CHAPTER 3

Logic Models and the Action Model/ Change Model Schema (Program Theory)

As discussed in Chapter 1, an intervention program is often complicated. Stakeholders need help with meaningfully describing their programs for program-planning and evaluation purposes. This chapter will introduce two tools that evaluators could use to facilitate stakeholders in developing a better description of their program. These two tools are logic models and the action model/change model schema (program theory). These two tools have their own emphases and merits. As will be illustrated, logic models are popular and relatively easy to use, and they are very useful for reducing a complicated program to a set of meaningful, manageable components. The action model/change model schema is more elaborate and takes more time to learn than do logic models. The schema is more useful when program planning or evaluation need to address contextual factors and causal mechanisms. This book encourages evaluators and stakeholders to apply either or both logic models and the action model/change model schema when facilitating stakeholders with the description of an intervention program and guiding them in evaluation design.

LOGIC MODELS

A logic model is a graphical representation of the relationship between a program's day-to-day activities and its outcomes (Julian, Jones, & Deyo, 1995; Kaplan & Garrett, 2005; Wyatt Knowlton & Phillips, 2013; McLaughlin & Jordan, 1999). Wholey (1979) rendered the logic model in two primary parts: the program components and the goals and effects

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of the program. *Program components* are activities that can, either conceptually or administratively, be grouped together.
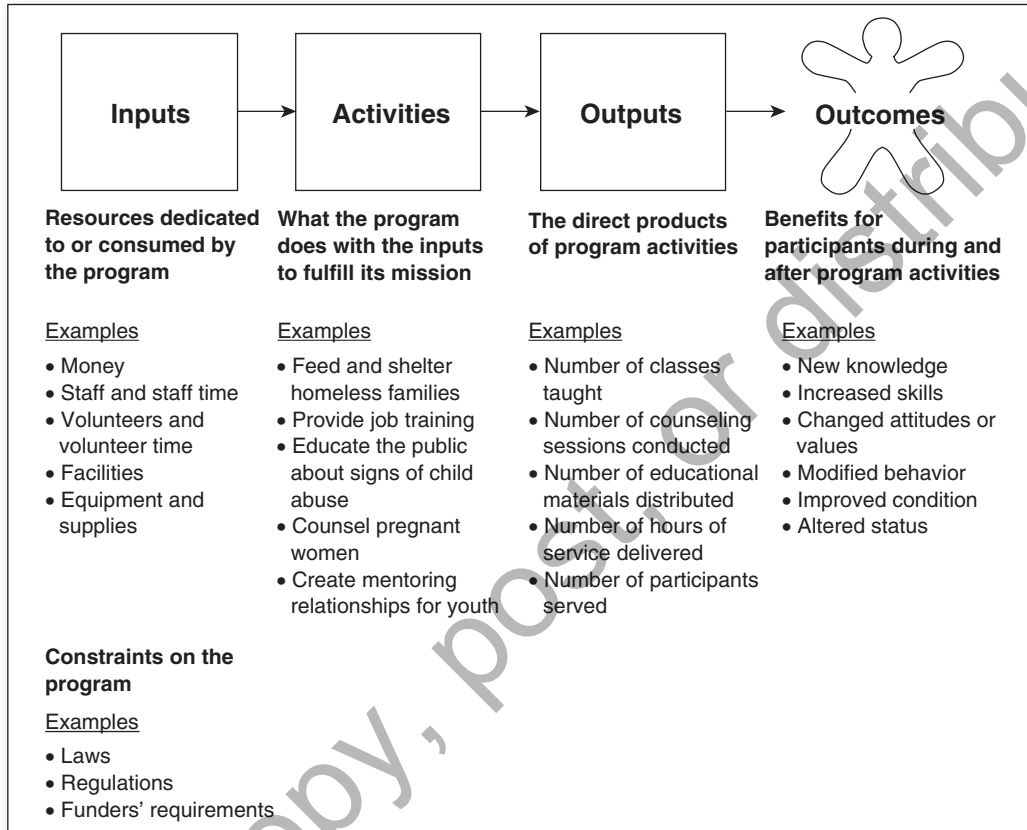
Building on Wholey's work, subsequent versions of the logic model have tended to add parts to the original. One popular twist on the model is the version developed by the United Way of America (1996). With it, evaluators of United Way programs consistently examine inputs, activities, outputs, and outcomes. In this logic model, *inputs* are defined as resources dedicated to or consumed by the program: money, supplies, staff, and even ideas. *Activities* in this model comprise services the program provides or work it performs to fulfill its mission; examples include recruiting and training staff, counseling clients, providing referral services, and educating the public. *Outputs* are defined as the direct products of program activities: number of clients served, number of classes taught, amount of goods distributed, and so on. Finally, this logic model defines *outcomes* as the benefits resulting from program activities, such as improved health, new knowledge, better skills, and higher income. These elements' relationships to each other are illustrated in Figure 3.1.

The relationships among the components in Figure 3.1 are connected by a chain of "if . . . then . . ." statements. Therefore, the relationship between the inputs component and activities component in a logic model is read as "If you have these resources as inputs, then you can use them to accomplish your planned activities." Similarly, the relationship between the activities component and outputs component is read as "If you accomplish your planned activities, then you will deliver these services or products." The relationship between the outputs component and outcomes component is read as "If you accomplished your planned outputs, then your participants will experience these beneficial outcomes."

With regard to outcomes, it is important to point out that they can occur at different levels. Some programs may focus on individual- or client-level outcomes. Outcomes at this level usually mean that participants are better off due to an intervention in areas such as knowledge, skills, finances, health, and so on. Outcomes can also happen at the group, organization, or community level. For example, a community-wide violence prevention program may target reducing violent crime rates in a community.

The basic components of a logic model discussed above can be expanded. For example, stakeholders and evaluators could expand the outcomes component into short-term outcomes and long-term outcomes. Similarly, a logic model can add a "constraints" or "external factor" component to the bottom of the figure. This component represents social, cultural, political, economic, cultural, or geographic factors that may help or hinder a program's success.

The output component of the logic model is particularly useful for monitoring purposes. For example, consider a logic model of a school-based dental care

Figure 3.1 The United Way's Logic Model

Inputs	Activities	Outputs	Outcomes
Resources dedicated to or consumed by the program	What the program does with the inputs to fulfill its mission	The direct products of program activities	Benefits for participants during and after program activities

Examples
• Money
• Staff and staff time
• Volunteers and volunteer time
• Facilities
• Equipment and supplies

Examples
• Feed and shelter homeless families
• Provide job training
• Educate the public about signs of child abuse
• Counsel pregnant women
• Create mentoring relationships for youth

Examples
• Number of classes taught
• Number of counseling sessions conducted
• Number of educational materials distributed
• Number of hours of service delivered
• Number of participants served

Examples
• New knowledge
• Increased skills
• Changed attitudes or values
• Modified behavior
• Improved condition
• Altered status

Constraints on the program

Examples
• Laws
• Regulations
• Funders' requirements

program. The model could quantify the program's outputs, such as the number of students participating, the number of dental health brochures distributed, the number of service and education sessions conducted, and the number of schools participating. To that end, it would provide milestones for measuring a program's ongoing progress (a topic discussed extensively in Chapter 8 on program monitoring).

For a logic model to be useful, evaluators must engage the intervention program's stakeholders in its development (CDC, 1999). Stakeholder engagement allows all interested parties to reach an understanding of and agreement about program outcomes and other components. In this way, the purpose of developing

a logic model is not simply to produce a one-page diagram. Rather, the experience of participating in the model's development enhances stakeholders' buy-in to the model. This higher level of support may be key to their motivation to undertake activities outlined in the logic model.

The literature has pointed out additional merits of logic models, including the following:

- The format of logic models is frequently cited as useful for evaluators and stakeholders seeking to identify major program components and indicators (Julian et al., 1995; McLaughlin & Jordan, 1999).
- The visual presentation of a program in a logic model enhances stakeholders' understanding of program goals and resources needed for the program (Julian et al., 1995; Renger & Titcomb, 2002).
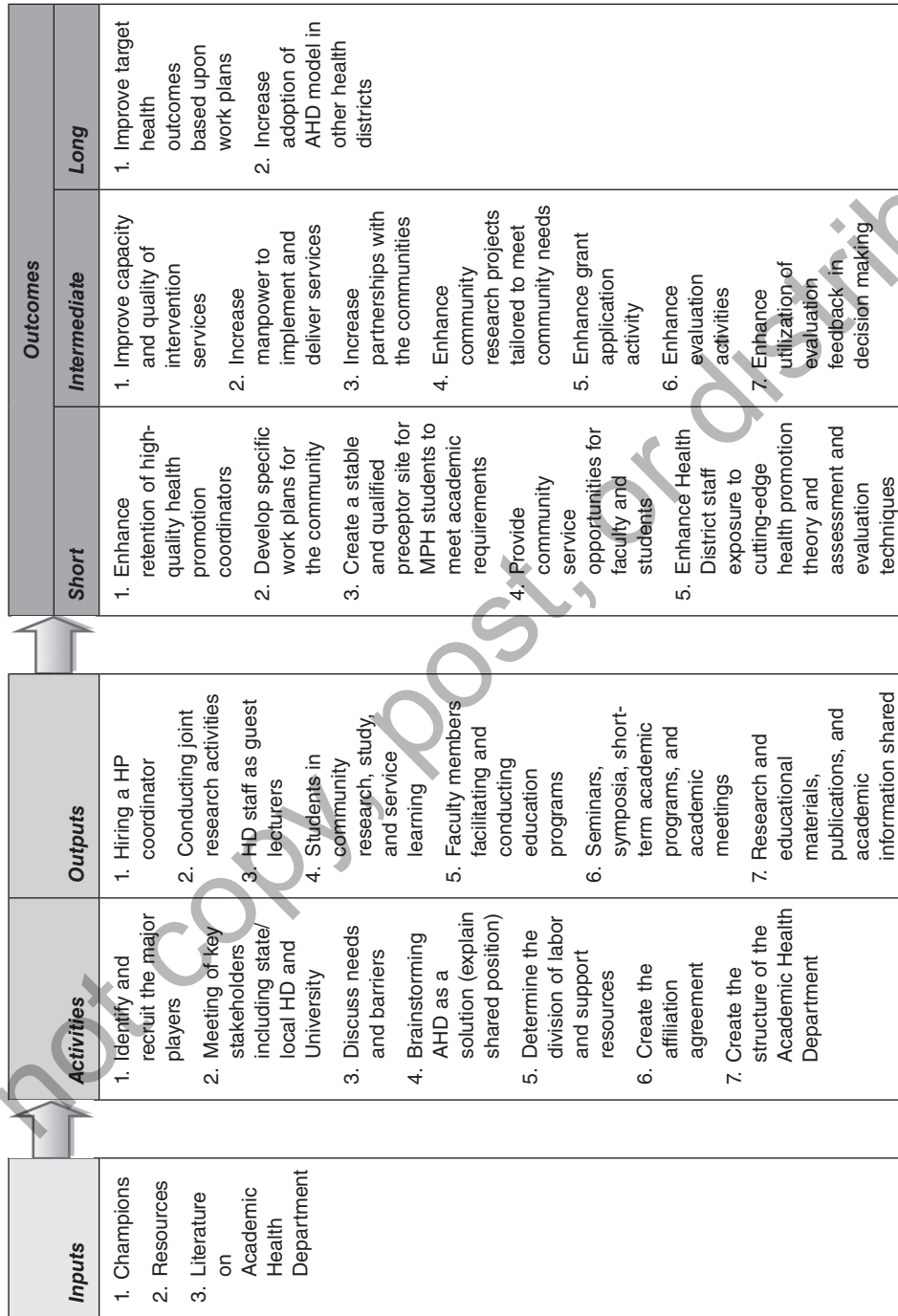
Logic models are popular in program planning. Indeed, many funding agencies require that a logic model be included with an application for funding.

Additional Examples of Applying Logic Models

A health district in the state of Georgia and Mercer University Public Health Program entered into a formal partnership to form the Academic Health Department (AHD). The AHD would benefit both the health department, by addressing its shortage of staff, and the university, by providing students with practical learning experiences. Key partners have developed a logic model of the AHD to facilitate communication about the initiative and to guide planning, implementation, and evaluation activities (Turner, Chen, Harvey, Smith, & Redding, 2014). The major components of AHD relevant to these objectives are illustrated in Figure 3.2.
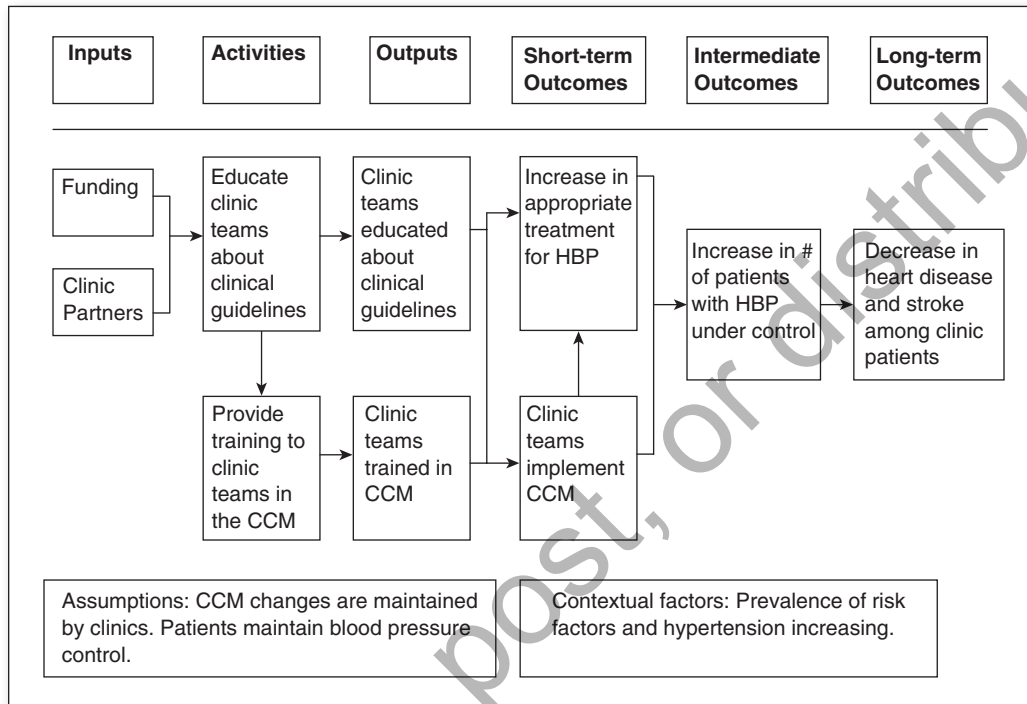
Figure 3.3 illustrates how to use a logic model to describe a CDC project to reduce the risk of heart disease and stroke. The inputs are funding and clinic partners. With these inputs, medical teams are educated about clinical guidelines and trained in the chronic care model (CCM). The outputs are teams that are educated on the clinical guidelines and trained in CCM. Short-term outcomes are the implementation of CCM and more appropriate treatment for high blood pressure (HBP). Following this, the intermediate outcome is an increase in the number of patients who have their blood pressure under control. This leads ultimately to the long-term outcome, a decrease in heart disease and stroke. This logic model assumes that clinicians will sustain their application of CCM once trained in it and that patients will sustain healthy behaviors after learning them.

Figure 3.2 Liaison-Based Academic Health Department Project: Logic Model

Inputs	Activities	Outputs	Outcomes		
			Short	Intermediate	Long
1. Champions 2. Resources 3. Literature on Academic Health Department	1. Identify and recruit the major players 2. Meeting of key stakeholders including state/local HD and University 3. Discuss needs and barriers 4. Brainstorming AHD as a solution (explain shared position) 5. Determine the division of labor and support resources 6. Create the affiliation agreement 7. Create the structure of the Academic Health Department	1. Hiring a HP coordinator 2. Conducting joint research activities 3. HD staff as guest lecturers 4. Students in community research, study, and service learning 5. Faculty members facilitating and conducting education programs 6. Seminars, symposia, short-term academic programs, and academic meetings 7. Research and educational materials, publications, and academic information shared	1. Enhance retention of high-quality health promotion coordinators 2. Develop specific work plans for the community 3. Create a stable and qualified preceptor site for MPH students to meet academic requirements 4. Provide community service opportunities for faculty and students 5. Enhance Health District staff exposure to cutting-edge health promotion theory and assessment and evaluation techniques	1. Improve capacity and quality of intervention services 2. Increase manpower to implement and deliver services 3. Increase partnerships with the communities 4. Enhance community research projects tailored to meet community needs 5. Enhance grant application activity 6. Enhance evaluation activities 7. Enhance utilization of evaluation feedback in decision making	1. Improve target health outcomes based upon work plans 2. Increase adoption of AHD model in other health districts

SOURCE: Turner, Chen, Harvey, Smith, & Redding (2014).
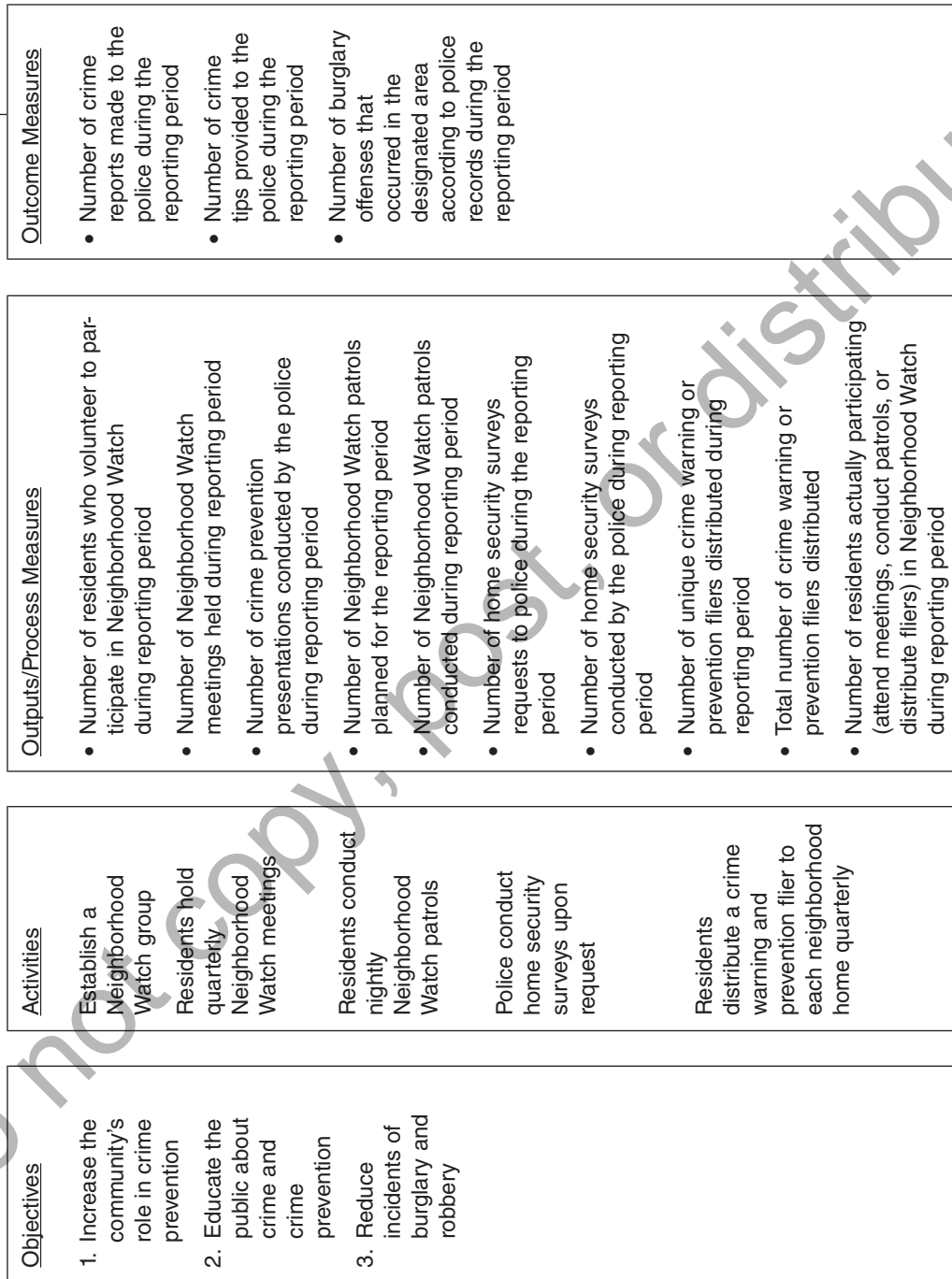
Figure 3.3 Logic Model to Decrease Heart Disease and Stroke

SOURCE: Centers for Disease Control and Prevention, http://www.cdc.gov/dhdsp/programs/nhdsp_program/ evaluation_guides/docs/logic_model.pdf

NOTE: CCM = chronic care model; HBP = high blood pressure.

The third example, shown in Figure 3.4, is a crime prevention program that uses a slightly different variation of the logic model. In this format, the program's objectives are listed first. The objectives state what the following activities are intended to achieve. Note that objectives are not interchangeable with inputs; inputs are not included in this logic model.

In the program modeled in Figure 3.4, the objectives are to increase the community's role in crime prevention, educate the public about crime and crime prevention, and reduce the incidence of burglary and robbery. The activities are to establish a Neighborhood Watch group, hold quarterly Neighborhood Watch meetings, conduct nightly patrols, have police conduct home security surveys upon request, and distribute a crime warning and

Figure 3.4 Crime Prevention Logic Model

Objectives	Activities	Outputs/Process Measures	Outcome Measures
1. Increase the community's role in crime prevention	Establish a Neighborhood Watch group	• Number of residents who volunteer to participate in Neighborhood Watch during reporting period	• Number of crime reports made to the police during the reporting period
2. Educate the public about crime and crime prevention	Residents hold quarterly Neighborhood Watch meetings	• Number of Neighborhood Watch meetings held during reporting period	• Number of crime tips provided to the police during the reporting period
3. Reduce incidents of burglary and robbery	Residents conduct nightly Neighborhood Watch patrols	• Number of crime prevention presentations conducted by the police during reporting period	• Number of burglary offenses that occurred in the designated area according to police records during the reporting period
	Police conduct home security surveys upon request	• Number of Neighborhood Watch patrols planned for the reporting period	
	Residents distribute a crime warning and prevention flier to each neighborhood home quarterly	• Number of Neighborhood Watch patrols conducted during reporting period	
		• Number of home security surveys requests to police during the reporting period	
		• Number of home security surveys conducted by the police during reporting period	
		• Number of unique crime warning or prevention fliers distributed during reporting period	
		• Total number of crime warning or prevention fliers distributed	
		• Number of residents actually participating (attend meetings, conduct patrols, or distribute fliers) in Neighborhood Watch during reporting period	

SOURCE: U.S. Department of Justice, https://www.bja.gov/evaluation/program-crime-prevention/cbcp6.htm

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prevention flier to each neighborhood home quarterly. The number of out-puts and process measures is extensive. The outputs and process measures are designed to determine whether a Neighborhood Watch group has been orga-nized that is helping residents to recognize individuals from outside their communities. If the Neighborhood Watch signs are displayed in the commu-nity and residents report illegal activity to the police, potential offenders will be deterred from committing crimes in that area. Moreover, if criminals do invade homes, they will have a more difficult time getting in and a higher chance of getting caught. Increased reporting of suspicious behavior by com-munity members to the appropriate authorities should reduce the number of crimes that take place in the area. Overall, outcomes will be measured by tracking the number of crime reports to police, crime tips to police, and bur-glaries. The prior example dealing with a health care intervention distin-guished among short-term, intermediate, and long-term outcomes, whereas this model does not because such a distinction is not necessary for the pro-gram it describes.

PROGRAM THEORY

Program theory is another conceptual framework that evaluators use to facilitate stakeholders in describing an intervention program or to guide an evaluation (Chen, 1990, 2005, 2012a; Chen & Turner, 2012; Coryn et al., 2011; Donaldson, 2007; Fulbright-Anderson, Kubisch, & Connell, 1998; Funnell & Rogers, 2011; Nkwake, 2013; Rossi et al., 2004; Weiss, 1998). Program theory is related to logic models but distinct from them. It emerged from the tradition of theory-driven evaluation (Chen, 1990; Chen & Rossi, 1980; Coryn et al., 2011).

The benefits of program theory for evaluation are well documented in the literature. For example, Bickman (1987) discussed the usefulness of program theory for improving the generalizability of evaluation results, contributing to social science theory, uncovering unintended effects, and achieving consensus in evaluation planning. Weiss (1998) noted that an advantage of program the-ory is that it provides early indications of program effectiveness. She also found program theory helpful for explaining the occurrence of program effects, thus enhancing the relevance of evaluation. In addition, Chapters 12 and 14 of the book will show that program theory can further advance evaluation knowledge and methodology by assessing and comparing the relative strengths and limita-tions of formal theory-based interventions versus stakeholder theory-based interventions (Chen & Turner, 2012).

One popular definition of program theory arises from causal relations. Bickman (1987), for example, defined program theory as "a plausible and sensible model of how a program is supposed to work" (p. 5). Weiss (1995) used the term "theory of change" as a way to describe the set of assumptions that explains both the mini-steps that lead to the long-term goal and the connections between program activities and outcomes that occur at each step of the way. A broader definition of program theory subsuming the existing definitions was given by Chen (1990), who described program theory as "a specification of what must be done to achieve the desirable goals, what other important impacts may also be anticipated, and how these goals and impacts would be generated" (p. 43).

In elaborating his 1990 definition of program theory, Chen (2005) argued that the design and implementation of an intervention program are usually based on a set of explicit or implicit assumptions by stakeholders about what action is required to solve a social problem and why the problem will respond to this action. An analysis of the explicit and implicit assumptions underlying a program is essential for evaluation. Chen's definition of program theory suggests its simultaneously prescriptive and descriptive nature, a status requiring program theory to be action oriented. Thus, program theory goes beyond typical scientific theories—those from the social and behavioral sciences, for instance—that focus solely on providing causal explanations of phenomena. Program theory can be viewed, then, as a configuration of the *prescriptive and descriptive* assumptions held by stakeholders and thus underlying the programs stakeholders create.

Program theory has different versions. This chapter will introduce a comprehensive version of program theory, called the action model/change model schema, that operationalize Chen's (1990, 2005) definitions of program theory for practical application. Here the author seeks to explain, for evaluation practitioners, the action model/change model schema in user-friendly terms. Understanding this schema should allow practitioners to use it effectively in evaluation. Knowledge of the schema will also elucidate the how-to of applying the various approaches and methods for assessing program planning, implementation, and effectiveness discussed throughout the rest of the book.

THE ACTION MODEL/CHANGE MODEL SCHEMA

The action model/change model schema is defined as a systematic configuration of stakeholders' prescriptive and descriptive assumptions underlying programs, whether they are explicit or implicit. Descriptive assumptions,

articulated in a change model, deal with what causal processes are expected to happen to attain program goals. Prescriptive assumptions, articulated in an action model, deal with what actions must be taken to produce desirable changes.

Descriptive Assumptions

Within the action model/change model framework, descriptive assumptions concern the causal processes underlying the social problem a program is trying to address. As an illustration, consider an intervention program for spouse abusers. According to program designers' descriptive assumptions, spouse abuse typically results, at least in part, from the abuser's lack of skill in dealing with anger or frustration and lack of knowledge of the law's stance on domestic violence. In light of these descriptive assumptions, the treatment program might be designed to employ counseling to develop anger management skills. It might also stress the legal consequences of committing domestic violence. The causal process underlying this treatment program's effectiveness, then, would be the instillation of a fear of consequences to encourage practice of the skills taught, which is then expected to reduce the abuse.

Assumptions about the causal processes through which an intervention or a treatment is supposed to work are crucial for any program, because *its effectiveness depends on their truthfulness*. If invalid assumptions dictate the strategies of a program, it is unlikely to succeed. For example, if the major motive of spouse abuse is actually belief in the patriarchal structure of families, rather than uncontrolled anger or ignorance of consequences, then an emphasis on anger management is unwarranted. The set of descriptive assumptions made about causal processes underlying intervention and its outcomes constitutes the *causative theory* (Chen, 1990) of programs. Outside the field of program evaluation, however, this phrase may not communicate well—and remember that stakeholders come from other fields. The set of descriptive assumptions can also be termed the *change model* for purposes of effective communication, and throughout this book, *change model* is substituted for *causative theory* or *descriptive theory*. The change model is emphasized in much of the theory-driven or theory-based evaluation literature (e.g., Donaldson, 2007; Weiss, 1998). As will be discussed in Chapters 4 and 5, the change model concept is very useful for providing a foundation from which stakeholders can develop a sound program plan.

Prescriptive Assumptions

Prescriptive assumptions are equally significant, according to program theory, in an intervention program. The prescriptive assumptions of program theory prescribe those components and activities that the program designers and other key stakeholders see as necessary to a program's success. Program designers' prescriptive assumptions thus direct the design of any intervention program. They determine the means of implementing and supporting the intervention so that the processes described in the change model can occur. Because prescriptive assumptions dictate which implemented components and activities will be required to activate the change model, they are collectively referred to as the *normative theory*, or *prescriptive theory*, of programs (Chen, 1990). But again, stakeholders (and evaluation practitioners, too) may appreciate the directness of an alternative term, *action model,* which is used in the remainder of this book. As will be discussed in Chapters 4 and 5, the action model concept is very useful for facilitating stakeholders in articulating the action aspect of their program plan.

Program evaluators look to the action model for the requisites of a program, as well as for the feasibility of these requisites in the field. In the action model are found the bases for answering questions such as the following: What are the crucial elements of the intervention? What kind of organization is needed to deliver the services? Who is best qualified to deliver them? How will implementers be trained? What is the target group? How will the target group be reached?

Again, as an example, take the spouse abuse treatment program. Suppose its designers decide that the target group should be abusers convicted by a court; this decision is based on an assumption that most spouse abusers end up in court and that the court will agree to use the treatment program as part of an abuser's sentence. The arrangement would certainly guarantee the program a steady source of clients. It would also necessitate establishment of an administrative linkage between the court and the program's implementing organization, based on an assumption that clear channels of communication will keep the court apprised of any client's failure to attend treatment. Suppose the program designers choose group counseling, headed by a trained and experienced professional facilitator, as the treatment for the abusers. This decision could stem from the program directors' favorable experiences with group therapy in other situations. Perhaps the designers decide that group counseling should be provided weekly for 10 weeks because they believe that 10 counseling sessions is a sufficient "dose" for most people. From these assumptions comes the need for the program to hire two professional counselors who are available for 10 consecutive weeks.

The action model deals with nuts-and-bolts issues, which are not a major topic in most modern social science theory, perhaps due to the social sciences' emphasis on developing generalizable propositions, statements, and laws. Indeed, contemporary social science theory tends to trivialize "how-to" program issues. Plus, the action model has no proposition-like format resembling that defined by and familiar to modern social scientists. However, it is interesting to note that many classic social science texts discuss both descriptive and prescriptive theories. Both Max Weber (1925/1947) and Émile Durkheim (1893/2014) intensively discussed not just explanations of organizational and societal phenomena but also steps for improving organizations and societies.

The action model translates the abstract ideas that theoretically justify a program into the systematic plan necessary to organize its day-to-day activities. Implementation of the action model puts a program in motion. And just as with the change model, if the action model is based on invalid assumptions and is thus poorly constructed or unrealistic, the program is not likely to succeed. Another example shows how important an accurate action model is to a program. The government of a developing country found that many farmers could not afford to buy fertilizer or modern equipment to increase productivity. It set up low-interest loans for the farmers. Designers of this financial program postulated a particular change model: Lack of access to capital limits farmers' ability to improve productivity, and farmers would apply for low-interest loans, if they were available, to buy machinery and fertilizer to boost their land's productivity and their earnings. The designers' programmatic model stipulated use of the government's own banks to process applications and conduct subsequent transactions. The underlying assumption was that, as part of the government system, these banks would require simply an administrative order to diligently and responsibly implement the program; in addition, operational costs would be much less than if commercial banks became involved.

A couple of years after the program had been launched, few farmers had received loans and benefited from the program. Why? Because certain assumptions of the action model were wrong. Local staff of the government bank did not see the new program as all in a day's work. To them, the program meant another burden in addition to their already heavy workload, with no increase in rewards. Consequently, the staff members' implementation of the program was not what decision makers had assumed it would be. Not only were they unenthusiastic about the program, but they also pulled up older rules and regulations to actively discourage farmers from applying for, or to disqualify them from receiving, the loans. This maintained their accustomed workload—and made the new program fail.

Figure 3.5 Conceptual Framework of the Action Model/Change Model Schema (Basic Form)
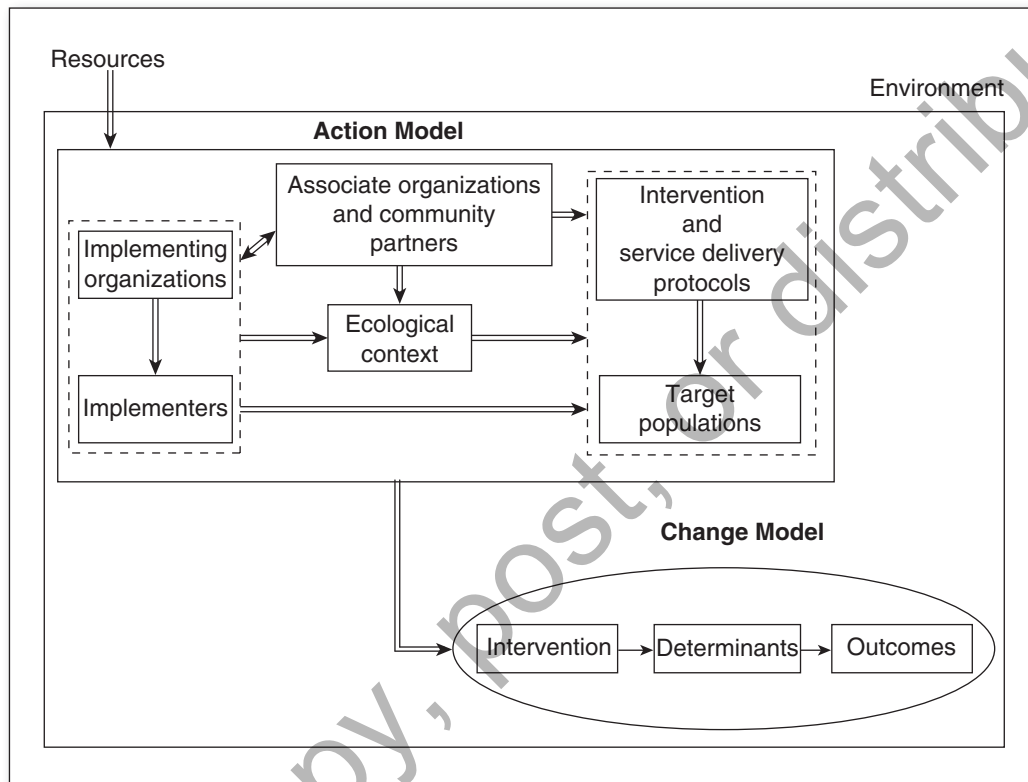
The action model/change model schema is illustrated in Figure 3.5. In the rest of this chapter, Chen's (1990) initial conceptual framework of program theory is broadened and altered, the form of the action model/change model schema, to increase its relevance within evaluation practice.

COMPONENTS OF THE CHANGE MODEL

The components of a change model are its goals and outcomes, its determinants, and the interventions or treatments it is to implement. These change model components and their interrelationships are introduced here.

Goals and Outcomes

Goals reflect the desire to fulfill unmet needs, such as may occur with poor health, inadequate education, or poverty. Program goals are established in light of certain major assumptions, such as their likelihood of being well understood and supported by staff and other stakeholders; their power to motivate commitment of resources and effort; and/or their accurate reflection of stakeholders' aims in valid, measurable outcomes. A program's existence is justified through the meeting of its goals, which are usually articulated in very general, highly laudatory language in an effort to win broad support for the program. In contrast, outcomes are the concrete, measurable aspects of these goals. For example, one goal of welfare reform is to reduce dependency on welfare. An outcome linked to this goal might be increased numbers of welfare recipients obtaining jobs, alleviating their need for government support. "Reducing dependency on welfare" is a notion with many ramifications; it is imprecise. But the outcome "obtaining jobs" gives specific meaning to the program's orientation.

Outcomes themselves may have components, and some outcomes may have both short-term and long-term manifestations. For example, in an HIV prevention program, the outcome over the short term may be increased use of condoms by a high-risk population. The outcome of the same program in the long term may be a lower number of HIV transmissions. Furthermore, a program's outcomes may include intended and unintended developments. If program stakeholders and evaluators suspect that unintended outcomes (whether desirable or undesirable) will occur, then the evaluation should include an identification of all unintended outcomes.

Determinants

To reach goals, programs require a focus, which will clarify the lines their design should follow. More specifically, each program must identify a leverage mechanism or cause of a problem, which will provide the basis of the treatment or intervention developed to meet a need. The assumption is that, once the program activates the identified leverage mechanism, or alleviation of the cause of a problem, its goals will soon be achieved. That leverage mechanism is variously called the *mediating variable,* the *intervening variable,* or the *determinant,* and in this book, the last term is used. Formal theories, developed in every discipline, provide a rich source of determinants for designing a change model. For example, in the field of health promotion, formal theories suggest a variety of determinants that program designers and key stakeholders can deploy in a program (Bartholomew, Parcel, Kok, &

Gottlieb, 2001). For example, the health belief model (e.g., Strecher & Rosenstock, 1997) outlines these determinants influencing an individual's course of action (or inaction) for a health problem: perceived susceptibility to the problem, perceived seriousness of the problem's consequences, perceived benefits of a specific action, and perceived barriers to taking action. Similarly, social learning theory (Bandura, 1977) cites self-efficacy—or the conviction that one can, in fact, carry out the behavior that elicits the outcome—as the most critical determinant of behavioral change. The PRECEDE-PROCEED model (Green & Kreuter, 1991) identifies predisposing factors, reinforcing factors, and enabling factors as important determinants for health behavior change. The determinants identified by scientific theories are intensively studied and applied in scientific research.

Of course, not many programs designed and conducted by stakeholders are intended to strictly conform to formal theories developed from the academia. Naturally, what is identified as the determinant often relates to the program designers' understanding of what causes the problem they want to alleviate and on which exact cause or causes they want a program to focus. This understanding is called *stakeholder theory*. There have been program designers, for example, who believed that urban school students' poor test performance stemmed from a lack of parental involvement, making parents the appropriate focus for programs meant to improve scores. These program designers saw in parental involvement the determinant to help students perform better; for them, it followed that, if the program activated parental involvement, student scores would improve. With a determinant identified, they could move on to figuring out how parents could be trained and motivated to help children study. Again, a program's identified determinant will provide its focus.

Social problems often have roots in multiple causes, but an intervention program usually focuses on one, or perhaps a few, determinants that program designers see as the major cause of the problem—or the most feasible to address or the one best suited to their expertise. It would be difficult for a program to deal simultaneously with all potential determinants, given typical constraints on resources and time. The unmanageability of multiple determinants aside, it remains important to specify clearly on what determinant a program has selected to focus and to justify that selection. Consider the case of juvenile delinquency in a community. High rates of such delinquency may be the result of peer pressure, failure in school, a lack of positive role models, a lack of discipline, a subculture of violence, or a dearth of economic opportunity. A program to lower rates of juvenile delinquency must state plainly, to stakeholders and the community, the cause or causes it assumes to be most relevant and the determinant or determinants upon which it will focus.

Intervention or Treatment

Intervention or treatment comprises any activity or activities of a program that aim directly at changing a determinant. Intervention/treatment is, in other words, the agent of change within the program. The vital assumption made in the intervention/treatment domain is that by implementing certain activities, the program changes the determinant and ultimately reaches its goals. For example, a treatment program for juvenile delinquency chooses to focus on a community's lack of accessible positive role models for youth. The intervention or treatment provided by the program is to team each youth with a volunteer, an accomplished professional or businessperson from the area, who will serve as a role model. Volunteers are expected to spend 2 hours each week with the participant, providing guidance and encouragement related to school, home, and neighborhood. Once a month, the pair is asked to attend a community event or visit with a private or public organization. As the pair's relationship deepens, the program designers assume, the status of the volunteer and his or her personal interest in the youth will motivate the youth to identify with the volunteer and emulate his or her agenda of productive and beneficent activities. This will lower the odds of future involvement in delinquency.

In many cases, an intervention or treatment has a number of elements. For example, alcohol abuse treatment is likely to include detoxification, individual and group counseling, and family therapy. Some intervention programs, on the other hand, can attain program goals without mediating by a determinant. Food relief programs in a disaster or warring region are a good example. A food relief program is regarded as successful as long as food is distributed to and consumed by refugees, even though the cause of their hunger, such as displacement of farmers from agricultural land or disrupted supply routes and markets, is not addressed. However, the great majority of intervention programs aim at changing knowledge, beliefs, behaviors, and/or skills. These kinds of programs usually require the intervention to change some determinants in order to affect goals or outcomes.

The terms *intervention* and *treatment* have been used interchangeably in the program evaluation literature. However, for health-related programs, at least, there is a subtle difference between the two concepts. In health-related programs, *treatment* is equal to caring for and, ideally, curing people who currently have some illness. *Intervention* more often refers to an effort to alleviate an existing problem, to ward off a potential problem, or to improve some aspect of quality of life. An intervention might sometimes comprise

treatment. The evaluation principles and strategies discussed in this book can be applied to either treatment or intervention programs. For simplicity's sake, in the remainder of the book, the term *intervention* will be used, covering both meanings.

COMPONENTS OF THE ACTION MODEL

An action model is a systematic plan for arranging staff, resources, settings, and support organizations in order to reach a target population and deliver intervention services. This programmatic model specifies the major activities a program needs to carry out: ensuring that the program's environment is supportive (or at least not hostile), recruiting and enrolling appropriate target group members to receive the intervention, hiring and training program staff, structuring modes of service delivery, designing an organization to coordinate efforts, and so on. It is vital to recognize that the impact made by a program's change model results jointly from the intervention's effect *and* the particulars of the program's implementation. The success of a job-training program, for example, is determined not entirely by its curriculum but also by the quality of its teachers, the motivation and attitude of its participants, the job search strategies employed, and the vigor of the local economy. The following discussion touches on all major elements—that is, the complete form—of the action model; it provides an exhaustive list, which may be much more than the evaluator requires in actual practice. (A rule of thumb is that large-scale programs may need all six elements, whereas small-scale programs may be just as effective with only a few of them.) Nevertheless, familiarity with the complete action model enables the evaluation practitioner to discuss more than one version of program theory. Access to the complete action model also helps in determining which components are important in a given set of circumstances and in understanding how to simplify or otherwise modify the model to fit particular evaluation needs. The elements of the action model are the implementing organizations, program implementers, associate organizations/community partners, context/environment, target population, and intervention and service delivery protocols. From this list of elements, program evaluators can draw ideas about areas of potential focus within evaluations they are designing.

Intervention and Service Delivery Protocols

The change model for a program reflects general and abstract ideas about intervention that must be translated into the set of concrete, organized, implementable

activities constituting its programmatic model. Basically, there are two require-ments for this translation: an intervention protocol and a service delivery protocol. The *intervention protocol* is a curriculum or prospectus stating the exact nature, content, and activities of an intervention—in other words, the details of its orient-ing perspective and its operating procedures. To begin to ascertain the intervention protocol of a family-counseling program, for example, answers to the following general questions are needed: What is the nature of the counseling? What is the content of the counseling? What is the schedule for the counseling? Specific answers to these might be generated by asking questions such as the following: Is the counseling based on behavior therapy? On reality therapy? On another kind of therapy? Will counselors proceed by following standardized documents? How many counseling sessions are planned, and how long will each last?

In contrast, the *service delivery protocol* refers to the particular steps to be taken in order to deliver the intervention in the field. The service delivery pro-tocol has four concerns: client-processing procedures, or how clients move from intake to screening to assessment to service delivery; division of labor in service delivery, or who is responsible for doing what; settings, which may be formal (e.g., at a program's office) and/or informal (e.g., in a client's home); and com-munication channels (face-to-face, telephone, website, etc.). As an exam-ple, the service delivery protocol of a program addressing child abuse would provide answers to the following questions: Where will counseling take place—in a counselor's office or in clients' homes? Will each parent be counseled sepa-rately, or will they meet with the counselor together? At what point, if any, will child and parents be counseled together? In general, one place to look for the level of quality of a program is in its establishment (or lack of establishment) of an appropriate intervention protocol and service delivery protocol.

Implementing Organizations: Assess, Enhance, and Ensure Their Capabilities

A program relies on an organization or organizations to allocate resources; coordinate activities; and recruit, train, and supervise implementers and other staff. How well a program is implemented may be related to how well the organization is structured. Initially, it is important to ensure that the imple-menting organization has the capacity to implement the program, and strate-gies exist that can be helpful in determining this. For example, if a funding agency gets to choose the implementing organization from among several qualified candidates, that agency may be well equipped to determine which organization is most capable of implementing the program. In reality, however,

such a pool of capable organizations may be missing. This is especially true for community-based organizations. Usually, an implementing organization's capacity to conduct the program must be built up. *Capacity building* involves activities such as training, transferring technology, and providing—financially and otherwise—for the hiring of experts or consultants to help plan and conduct the implementation.

Program Implementers: Recruit, Train, and Maintain Both Competency and Commitment

Program implementers are the people responsible for delivering services to clients; they include counselors, case managers, outreach workers, schoolteachers, health experts, and social workers. The implementers' qualifications and competency, commitment, enthusiasm, and other attributes can directly affect the quality of service delivery and the intervention itself. Thus the effectiveness of the program in large part depends on them. Under the action model, it is important for a program to have a plan for ensuring competency and commitment among program implementers, using strategies such as training, communication, and performance monitoring/feedback.

Associate Organizations/Community Partners: Establish Collaborations

Programs often may benefit from, or even require, cooperation or collaboration between their implementing organizations and other organizations. If linkage or partnership with these useful groups is not properly established, implementation of such programs may be hindered. In the example of the spouse abuse treatment program introduced above, program implementers need to work closely with the court to develop the procedures that will ensure convicted abusers participate in treatment as part of their sentences. This program would meet with serious difficulty if it lacked a working relationship with the court or failed to win the support of judges. Under the action model, it is important to create feasible strategies for establishing and fostering relationships with associate organizations and community partners. As will be detailed in Chapter 5, this element is most important when an evaluator is asked to take a holistic approach to help program designers and other stakeholders plan and develop a program.

Ecological Context: Seek the Support of the Environment

Ecological context is the portion of the environment that directly interacts with the program. Some programs have a special need for *contextual support,* meaning the involvement of a supportive environment in the program's work. (Indeed, most programs can be facilitated to a degree by an environment that supports the intervention processes.) A program to rehabilitate at-risk juveniles, for instance, is more likely to work when it obtains the support and participation of juveniles' families and friends. Both *micro-level contextual support* and *macro-level contextual support* can be crucial to a program's success.

Micro-level contextual support comprises social, psychological, and material supports that clients need in order to allow their continued participation in intervention programs. For example, under current welfare reform laws, in order to receive benefits, mothers must attend job training or find work. But these reforms present two immediate problems: Is transportation available to get the women to the workplace? And who will care for the children while they work? A welfare-to-work program is hardly manageable without tackling these issues. Furthermore, clients may be more likely to participate seriously in programs when they receive encouragement and support from their immediate social units (typically family, peer group, and neighborhood). When program designers or implementers realize that micro-level contextual support could play an important role in an intervention, it is up to them to try to build this support into a program's structure. For example, designers of an alcohol abuse program might organize a support group for clients that includes family members and peers who encourage and support them during and/or after intervention.

In addition to micro-level contextual support, program designers should consider the macro-level context of a program, that is, its community norms, cultures, and political and economic processes. These, too, have the ability to facilitate a program's success. A residential program for the mentally ill can anticipate real difficulties if the local community has a generally hostile attitude toward its clients. But if an adequate campaign for community support of such patients is one component of the residential program's implementation, these difficulties may be alleviated. In any case in which stakeholders believe macro-level contextual support to be crucial to their program's success, generating this support should be included as an element of their program.

Ensuring the capability of implementing organizations, establishing collaboration with associate organizations, and winning contextual support requires great effort. Finding resources to support such an effort can be a challenge. There is a worthwhile payoff, however. If a program does succeed in these

activities, it is considered an *ecological,* or *multilevel, intervention program:* It is a program with goals not just for individual clients but also for the surrounding community. Ecological programs may be likelier to attain their goals than are programs concentrating simply on client issues. This element signals a need to take a holistic approach to conduct program evaluation.

Target Population: Identify, Recruit, Screen, Serve

The target population is the group of people whom the program is intended to serve. Three assumptions that often figure in evaluation are the presence of validly established eligibility criteria, the feasibility of reaching eligible people and effectively serving them, and the willingness of potential clients to become committed to or cooperative with (or at least agreeable to joining) the program. Faced with resource constraints, a program usually cannot provide services to everyone in a target population. Therefore, it needs a clear and concrete boundary for eligibility. Criteria must also be established for determining which populations the program will recruit. For example, the target population of one Head Start program is preschool children from disadvantaged families residing in a particular community. Similarly, an HIV prevention program in one community chooses to serve addicts who inject drugs rather than trying to target the entire high-risk population. A program is usually regarded as ineffective if it finds itself serving the wrong population or failing to reach enough members of the right population. A nursing care program intended to serve low-income elderly people, for example, has failed if its services benefit many comparatively well-to-do people. Similarly, a job-training program that is well funded and well run will have failed if it produces only a handful of "graduates."

Whether or not clients are prepared to accept the intervention also can affect program outcomes. Especially for labor-intensive types of programs, client screening and assessment are vital. A labor-intensive program must be certain of its clients' readiness for intervention, *client readiness* being the extent to which an individual's mental and physical state permits his or her acceptance of an intervention. If clients are not mentally and physically ready for the intervention, it is unlikely to work. *Mental readiness* of a client is the degree of his or her willingness to recognize a problem or deficiency, or the degree of motivation to accept an intervention. For example, a person who insists his or her alcohol use is not a problem will probably not succeed in an alcohol-abuse counseling program. Clients also exhibit varying degrees of *physical readiness* for interventions. Health status affects delivery of some interventions. For example, counseling

clients about HIV prevention can be difficult when they suffer from severe mental health problems or have no food or shelter. Thus, information from assessment can suggest whether a client needs services in addition to the central intervention. For example, when assessment reveals the need, program staff can refer clients for housing assistance, mental health care, education, employment, or other social services. Similarly, a client still under the influence of alcohol is no more physically ready than mentally ready for intervention. Trying to deliver alcohol counseling services is futile until the client has completed a detox program; alcohol abuse intervention starts once the client is sober.

RELATIONSHIPS AMONG COMPONENTS OF THE ACTION MODEL/CHANGE MODEL SCHEMA

It is important to understand relationships among program components. In general, program components need to be organized or connected in a meaningful way in order to achieve the intervention's goals. Figure 3.5 shows how an action model is implemented so that a change model can activate the causal process. The double-banded arrows between components within the action model represent a sequential order between these two components, such that the completion of one component provides the basis for completing the next one. For example, in the figure, the arrow from "implementing organizations" to "implementers" indicates that a capable implementing organization usually must be in place so that implementers can be adequately recruited and trained. With a spouse abuse intervention program—or virtually any program—this means that there must be an organization responsible for implementing the program before counselors or clients can be recruited. In other words, the relationships among components of the action model represent a kind of "task order" relationship: Some components must be in place and complete before others can be brought on line. The only exception is the two-way arrow between implementing organizations and associate organizations/community partners. The bidirectional arrow means that very often, the associate organizations and community partners collaborate with the implementing organizations in planning program activities; thus, they begin their involvement at the same time.

On the other hand, the solid arrows within the change model in Figure 3.5 depict causal relationships. Here, changing one element creates change in the other(s). A solid arrow leading from intervention to determinants represents the model's assumption of a causal relationship between the two. In the spouse abuse program, the model assumes that group counseling has the power to give

abusers anger management skills and to teach them about the criminal punishments for spouse abuse.

The schema should make clear that the action model must be implemented appropriately in order to activate the transformation process in the change model. For a program to be effective, its action model must be sound and its change model plausible; its implementation is then also likely to be effective. For example, for an HIV prevention outreach program to succeed, it needs to coordinate activities, reach the target group, and provide the group with adequate exposure to the prevention message; it must also determine which activities will strengthen the target group's knowledge of risk prevention, which should manifest itself in decreased high-risk sexual behavior. This conceptual framework of program theory should be useful to evaluators charged with designing an evaluation that produces accurate information about the dynamics leading to program success or program failure.

If evaluators and stakeholders want mainly to highlight the relationships among the components of program theory, Figure 3.5 is sufficient. However, Figure 3.5 does not address the relationships among program, environment, and feedback discussed in Chapter 1. For evaluators and stakeholders interested in elaborating these relationships, a comprehensive diagram, such as Figure 3.6, is necessary.

In Figure 3.6, the large square around the program represents its boundary. Everything within the large square is part of the program. All that is outside the square is "environment," which provides the program with necessary resources and support (in other words, its inputs) or, perhaps, works against implementation of the program. Figure 3.6 shows that, generally, a program starts with the acquisition of resources from the environment and the development of an action model. Fueled by the acquired resources, the action model can be implemented in order to activate the change model by way of the program implementation. It is the operation of the change model that leads to the attainment of program goals. A solid arrow joining an action model to a change model indicates that, strictly speaking, whatever effect the program has on the outcomes is not due solely to the implementation of an intervention but rather to a joint effect of the intervention's implementation and the implementation of other factors in the action model. Evaluation feedback is represented by dotted arrows. The evaluation feedback comprises information about how the action model was implemented in the field, such as whether the program reached the intended target population.

Similarly, the dotted arrow from the implementation to the action model indicates that evaluation feedback from the implementation can be used to improve the *planning* or the development of the action model. The dotted arrow from the change model to the implementation and action model indicates that

Figure 3.6 The Action Model/Change Model Schema (Comprehensive Form)
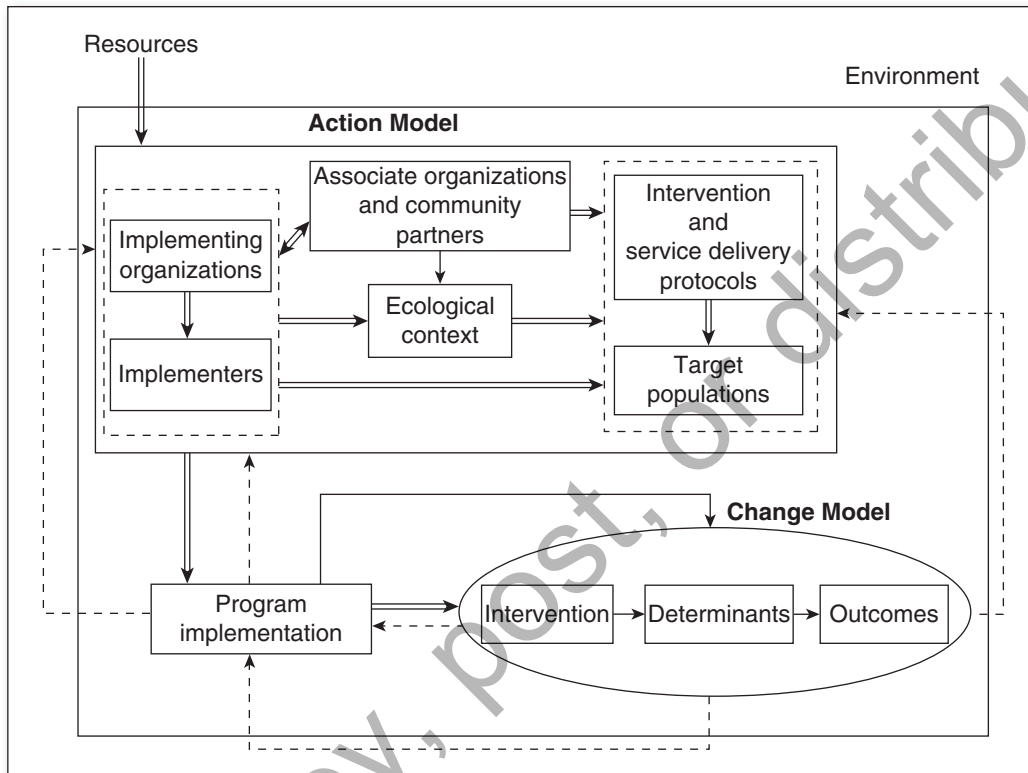
information from the causal process of the change model can be used to improve or modify the implementation process or the planning of the action model.

Some of the dotted lines in Figure 3.6 lie entirely inside the program boundary, while others extend outside it. These comprise two sets of evaluation feedback loops: internal and external. Internal and external feedback accommodate distinct audiences and purposes. Therefore, the evaluation approaches and strategies used with respect to the various evaluation feedback loops can be quite dissimilar. The evaluation feedback loops contained within the program boundary, the *internal feedback loops*, provide feedback for an internal audience of program implementers, administrators, and others who deal with programmatic concerns and service delivery matters on a daily basis. This audience wants from the program evaluator timely information on whether a program is operating smoothly in the expected manner. If there are difficulties, the internal audience wants to

understand, if possible, the sources of the problems as well as the likely remedies. This aspect of evaluation is called *internal-use evaluation* or *construction-oriented evaluation*. Strategies and techniques used in internal-use evaluation must be flexible and creative, and they must be accomplishable quickly. If a program is not on the right track, its course must be corrected before too much time and energy are wasted.

The other set of feedback loops in Figure 3.6 passes to the environment and then back again to the program. This set of *external feedback loops* incorporates both scrutiny by the environment and improvements from the program itself. Conducting external feedback evaluation requires more resources and more time than conducting internal feedback evaluation. The audience for external feedback is funding agencies; decision makers; interested groups; the public at large; and the stakeholders who work inside the program, such as program directors and implementers. The set of external feedback loops represents a mechanism that delivers to the environment information about the merits of a program, what changes the program may need, and the appropriate general future direction the program should take. There are two types of evaluation relating to the external feedback loop. One is intended to serve accountability needs and is called *conclusion-oriented evaluation*. The other is designed to serve both accountability and program improvement needs and is called *enlightenment-oriented evaluation*.

These different types of evaluation will be discussed in detail in the remainder of the book. Furthermore, the sequences of components in the action model as shown in Figure 3.6 are for general programs. The sequences can be modified according the nature of a program. Chapter 13 will illustrate some of the variations.

APPLYING THE ACTION MODEL/CHANGE MODEL SCHEMA: AN EXAMPLE

A good example of the application of the action model/change model schema for program evaluation is found in an evaluation of an antismoking program (Chen, Quane, & Garland, 1988). Program designers devised a comic book with an antismoking story as an intervention to change students' knowledge, attitudes, and behavior concerning smoking. Program designers expressed a desire for an outcome evaluation that would provide information needed to make improvements to the program. The action model/change model schema supporting the program was stakeholder theory, stemming from the program

designers' own ideas and experiences. Evaluators conducted intensive interviews to clarify the stakeholder theory.[1] The stakeholder theory is illustrated in Figure 3.7.

Figure 3.7 The Action Model/Change Model Schema of an Antismoking Campaign
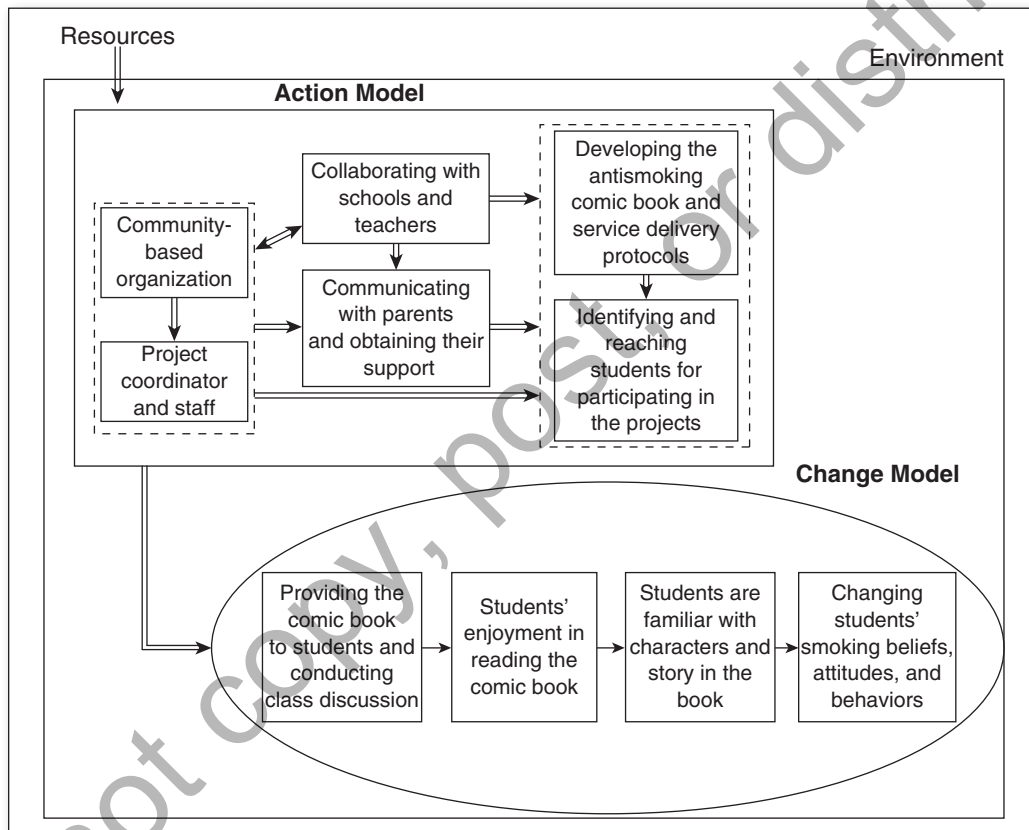
SOURCE: Adapted from Chen, Quane, & Garland (1988).

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[1] How to clarify stakeholders' program theory will be discussed intensively in Chapters 4 and 5.

Change Model

The program designers' main idea for the program came from their observation that teenagers are fond of reading and collecting comic books. Accordingly, they thought a comic book that conveyed an antismoking message would create an opportunity for students to learn the facts presented about smoking and change their attitudes and behavior concerning this habit. More specifically, the program designers' change model contained two determinants in a sequential order: the students' enjoyment of reading comics and students' familiarity with the characters (heroes and villains) and story. The designers hypothesized that these determinants would lead to stronger antismoking beliefs and behaviors.

Action Model

The program designers had in mind a story, characters, and even scripts, and they collaborated with a community-based organization to implement the project. They proposed hiring a comic book artist to draw the pictures and a project coordinator and staff to run the program. They named a target population—young people attending middle school—and sought support from principals, teachers, and parents in encouraging students to participate. They planned to distribute the comic book in health classes.

After the evaluation was conducted, results showed the program to be well implemented in terms of the proposed action model. Results for the change model were mixed, however. Although students read and kept the comic book, as expected, these determinants alone did not translate into attainment of the intervention goals. Fortunately, the evaluation showed where the program's change model had misstepped, and this information would help program stakeholders design a better program.

SOME ADVANTAGES OF USING THE ACTION MODEL/CHANGE MODEL SCHEMA

Facilitation of Holistic Assessment

Using the action model/change model schema to develop contingency principles offers several advantages in the design and conduct of an evaluation. First, the conceptual framework facilitates a holistic approach to evaluating the merits of a program. Following the conceptual framework, an evaluation can explain how and why a program achieves a particular result by illustrating its means of implementation as well as underlying mechanisms that influence it.

Let us look at another example: A new curriculum has been introduced in a school in the hope of raising students' test scores. By proceeding from the conceptual framework, the evaluation of the new curriculum will do three important things: obtain information about achievement of goals, ask how effectively the action model was implemented, and explore the role of any underlying causal mechanisms. Keeping the conceptual framework in mind, the evaluator will be prompted to document the curriculum's implementation, how the students were recruited, and how the teachers taught the curriculum and were motivated to use it. The conceptual framework also prompts queries about underlying causal mechanisms: Are achieved goals truly attributable to innovations in the curriculum? Or have goals been reached by "teaching the test" to students or by taking a punitive approach to low scorers? Because the conceptual framework addresses issues in both the action model and the change model, it helps the evaluator achieve a balanced, comprehensive view of the worth of a program. This kind of assessment of what works and what does not work prevents "throwing the baby out with the bathwater."

Provision of Comprehensive Information Needed to Improve Programs

An evaluation that examines how a program's structure, implementation procedures, and causal mechanisms work in the field, as suggested by the schema, will provide information that can be very useful in program improvement. For example, if the government of a developing country wants to offer low-interest loans to farmers for costly machinery or fertilizers, program evaluators can work with program designers and other key stakeholders to critique the assumptions that underlie their work. For example, will farmers be well informed about the terms of the loans? Will local loan officers welcome a new loan program and do their part to solicit and approve loan applications under it? Evaluation of a program's underlying assumptions brings to light information that helps key stakeholders see why the program is likely or not likely to work well (or did or did not work well).

Delineation of a Strategy to Consider Stakeholders' Views and Interests

Evaluators such as Patton (2011) and Fetterman, Kaftarian, and Wandersman (2015) have argued forcefully that the design of an evaluation suffers without adequate input from stakeholders. Earlier in this section, it was noted that the schema requires evaluators to be familiar with stakeholders' assumptions about their program theory, whether these assumptions are science based or

based on personal beliefs and experiences. When stakeholders' interests and views are given due consideration during the program's design process, the evaluation's relevancy and usefulness burgeon.

Flexible Application of Research Methods to Serve Evaluation Needs

In taking a contingency approach toward research methods, the action model/change model schema offers a guide to the flexible application of methods, allowing particular evaluation issues to be effectively addressed. Few programs can be truly called identical. They all vary in structure, processes, maturity, environment, and stakeholder needs. Research methods should be tailored to meet evaluation needs, *not* vice versa. By taking on conceptual issues, the evaluator is liberated from the rigidity—the dogmatism, even—of method-driven evaluation and its ironclad research methods.

Aid to Selecting the Most Suitable Approaches or Methods

Intense conflicts among evaluators have existed over such major theoretical issues as the nature of evaluation and the chief end of evaluation, as well as over pragmatic matters such as the best methods available to our field. These persisting conflicts may have created confusion. By taking a contingency approach, the action model/change model schema ensures that the merits of a principle, strategy, or method are judged individually and in context, rather than absolutely. In context, each evaluation principle or method is granted its distinct value, not its value relative to that of competing principles or methods, and evaluators are freed to weigh them all. In this way confusion, not the options available to the evaluator, is minimized. The schema also helps make the number of options manageable by identifying those circumstances under which certain concepts and techniques are most appropriate. The schema, then, has at its heart the importance of situational factors for evaluation. This contingency view has the potential to narrow the gap between evaluation theory and evaluators' practice.

HELPING STAKEHOLDERS GEAR UP (OR CLEAR UP) THEIR ACTION MODEL/CHANGE MODEL SCHEMA

As the comprehensive evaluation typology discussed in Chapter 2 suggests, when evaluators set about reviewing a program using an approach associated

with development facilitation strategy or enlightenment strategy (strategies discussed further in the chapters that follow), a frequent first requirement is clarification of the stakeholders' action model/change model schema (Chen, 2003, 2005) or logic model, if evaluators choose to do so. At times, the evaluator may even need to help the stakeholders with the initial draft of an action model/change model schema or logic model. This section explores ways to clarify or help develop stakeholders' program theories. These strategies and techniques discussed below are also applicable to develop logic models.

Reviewing Existing Documents and Materials

To start the process, evaluators need to study existing documents or materials related to the program—brochures, pamphlets, grant applications, memos, and so on. This general information prepares the evaluator for subsequent interviews with stakeholders, ensuring that these will be conducted efficiently. Evaluators might also consider visiting program sites to increase their familiarity with programs that have already been implemented.

Clarifying Stakeholders' Theory

As the evaluator begins to clarify stakeholders' program theory, or as stakeholders begin to develop such a theory with assistance from the evaluator, an important issue must be resolved: What role should the evaluator play in this process? How can he or she best contribute to the work? The evaluator should remember that an action model/change model schema *belongs to the stakeholders;* the evaluator's function is that of facilitator and consultant. Evaluation skills and knowledge should be brought to bear to increase the productivity of the meetings at which various stakeholders attempt to articulate and refine their ideas about the program theory. Stakeholders are sure to have divergent backgrounds, concerns, and interests. It is easy for them to eat up time with free-form discussions that never even approach agreement. The evaluator's job as facilitator is to outline for the group the salient issues to discuss, showing stakeholders where to fill in with their own experiences, thoughts, and expertise. Next, the evaluator can synthesize the discussions and build consensus. The evaluator's concurrent job as consultant means filling in with his or her own evaluation expertise when stakeholders ask for advice. The evaluator is present to lay out options for stakeholders to consider and should avoid imposing his or her own values upon stakeholders. The evaluator should also present ideas drawn from his or her own expertise for stakeholders to discuss.

Participatory Modes for Development Facilitation

Evaluators can assist stakeholders whose action model/change model schema is under development by adopting either of two general participatory modes: the intensive interview mode or the working group mode. Choosing a mode is a prerequisite for stakeholders and evaluators preparing to work together.

The *intensive interview mode* centers on individual, intensive interviews that the evaluator holds with representatives from each key stakeholder group. The aim is to record systematically the individuals' perceptions about issues within the incipient program theory. Based upon these interviews, the evaluator formulates a first draft of the action model/change model schema, which the representatives and other stakeholders will then read. Their comments are incorporated into the final draft. In addition, evaluators can meet with these individuals for the purpose of fine-tuning and finalizing the program theory.

The *working group mode* similarly involves representatives from key stakeholder groups. However, in this mode, the representatives are not interviewed individually but instead meet together with the evaluator to develop the program theory. Group members need to include those who will be most deeply involved in formulating and designing the program, those who will be most deeply involved in implementing the program, and other key constituencies whose input will be influential as to the program's direction. The facilitator, of course, is another member.

The working group actually has relatively few participants when the planned program is a small one. With large programs, however, the working group easily becomes too large to work effectively. A group that is too large can discourage members' full participation, at the same time necessitating many more sessions to finish the work. A good rule of thumb is to limit a group to no more than 15 members. Small groups can foster a casual atmosphere for discussion, enabling the evaluator to serve as both facilitator and consultant. A large group, especially one with a highly diverse and vocal membership, makes it difficult for the evaluator to be facilitator and consultant at once. With large groups, at least two evaluators may need to participate in the meetings—one as facilitator, the other as consultant.

How should one choose a participatory mode? Each has its advantages. The intensive interview mode tends to be less challenging logistically because group meeting arrangements are needed only infrequently. In addition, the interview setting may strike some participants as being much more comfortable and secure than a typical meeting. The interview also tends to allow the evaluator

to more readily probe stakeholders' views. A potential limitation of the intensive interview mode, however, is some stakeholders' perception that they have participated in only one part of the theorizing process. This is especially problematic in large programs with many powerful stakeholders.

In contrast, the working group mode tends to demonstrate that the action model/change model schema is being developed in an open, inclusive manner, which could increase some stakeholders' buy-in. But again, work with a group often requires more time to finish than work done in interviews. Furthermore, it is possible in working groups for a few highly vocal stakeholders to dominate the discussion. This problem might be alleviated if the evaluator sets clear ground rules for discussion during the first meeting that encourage full participation by all members. An even more serious problem with the working group mode is that some stakeholders—those in the lower ranks of the implementing organization(s)—may worry about expressing their actual opinions, choosing instead to simply echo what higher-ranking officials say. In such a case, the final action model/change model could reflect only the views of those in authority. If this is a concern, the intensive interview mode is the better choice.

Theorizing Procedures for Development Facilitation

As with the participatory mode, a *theorizing procedure* must be selected in order to help stakeholders develop their action model/change model schema. So-called forward reasoning, backward reasoning, and forward/backward reasoning are the three general options for evaluators working within the development strategies.

Backward reasoning begins with the change model, then moves backward step-by-step to the action model in order to obtain the action model/change model schema. It is "backward" reasoning in that the process moves in the opposite direction as the sequences shown in Figure 3.5. More specifically, backward reasoning starts from the question of what goals the program seeks to achieve. Other questions are the following: On which determinants of these goals should the program focus? What intervention will affect these determinants in appropriate ways? When a change model has been completed, evaluators can facilitate stakeholders' development of the corresponding action model with questions such as these: Which groups need to be reached and served? What kind of program implementers and implementing organizations will suit? What types of intervention and implementation protocols seem best? Should there be collaboration with other organizations? Will the program require ecological support?

Forward reasoning, on the other hand, means formulating an action model/ change model in accord with the logic flow outlined in Figure 3.5—action model first, then change model. Forward reasoning produces general program goals and grows from initial thoughts about what kind of action model is needed. Questions like these are important in forward reasoning: At which intervention and implementation protocols will the implementing organizations excel as they try to solve particular problems or reach certain goals? What group needs to be reached with the intervention, and *how* can it be reached? What setting and delivery mode make sense? Do clients face barriers to receiving services, and can the program alleviate these? How and where should contextual support be sought for the intervention, if needed? When they have completed the action model, evaluators and stakeholders can develop a change model by asking two questions, in sequence: What determinants will be changed by the intervention? What outcomes will be achieved by changing these determinants?

Forward reasoning and backward reasoning alike can be used successfully in the formulation of program theories. In certain circumstances, however, one of the two theorizing procedures is clearly the better choice. Some rules of thumb can guide the evaluator.

The first rule says that, generally speaking, when program designers and other key stakeholders are familiar with social science methodology, backward reasoning works best. It is the procedure that starts with discussion of a program's goals, a subject stakeholders enjoy discussing and that can help break the ice. Subsequent inquiries within the backward-reasoning procedure (e.g., What are the causes of the problem? Which intervention seems to offer promise? What is an appropriate design for the intervention?) are well within the stakeholders' capability to debate. On the other hand, when program designers and other key stakeholders are not familiar with social science methodology, forward reasoning should be preferred. The reason is that theorizing procedures need to start with a topic that stakeholders feel comfortable discussing. Forward reasoning starts with the specification of programming issues, about which stakeholders have many ideas to voice. Forward reasoning aptly suits efforts to clarify or develop stakeholders' views on the steps their program should take: what to do first, what to bring in next, building up to the third and fourth and fifth steps, and so on through culmination in delivery of a service or services. Whether an evaluation begins with forward or backward reasoning, if the evaluator and stakeholders come to realize that continuing in that mode will be difficult, they are always free to switch to the other procedure to resume their discussions.

It is also important to note that forward and backward reasoning are not mutually exclusive. In fact, *forward/backward reasoning* is a use of forward and backward reasoning, back and forth, to facilitate stakeholders and make explicit their action model/change model schema. Forward/backward reasoning is more time-consuming than the other two approaches, but it may bring to bear the best of both worlds. In using this technique, evaluators and stakeholders often apply backward reasoning first and then use forward reasoning to compensate for weaknesses in backward reasoning. For example, an evaluation focused on *both* action and change models might begin with the forward reasoning procedure to construct an action model, take up backward reasoning to establish a change model, and finally integrate the two to arrive at an overall program theory. This dual procedure is a good choice when program stakeholders and evaluators believe that unintended outcomes will be of import. Employing the theorizing procedures in both directions may make it more likely that a working group will be alerted to potential unintended desirable or undesirable effects. The evaluator should facilitate discussion of any unintended effects and their prevention, should they be undesired.

Preparing a Rough Draft That Facilitates Discussion

The work of developing a useful action model/change model schema is often time limited. The program theory's usefulness may dwindle with the passing of a deadline, and, more often than not, deadlines come sooner than the planning team would like. Scheduling, preparing for, and executing either interviews or meetings, and then compiling the information obtained and soliciting comments on it, is very time-consuming (especially so if every element and issue needs to be broached, examined, and ruled on—from scratch—in these meetings or interviews). To shorten the period required, it is not unusual for evaluators to scour existing information about a program and use what they learn to prepare a rough draft of a program theory for discussion by the working group. The rough draft should include the elements of a program theory stated in the existing information, the elements that may be implicit in the existing information but are not communicated straightforwardly there, and the significant elements not yet touched on that will require intensive discussion. The rough draft provides a focus for stakeholders' thoughts and suggestions. It should be distributed to members of the working group (or to individuals scheduled for interview) well in advance of the meeting date, giving them time to digest the contents. The rough draft is a tool to streamline discussion, focus comment, and foster specificity and usefulness in the work.

APPLICATIONS OF LOGIC MODELS AND THE
ACTION MODEL/CHANGE MODEL SCHEMA

Both logic models and the action model/change model schema are useful to evaluators. Stakeholders often ask evaluators to work on logic models for their programs because of grant application requirements. A straightforward application of logic models may work for many programs. However, evaluators should be aware that such a straightforward application of logic models may not work well for programs with an emphasis on contextual factors and/or causal mechanisms. Chapter 12 will discuss the problems created by such applications and will show how they can be resolved by bringing in the action model/change model schema.

Because of its comprehensiveness, this book will emphasize how to apply the action model/change model schema so as to design and conduct fruitful evaluations that assess program planning, implementation, and/or outcomes. As the reader progresses further into this book, the three general purposes of the action model/change model schema are explained. One purpose of the schema is to underpin the comprehensive evaluation typology discussed in Chapter 2. A second purpose is to lay out for the practitioner those evaluation approaches best suited to the *program planning, implementation,* and *outcome* stages, suggesting some applications for these approaches. A final purpose of the schema is to use it as a platform for introducing conventional and cutting-edge evaluation approaches to evaluators and stakeholders.

QUESTIONS FOR REFLECTION

1. Use the components of logic models to describe a real-world program.

2. Using components from your example in question 1, create "If . . . then . . ." statements.

3. Why would you want to separate outcomes into short-term and/or long-term outcomes? Give examples of instances in which you would do this.

4. Describe the descriptive and prescriptive assumptions in a program theory. Compare and contrast program theory with behavioral or social science theories (formal theories).

5. Describe the components of a change model. Use a real-world program to illustrate these components.

6. Why is it important to identify the determinants of a problem? What are the possible consequences if these determinants are not defined?

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7. Describe the components of an action model. Use a real-world program to illustrate these components.

8. Give examples of how a real-world organization ensures implementers' competency and commitment. What might be the consequences if the organization did not do so?

9. Can you think of any programs that went awry at least in part because the program implementers' capability was compromised? How might this have been avoided?

10. How does the intervention protocol differ from the service delivery protocol? Give examples of both.

11. Explain how the ecological context interacts with the program. What could happen if the ecological context was unsupportive of the program?

12. What conditions must hold for each theorizing procedure option to be effective? For example, why would you employ the backward-reasoning option instead of the forwarding-reasoning option? Under what circumstances would the option chosen not make a difference?

13. You are planning a program to enhance the grade point average of children from low-income families. Describe your program using both a logic model and the action model/change model schema. Compare and contrast how your logic model and action model/change model schema represent your program.

14. If an evaluator facilitates stakeholders in developing a logic model or program theory, would the evaluator's objectivity necessarily be compromised during the evaluation? Explain why or why not.