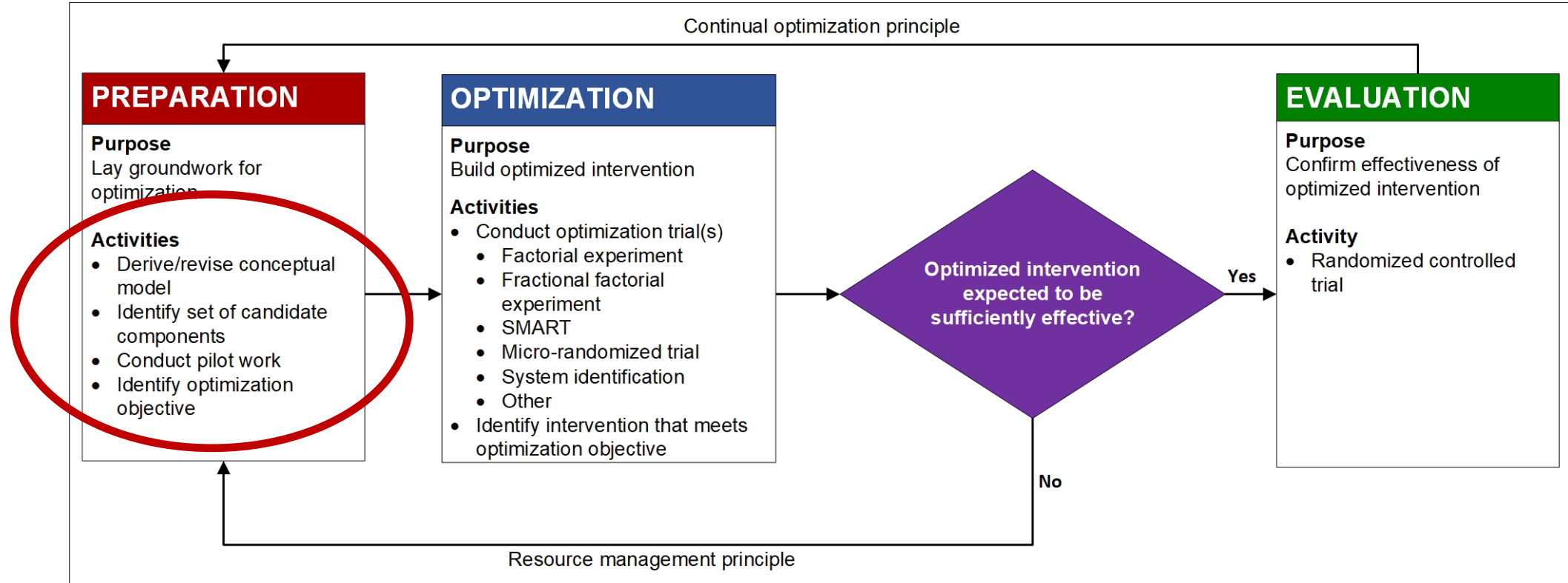
(narrator)



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Flow chart of the three phases of the multiphase optimization strategy (MOST). Rectangle = action. Diamond = decision.

Figure adapted from Collins (2018)

In this lesson you will learn how to:

- Define the term conceptual model
- Describe the critical role of the conceptual model in MOST

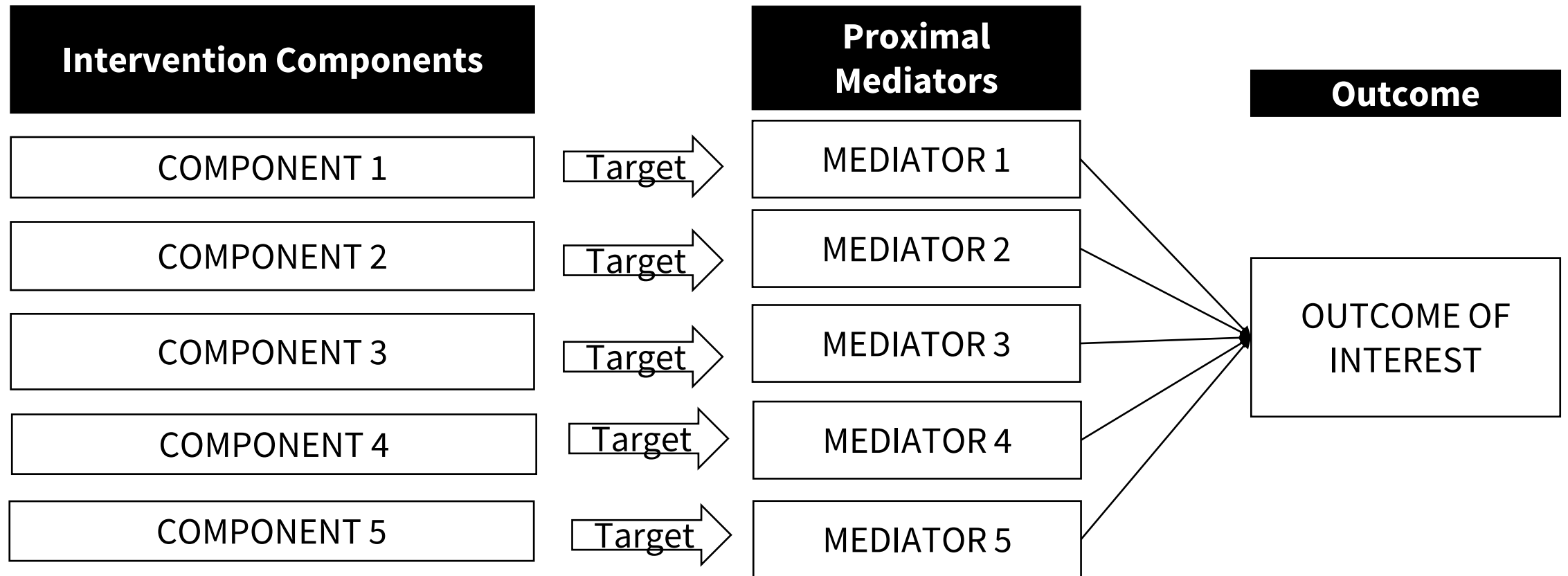
A conceptual model is... (Part 1)

- ...a causal model of the behavioral, biobehavioral, biomedical, or social-structural process to be intervened upon
 - Including all of what is known or hypothesized...
- AND

A conceptual model is... (Part 2)

- ...a description of exactly how the intervention under development is to intervene on this process
 - In particular, an explanation of the role each candidate component is expected to play
 - A description of the “engine” that drives the intervention

Generic conceptual model template

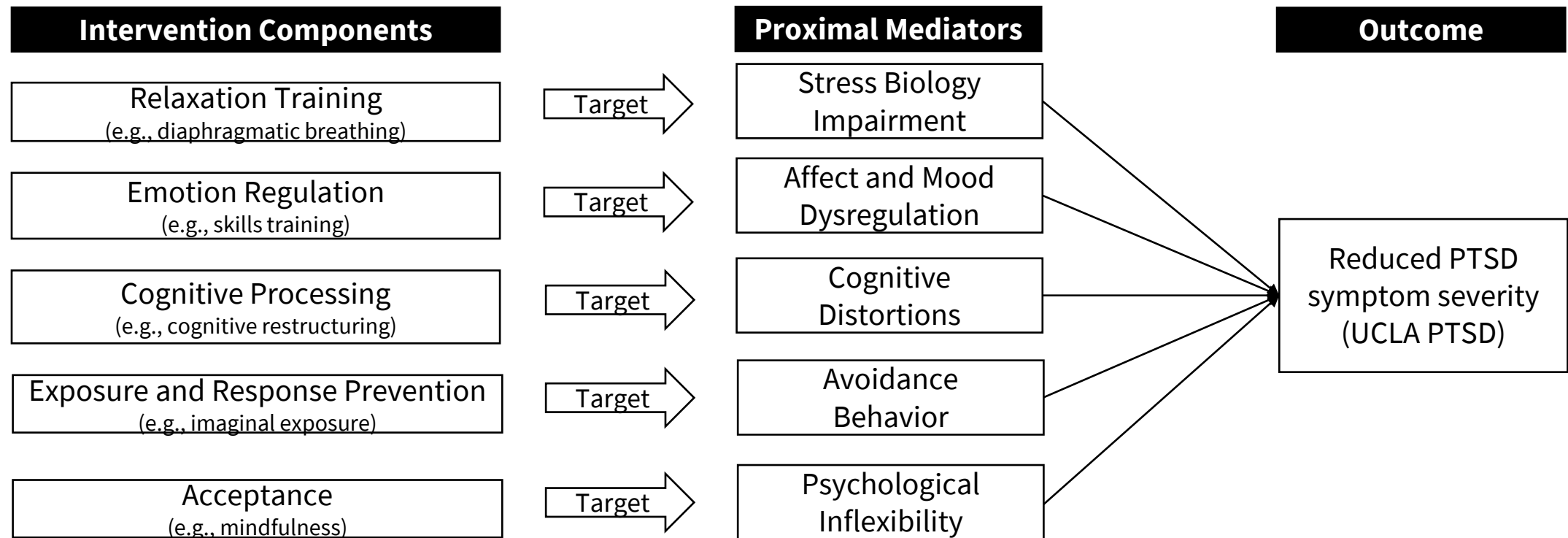


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An example of a conceptual model



Another example of a conceptual model

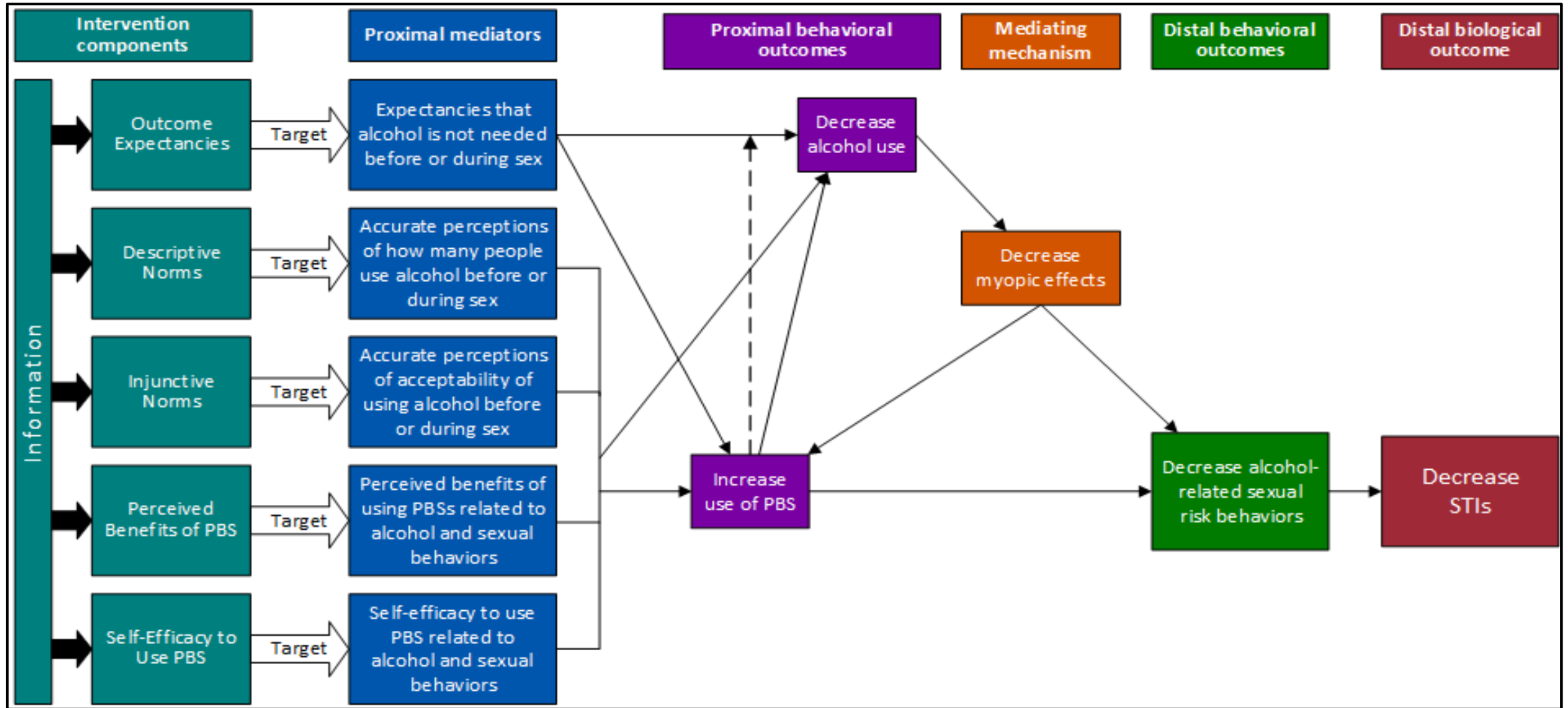


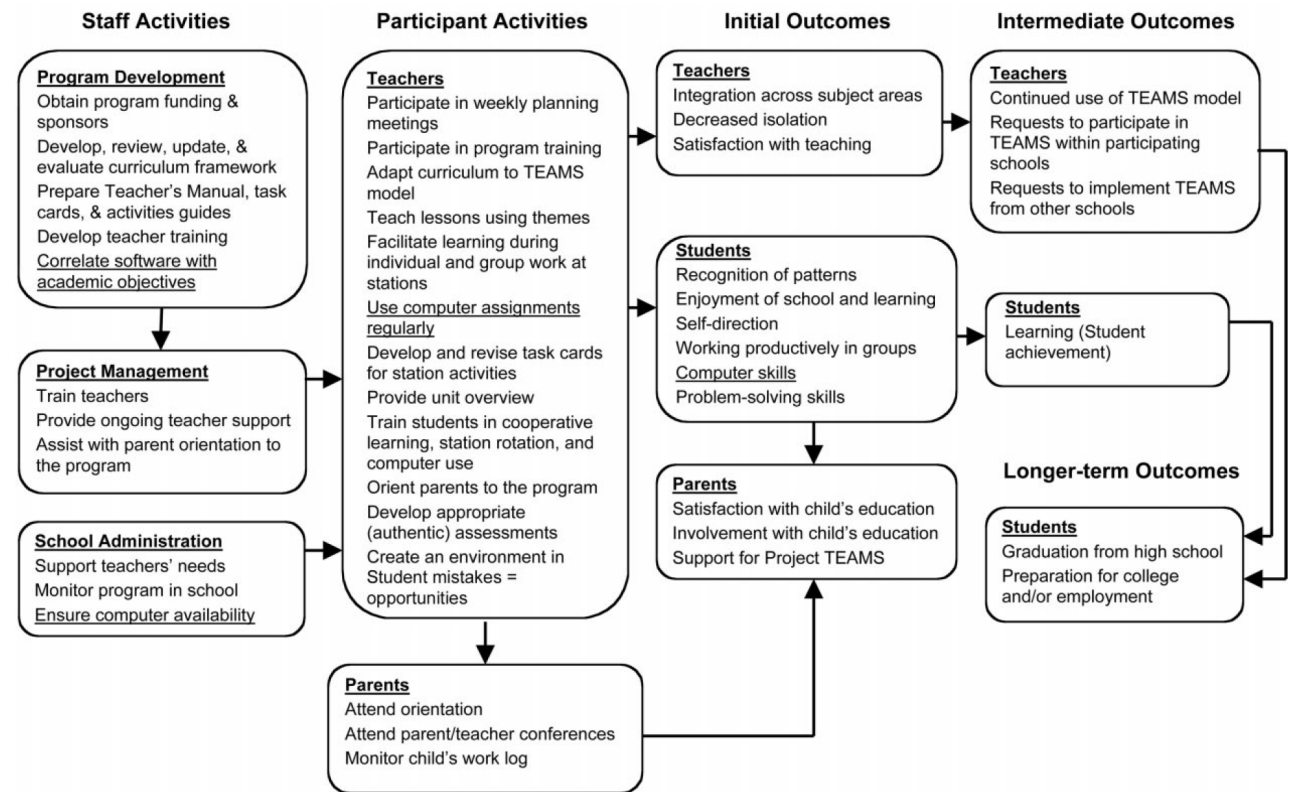
Figure from Kugler, K.C., Wyrick, D.L., Tanner, A.E., Milroy, J.J., Chambers, B., Ma, A., Guastaferrro, K.M., & Collins, L.M. (2018).
PBS = protective behavioral strategies. STI = sexually transmitted infection.

A conceptual model is not...

...a logic model (although it is similar). According to the Kellogg Foundation:

“[A] program **logic model** links outcomes (both short- and long term) with program activities/processes and the theoretical assumptions/principles of the program...”

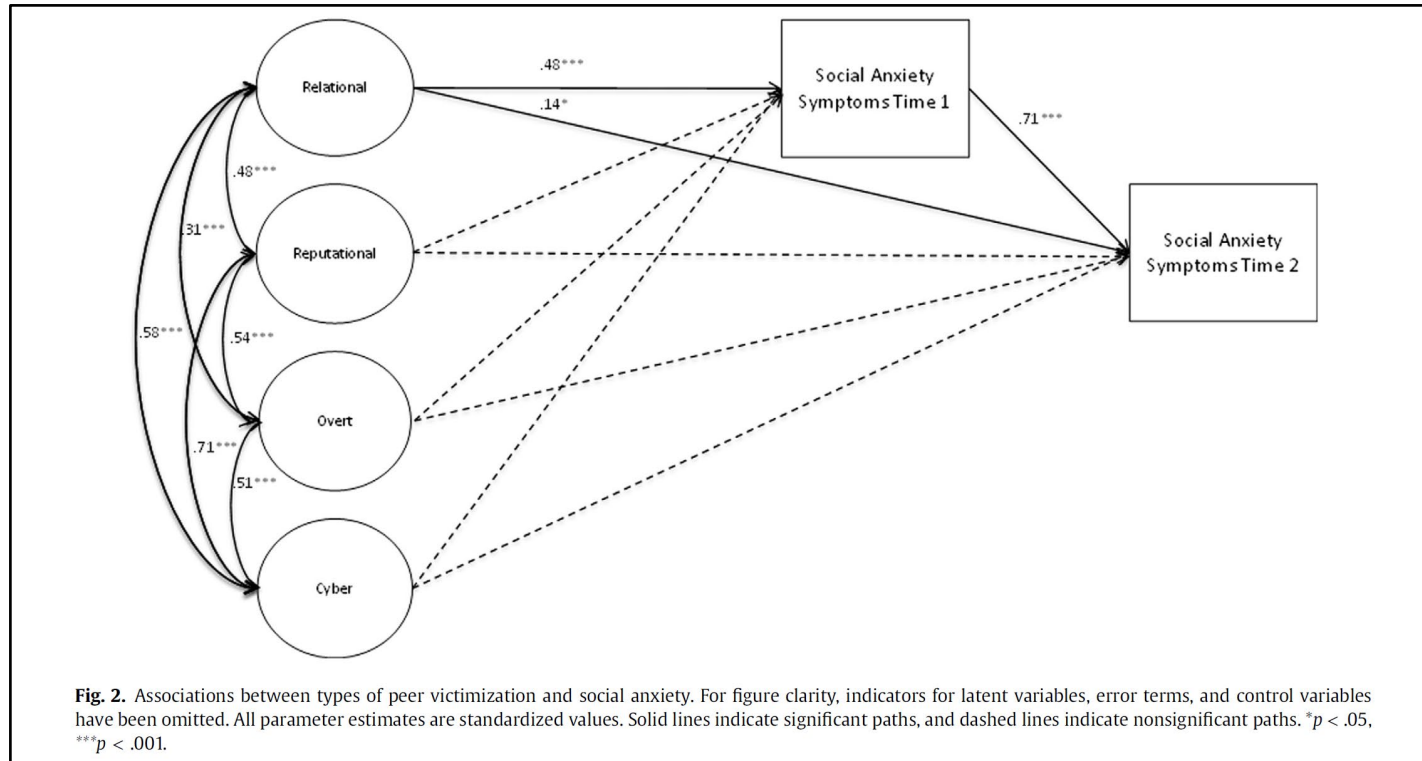
W. K. Kellogg Foundation (2004)



Project TEAMS logic model. Cooksy, L. J., Gill, P., & Kelly, P. A. (2001)

A conceptual model is not...

...a structural equation model (although it is similar)



Why? A conceptual model is not a model of all of the statistical relations among a set of variables.

The critical importance of the conceptual model

- Development of a good conceptual model is time-consuming and challenging
- You may find that you revise it several times during a project
- It's a lot of work – but worth it!
- NEVER skip this step!

The critical importance of the conceptual model

- You will use it in the preparation phase
 - Guides selection of candidate components
- You will use it in the optimization phase
 - Informs decisions about experimental design

The critical importance of the conceptual model

- It will form the basis for continual optimization
 - Provides a framework for continual improvement of the intervention
- It is a critical part of a compelling grant proposal

The critical importance of the conceptual model

- Could be included in a literature review article
- Strongly recommend including the conceptual model in any protocol article describing an optimization trial
 - Example: Gwadz et al., 2017

In this lesson you learned how to:

- Define the term conceptual model
- Describe the critical role of the conceptual model in MOST

In the next lesson you will learn how to:

- Explain best practices for development of a conceptual model, including
 - The role of theory and empirical findings
 - The level of specificity needed
 - The importance of forward engineering
 - How to deal with participant heterogeneity

References cited

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