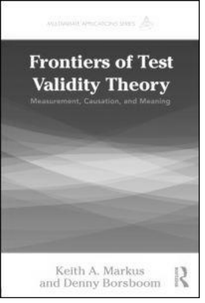

Implications of Different Forms of Explanation for the Theory and Application of Logic Models

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Overview

Three basic ideas:

1. Logic models express explanations.
2. Different kinds of explanations support different kinds of inferences.
3. The kind of explanation has implications for the use of logic models in program evaluation.

Logic Models Explain

Logic models are graphical tools that aid understanding of either program theory or theories of change. They aid understanding by providing explanatory frameworks for reasoning about the program being evaluated.

Evaluation theory tends to take explanation as singular and well understood. To the contrary, explanation can take different forms (Salmon, Garfinkel). Different forms of explanation may be more or less appropriate to a given logic modeling task.

Arrows Need Interpretation Too

Much attention is given to choosing the boxes in a logic model and to placing the arrows.

Less attention goes to choosing the right kind of arrows.

However, different forms of explanation correspond to different interpretations of the arrows.

Different interpretations support different types of inferences from logic models.

Non-causal Explanation

Much early literature focuses on if-then relationships.

These are consistent with non-causal explanations (Hempel) and can be generalized to probabilistic if-then relationships (Railton, Salmon).

One thing explains another because they fit a pattern.

Inferences are supported so long as the pattern holds.

If something disturbs the pattern, neither predictions nor explanations apply.

Real Causal Explanation

Real causal connections exist in the program, and can be tested and measured (Rubin, Holland).

Intuitive understanding consistent with much theory driven evaluation (Chen, Weiss, Rogers) and realist evaluation (Pawson & Tilley).

Causal connections are sustained by mechanisms (not just mediators) that link causes to effects (Dowe).

If the mechanisms can be identified independently of causal effects, the logic model can support very strong inferences beyond the context of the program and data.

However, empirical support for such a strong theory can be resource-intensive and challenging.

Ideal Causal Explanation

Ideal causation does not exist in the program, only in the model (Pearl).

The model is more or less useful, but even useful models do not ascribe causal connections to the program itself.

This simplifies the task of providing empirical support for the model.

However, it also limits the inferences that the model can support.

The causal model cannot explain why the program behaves like the model, nor can it support inferences about efforts to change causal connections.

Implications for Program Clarification

There is no uniquely correct logic model for a program, different logic models capture different aspects of a program depending upon the purpose of the model.

Different purposes can favor different types of explanation.

- Action theory may require stronger counterfactual inferences, and thus a stronger form of explanation.
- Program theory may describe program as it exists, and thus require less strong counterfactual inference or explanation.

Evaluability analysis (Wholey):

- Early stages of development: weaker explanations, weaker program theory will suffice.
- Later stages of development: stronger explanations, stronger program theory aids evaluation.

Implications for Evaluation Goals

Even comprehensive evaluations involves choices about the focus of the evaluation.

Evaluations sometimes involve noncausal explanations

- Symmetric relationships (e.g., budgetary constraints)
- Noncausal symmetric relationships (e.g., legal if-then relationships)

Other times, causal connections are central to evaluation (Campbell)

Implications for Evaluation Design

Once the program is described and the evaluation goals chosen, it remains to design the evaluation research.

The more specific the theory, the more testable.

More precision in the interpretation of the arrows helps distinguish what is testable and how.

E.g., If-then explanations do not necessarily support inferences about the results of interventions.

Ideal causal explanations only apply to interventions that are close to “ideal” in the sense that they do not impact variables other than the targeted variable(s).

Implications for Communicating Evaluation Results

Unnecessary precision can lead to cognitive overload.

Targeted precision can avoid miscommunication and misinterpretation.

It is useful to distinguish interventions that:

- Do not change predictive or causal relationships.
- Change predictive but not causal relationships.
- Change both.

Conclusion

It will typically not be useful to clarify every arrow in every logic model.

However, it can be helpful to clarify arrows key to the evaluation.

Distinguishing different types of explanations offers a valuable tool when used judiciously.