

Using Logic Models and the Action Model/ Change Model Schema in Planning the Learning Community Program: A Comparative Case Study

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Abstract: *Recent interest has been noted in the evaluation community in expanding the focus from program implementation and outcomes to program design and planning. One important step for moving in this direction is to examine existing evaluation models and to assess their relative strengths and weaknesses for planning purposes. This article presents a comparative case study of applying logic models and the action model/change model schema for planning the Learning Community Program in Taiwan. Lessons learned from these applications indicate that logic models are relatively easy to learn and effective for identifying major program components and indicators, but not sufficient for articulating the theoretical significance of the program. On the other hand, the action model/change model schema requires more time to learn and practise, but it has relative advantages for providing theoretical insights into contextual factors and causal mechanisms of the program, unlike logic models. This comparison can serve as a guide for evaluation practitioners when selecting evaluation tools to apply in planning and/or evaluating their programs.*

Keywords: *action model/change model schema, learning community, logic model, program planning*

Résumé : *De plus en plus les évaluateurs semblent orienter leur intérêt vers la conception et la planification de programme plutôt que sur l'implantation et les effets. Une étape importante de ce virage est d'examiner les modèles d'évaluation existants et d'évaluer leurs points forts et leurs points faibles pour l'exercice de planification. Cet article présente une étude de cas comparative de l'utilisation des modèles logiques et des modèle d'action/de changement aux fins de la planification d'un programme d'apprentissage communautaire à Taiwan. Nos résultats indiquent que les modèles*

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logiques sont relativement faciles à apprendre et efficaces pour l'identification des principaux indicateurs et éléments d'un programme, mais ne suffisent pas à articuler la signification théorique du programme. En revanche, le schéma du modèle d'action/modèle de changement prend un peu plus de temps à apprendre et à pratiquer, mais offre des avantages relatifs pour fournir des éclairages théoriques sur les facteurs contextuels et les mécanismes causaux du programme, au contraire des modèles logiques. Cette comparaison peut servir de guide pour les praticiens de l'évaluation lorsqu'il s'agit de choisir des outils d'évaluation à appliquer dans la planification et/ou l'évaluation de leurs programmes.

Mots clés : *schéma de modèle d'action/modèle de changement, communauté d'apprentissage, modèle logique, planification de programme*

Evaluation is often the final step in running social betterment or health promotion programs. It is not until the program plan is completed and/or implementation under way that evaluators are invited to the table. Findings from evaluation inform program planners and stakeholders about program shortcomings and achievements related to implementation and outcomes, and they serve to improve the program and feedback accountability. Recently, a growing interest emerged about applying evaluation theory and approaches to program design in order to improve the planning process. An intervention program consists of multiple components and linkages. Sometimes the linkages and relationships between and among these components can be obscured, causing difficulty implementing the program as well as communicating this information to people inside and outside the program. Stakeholders have been increasingly asking for assistance from evaluators to strengthen their program plan and to better describe and/or communicate their program. The evaluation community responded to this demand seriously. For example, the theme of the 2016 Annual Meeting of the American Evaluation Association was "Evaluation + Design." The event challenged evaluators to expand the evaluation foci from a traditional emphasis on implementation and outcome assessments to include an emphasis on *program plan* assessment. In our opinion, this growing interest in program plan assessment requires the evaluation community to have the following two types of groundwork in place:

- (1) the introduction of existing evaluation models that are useful for program planning/development; and
- (2) empirical information on the relative strengths and limitations of available models.

As we discuss below, there is a dearth of information on the usefulness of evaluation models for planning/development purposes. Lacking are empirical data on the relative strengths and limitations of existing models that would guide evaluators in making informed decisions about which one to use and the conditions under which the models are the most useful. This study attempts to

contribute to laying this groundwork by conducting an empirical comparative study of evaluation models using a large-scale education initiative called the Learning Community Program as a case study. In this article we will

- introduce the Learning Community Program and its planning/development needs;
- review the literature on evaluation models relevant to program planning/development and the selection of two appropriate models for the comparative study;
- introduce the methodology used in the study;
- apply each model to the education program; and
- discuss the major findings and the relative strengths and limitations learned from these applications.

THE LEARNING COMMUNITY PROGRAM IN TAIWAN AND ITS EVALUATION NEEDS

Learning community is a movement that emphasizes leadership, community-building, and teacher development as points of inquiry and reflection. There are five key features of the learning community: shared values and vision, collective responsibility, reflective professional inquiry, collaboration, and promotion of individual and group learning (Bolam, McMahon, Stoll, Thomas, & Wallace, 2005; Hipp & Huffman, 2010). Based upon the above principles, the learning community can be implemented at different levels, for example, at the level of school, teacher, or student. It emphasizes that it is the teachers' responsibility to establish dialogue and to engage in peer collaboration. In addition, a learner-centred pedagogy is used to create a learning community in the classroom (Bolam et al. 2005; Pan, 2014). There is evidence that implementing learning communities in schools has the potential to revitalize school teaching and to prepare competent students for the future (Robinson, Lloyd, & Rowe, 2008). The concept of learning community gained such popularity among educators that many countries, including Taiwan, adopted it to reform education. Funded by the Ministry of Education, a program called Learning Community under Leadership for Learning (or the Learning Community Program) was launched in Taiwan in 2013. In total, 33 schools (15 of which are primary schools), 692 teachers, and 9,037 students participated in the Learning Community Program in 2016.

Although the program was implemented, stakeholders had difficulties describing and communicating information about the program because of its intricate and dynamic interactions. This experience led them to select two planning models that seemed to fit their needs and conduct a comparative study of relative strengths and limitations. They felt that such a study would be helpful for improving their planning/development processes and would contribute to the literature in this area.

REVIEW OF THE LITERATURE AND SELECTION OF TWO EVALUATION MODELS

The research team, which included an internal evaluator of the program, searched the literature for models or tools that could help clarify the relationship between various components of the program, improve the communication and development of the program, and guide future evaluation. They specifically looked at literature on logic models and program theory.

Logic models

The idea of specifying a program's underlying logic for planning and evaluation purposes can be traced back to the logical framework approach of the U.S. Agency for International Development in the 1960s ([Practical Concepts Incorporated, 1971](#)). This approach was well known within the international development community but not in other disciplines. Using a similar idea, the [United Way of America \(1996\)](#) created a simpler structure of the model and labelled it a "logic model." This terminology and the design of the logic model have been well received and widely applied across disciplines. For example, the Centers for Disease Control and Prevention's monograph "A Framework for Program Evaluation in Public Health" promoted logic models as a tool for integrating planning, implementation, and evaluation ([CDC, 1999](#)). Furthermore, the subsequent publications of logic models by the W.K. Kellogg Foundation ([Kellogg Foundation, 2004](#)), among others, also contributed to its popularity.

Other versions of logic models and their use have also been proposed. For example, the University of Wisconsin's Cooperative Extension ([Taylor-Powell & Henert, 2008](#)) proposed an idea for nesting logic at different levels. [McLaughlin and Jordan \(1999\)](#) indicated the possibility of connecting multiple logic models within a program, while [Montague and Porteous \(2013\)](#) proposed the possibility of incorporating some components of program theory into a logic model. Although these ideas are interesting and are expanding the scope and coverage of program components within a logic model, they have not been empirically applied to demonstrate the feasibility and value of logic models for program planning.

After the literature review, it became apparent to the research team that the logic model design provided by the United Way of America was most relevant and useful to classify the components of the Learning Community Program, so we decided to select this version for this comparative study. Logic models under the [United Way of America \(1996\)](#) include the following key program components: (1) inputs (i.e., resources dedicated to or consumed by the program), (2) activities (i.e., what the program does with the inputs to fulfill its mission), (3) outputs (i.e., the direct products of program activities), and (4) outcomes (i.e., benefits to participants during and after program activities). The diagram of a logic model includes arrows connecting inputs to activities, activities to outputs, and *outputs* to outcomes. Often, the outcomes component is further divided into short-term and long-term, or short-term, intermediate, and long-term outcomes.

Program theory (theory of change)

Relevant to logic models, program theory addresses the issue of how to unpack a program's underlying mechanisms for planning and evaluation purposes. However, program theory had a different origin and different emphasis. It originated in the work of Suchman (1967), Chen and Rossi (1980), and Weiss (1998). Initially, the movement was a reaction to the popular view of method-driven evaluation in the 1970s and early 1980s. Advocates of method-driven evaluation at that time surmised that program evaluation was mainly an atheoretical research methodology. Under this view, evaluators basically selected a qualitative or quantitative method and followed its research steps. Method-driven evaluation may have methodological rigour, but it ignores broader program issues of interest and usefulness to stakeholders. To address the drawbacks of method-driven evaluation, advocates of program theory or theory-driven evaluation proposed to go beyond methods by articulating theoretical assumptions underlying a program for inquiry. Chen (1990) indicated two types of assumptions underlying a program: descriptive (why an intervention works) and prescriptive (how to do it). Different versions of program theory have been proposed depending on whether the focus is on descriptive assumptions, prescriptive assumptions, or both. The versions focusing on descriptive assumptions have been widely applied (Blamey & Mackenzie, 2007; Coryn, Noakes, Westine, & Schröter, 2011; Donaldson, 2007; Funnell & Rogers, 2011; Mayne, 2015; Pawson & Tilley, 2007; Weiss, 1998). Many of these evaluations focused heavily on assessing causal mechanisms linking interventions to outcomes. This may explain why some evaluators label program theory as “theory of change” in their work.

Another version of program theory focusing on both descriptive and prescriptive assumptions is called the action model/change model schema (Chen, 2005, 2015; Johnson & Bendolph, 2017). The schema goes beyond assessing *why it works* (the change model) by also assessing *how to do it* (the action model). Since the Learning Community Program's focus was heavily on building the infrastructure required to support the underlying causal mechanisms conducive to student success, the research team selected the schema as the second model for the comparative study.

The structure and components of the change model and action model schema and their relationships are discussed below:

Change model

A change model describes the causal process generated by the program. The following are the elements of a change model:

- Goals and outcomes. Goals reflect the desire to fulfill unmet needs, such as poor health, inadequate education, or poverty. Outcomes are the concrete, measurable aspects of these goals.
- Determinants. To reach goals, programs must identify leverage mechanisms upon which to develop a treatment or intervention. That mechanism is called the determinant, mediator, or intervening variable.

- Intervention or treatment. Intervention or treatment means any activity in the program that aims directly at changing a determinant. It is, in other words, the agent of change within the program.

Action model

An action model is a systematic plan for arranging staff, resources, settings, and support organizations, to reach a target group and deliver intervention services. The action model consists of the following elements:

- Implementing organization. This refers to the entity coordinating the program and is usually responsible for allocating resources, coordinating activities, and also recruits, trains, and supervises implementers and other staff. How well a program is implemented may be related to how well this organization is structured. Initially, it is important to ensure that the implementing organization has the capacity to implement the program.
- Program implementers. Program implementers are the people responsible for delivering services to clients such as counsellors, case managers, outreach workers, school teachers, health experts, and social workers. The implementers' qualifications, competencies, commitment, enthusiasm, and other attributes can directly affect the quality of service delivery.
- Peer organizations/community partners. Programs often may benefit from, or even require, cooperation or collaboration between their implementing organizations and other organizations. If linkages or partnerships with these useful groups are not properly established, implementation of such programs may be hindered.
- Intervention and service delivery protocols. Intervention protocol is a curriculum or prospectus stating the exact nature, content, and activities of an intervention—in other words, the details of its orienting perspective and its operating procedures. Service delivery protocol, in contrast, refers to the particular steps to be taken to deliver the intervention in the field.
- Ecological context. Some programs have a special need for contextual support, meaning the involvement of a supportive environment in the program's work. Both micro-level and macro-level contextual support can be crucial to a program's success. Micro-level contextual support comprises social, psychological, and material supports to ensure clients' continued participation in intervention programs. Macro-level context includes community norms, cultures, and political and economic processes.
- Target group (to be identified, recruited, screened and served). Crucial elements necessary for selecting the target group are valid eligibility criteria, feasibility of reaching and serving the target group effectively, and

the willingness of potential clients from the target group to commit and cooperate with the program.

Figure 1 illustrates the relationships among the components of the selected schema (Chen, 2015, p. 81).

The action model must be implemented appropriately 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 must be plausible. Figure 1 also illustrates evaluation feedback represented in dotted arrows. Information from implementation can be used to improve the planning or the development of the action model. Similarly, information from the change model can be used to improve the implementation process and the action model. Since the schema is relatively new, the research team contacted the schema’s developer for assistance. The developer agreed to serve as a voluntary consultant for the project as needed.

METHODOLOGY

The study involved three research phases: (1) an application of a logic model to the Learning Community Program, (2) an application of the schema to the Learning Community Program, and (3) a comparative analysis between the two models. These three phases and the research methods used are presented below.

Phase I: Development of the logic model for the Learning Community Program

The working group meeting approach (Bennett & Gadlin, 2012) is a popular method for organizing meetings and for enabling participants to work together on a task. This study applied this method to develop the logic model for the Learning Community Program.

The procedure included the following steps:

1. Organizing the working group meeting

The internal evaluator of the research team, who was familiar with both logic models and schema, served as an organizer of the working group as well as a facilitator during the discussion. She invited eight people (three key research staff and five school representatives) involved in planning or implementing the program to participate in the meeting.
2. Developing the logic model for the Learning Community Program

During the meeting, the facilitator introduced the structure and components of the logic models to participants. An example of the logic model was produced to ensure participants’ understanding of the logic model. After discussions and practice with examples, the participants developed a draft of the logic model for their program. After the meeting, the draft was sent to each participant for additional comments and suggestions, which were incorporated in the final version by the internal evaluator.

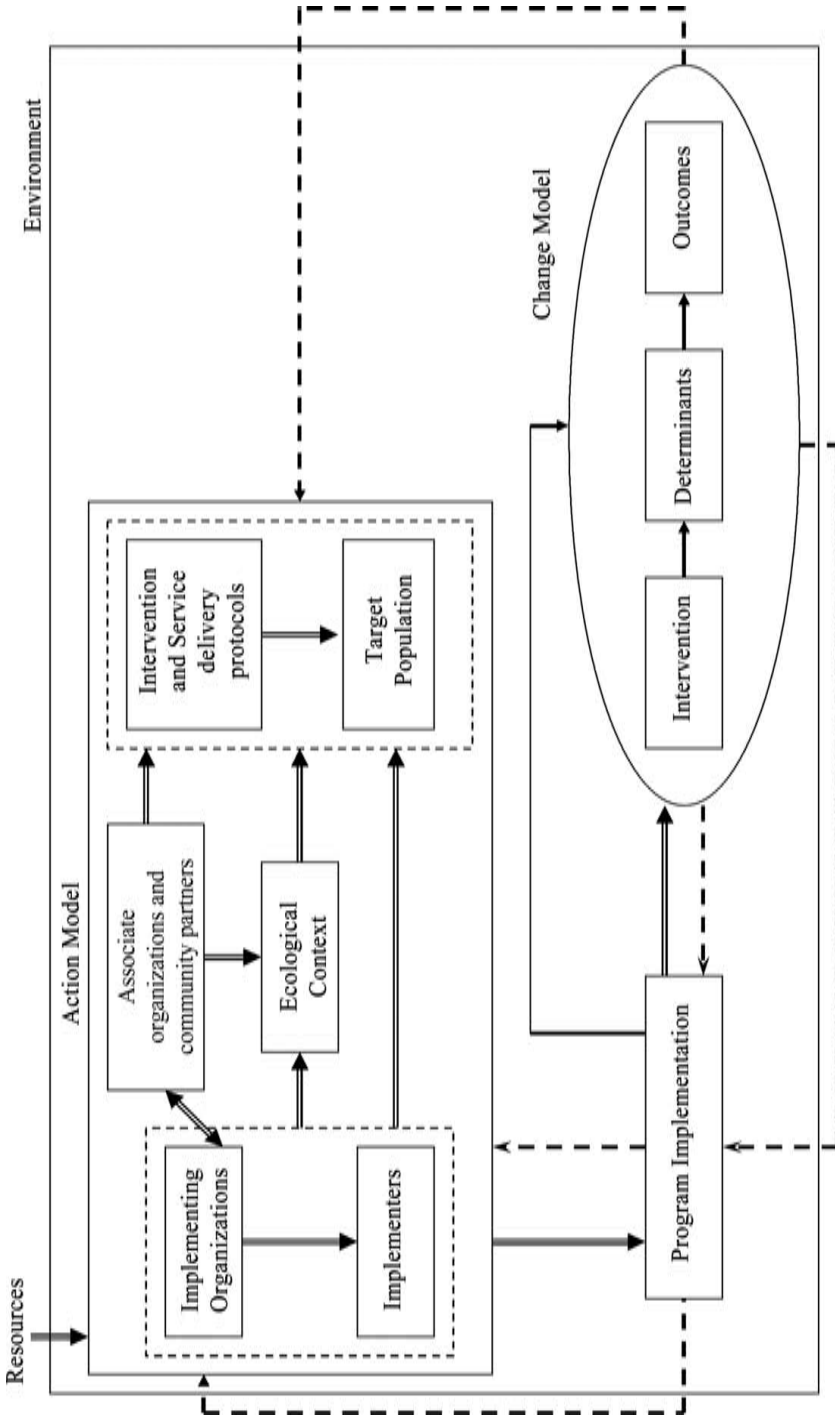


Figure 1. Action Model/Change Model Schema

Phase II: Development of the action model/change model schema for the Learning Community Program

During the second research phase, the facilitator and the same group of participants met again to develop the schema for the program by following the same procedures used to develop the logic models, as described above.

Phase III: Comparative analysis: Relative strengths and limitations of logic models and schema

The facilitator invited the same participants from the working-group meetings to attend a focus-group meeting to discuss their views and experiences with developing the two models for their program. The discussions were guided by three sets of questions:

1. Engagement questions asked participants about their general view and experience in working with the two models.
2. Exploration questions asked participants to identify and compare the relative strengths and limitations of the two models based on their application experiences.
3. Exit questions asked participants whether they thought of additional issues that were not addressed in the first and second sets of questions above.

The meetings were recorded and transcribed. The collected data were analyzed using the qualitative content analysis approach (Krippendorff, 1980). Two of the authors read the transcriptions, listened to the recordings several times separately, and analyzed the data separately. The statements made by the participants in the meetings were organized into categories based upon semantic and conceptual similarity; major themes were then abstracted. Two of the authors met five times to discuss the analyses, categories, and themes until consensus was reached. To enhance the trustworthiness, the authors checked the analyses, categories, and themes to meet the criteria of peer reviewing (Creswell, 2012).

The development of the logic model for the Learning Community Program

The facilitator explained the logic model to participants. The only difficulty reported by participants was related to the difference between outputs and outcomes. The facilitator reiterated that outputs are direct results of activities such as number of classes, number of participants in each class, and so on, while outcomes are measures of program goals. Furthermore, examples were used to illustrate each component of the logic model to ensure that participants understood each component. The final version of the logic model for the Learning Community Program developed by the group consisted of the following:

Inputs included funding, staff, and materials for students' instruction such as brochures, handbooks, films, instruments.

Activities included partnerships with other educational institutions and governments, and providing training to the teachers and school administrators.

Outputs included the number of schools, teachers, and administrators participating in the program, the number of alliances developed, and the number of on-site mentor visits.

Outcomes were considered at three levels: school, teacher, and student. The school-level outcomes included cultural changes in shared leadership, vision, and solidarity. The teacher-level outcomes included teacher enthusiasm and efficacy. The student-level outcomes included increasing collaboration and expression.

The logic model is shown in [Table 1](#).

The development of the action model/change model schema for the Learning Community Program

Understanding and developing the schema took more time and effort compared to the logic model because it required participants to clarify the complicated and dynamic interactions inherent to the program. Participants engaged in intensive discussions of the following issues when developing the schema.

Issues related to implementers versus target population

Implementers are generally the people who provide services. Initially, the team identified two groups as implementers: project staff and consultants at the university level, and school administrators and teachers at the school level. The Learning Community Program required training both groups to deliver services, but in different ways. Project staff and consultants at the university level trained to become trainers and mentors for school administrators and teachers, while administrators and teachers at the school level trained to develop knowledge and skills to apply the learning community in schools and classrooms. One participant stated, "Although the learning communities are put into practice in the schools, it was the project staff who initiated the program. The project staff were responsible for training school administrators and teachers to build learning communities."

Through discussion, participants in the meeting began to realize that the program was operating under the principle of a train-the-trainers model. That is, the project staff first recruited and trained researchers and consultants as trainers of the learning community, who in turn trained administrators and teachers to put the learning community into practice at schools. From this perspective, project staff and consultants were implementers and school administrators and teachers were the target populations for this intervention. School administrators and teachers became implementers after they put the learning community into

Table 1. Logic Model of the Community Learning Program

Input	Activities	Outputs	Outcomes
<ul style="list-style-type: none"> • Fund • Project staff • Background information on learning community/leadership for learning • Materials /equipment (brochure, handbooks, films, instruments) 	<ul style="list-style-type: none"> • Build a trilateral partnership of the university, local governments, and participating schools • Organize learning community/leadership for learning meetings/workshops with local governments and schools for generating support • Provide training to participating schools and teachers on learning community/leadership for learning • Develop indigenous models and strategies of learning community/leadership for learning • Provide consultation to participating schools through on-site visits 	<ul style="list-style-type: none"> • Number of schools participating in the project • Number of teachers participating in the project • Number of students participating in the project • Number of subjects using the approach of learning community • Number of school strategic alliances • Number of teacher communities across schools • Number of teacher web communities • Number of consultants' on-site visits to participating schools 	<ul style="list-style-type: none"> • School-level outcome: <ul style="list-style-type: none"> ◦ school as learning community (supportive and shared leadership, vision and recognition, learning for change, shared personal practice) ◦ school capacity for development (the solidarity of school members, the innovation of curriculum and instruction, and the enthusiasm of teacher engagement in teaching and learning) • Teacher-level outcome: <ul style="list-style-type: none"> ◦ learning-centred teaching practices ◦ teacher professional learning ◦ teacher efficacy • Student-level outcome: <ul style="list-style-type: none"> ◦ students' competence of inquiry, collaboration and expression ◦ the changes of the social relations in classes ◦ students' engagement of learning ◦ students' learning power

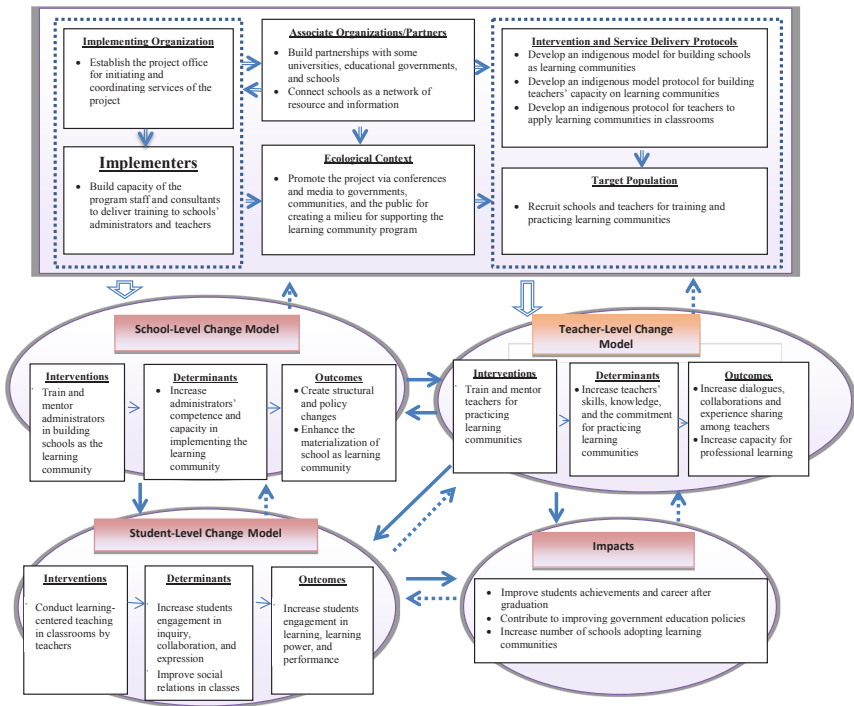


Figure 2. Action Model/Change Model of the Learning Community Program

practice. A description of their roles in implementation will be included in the change model described in a later section.

Issues related to describing the interventions and change processes

The action model/change model schema requires users to clearly identify the interventions and their causal processes for attaining outcomes. Since the Learning Community Program consisted of three levels of interventions (schools, teachers, and students), the participants had intensively discussed how to untangle these causal processes in a change model. Two options were considered: to create one change model that included three levels of interventions in a single diagram, each with its own causal process and outcomes (as illustrated in Figure 1), or to create three change models, each representing a different level of intervention (student, teacher, and school) as illustrated in Figure 2.

During discussions, participants agreed that the first option would not reflect well the relationships across different levels of change processes. For example, the literature indicates that school-level changes must take place first to support changes at the teacher level, and teacher-level change must happen before student-level change can occur (Bolam et al., 2005; Hipp & Huffman,

2010). These relationships would be difficult to capture in a single change model. After consulting with the schema developer, the project team decided to adopt the second option, to clarify that the school-level change was a necessary condition to make the teacher and student level change possible. Figure 2 illustrates the final version of the action model/change model schema for the Learning Community Program.

THE ACTION MODEL

The action model consists of the following components:

Implementing organization. The project office was established for coordinating program activities, such as hiring personnel, establishing partnerships, coordinating activities, and developing the intervention protocol.

Implementers. Implementers were staff and consultants responsible for training and mentoring school administrators and teachers.

Associate organizations/partners. The project office built partnerships with universities, government agencies, and schools. Part of their agreement included providing services to assist them in planning and implementing the program. Another effort was to connect schools as a network of resources and information.

Ecological context. The project office and partners launched campaigns to promote the Learning Community Program via conferences and media, to create a milieu for supporting the program.

Intervention and service delivery protocols. The project office and partners developed models to help adapt the notion of learning community to embed it into Taiwanese culture. Adaptation of the program made application more feasible in Taiwanese schools and communities.

Target populations. The project office, assisted by partners, was responsible for recruiting schools and teachers to participate in the program.

CHANGE MODEL

The implementation of the action model was expected to generate change processes at the school, teacher, and student level. The interacting elements producing change at each level were as follows.

School level

1. Intervention: Train and mentor school administrators for school-level interventions.
2. Determinants: Increased administrators' competency and capability in initiating and practising learning communities in their respective schools.
3. Outcomes: Administrators will create structural and policy changes for supporting the learning community activities in schools, which is likely

to enhance the materialization of school as learning community through supportive and shared leadership, building vision and recognition, learning for change, and shared personal practice.

Teacher level

1. Intervention: Train and mentor teachers for putting learning communities into practice.
2. Determinants: Increased teachers' skills, knowledge, and commitment for working in learning communities.
3. Outcomes: Increased dialogues, collaboration, and experience-sharing among teachers and increased capacity for professional development.

Student level

1. Interventions: Conduct learning-centered teaching in classrooms.
2. Determinants: Increased student engagement in inquiry, collaboration, and expression, as well as improved social interactions and relations in classrooms.
3. Outcomes: Increased student engagement in learning, enhanced learning power, and enhanced performance.

Relationships among the three levels

Figure 2 indicates how the three levels of intervention are related. The school-level change was necessary first to support the teacher level of change. Furthermore, both the school-level and teacher-level change models must take place before the student-level change model can work.

Impact of the programs

Figure 2 shows how these three levels of changes created the following overall impacts: improving student achievement and potential to pursue a career after graduation, increasing the number of schools adopting learning communities, and contributing to improving government education policies.

RELATIVE STRENGTHS AND LIMITATIONS OF THE TWO EVALUATION MODELS

As described in the Methodology section, the same participants from the working-group meetings were invited to attend a focus-group meeting to discuss their views and experiences with developing the logic model and schema. Participants stated that both logic models and the schema are useful tools for evaluators to assist stakeholders in describing and/or strengthening the program plan. One participant stated,

We used to have difficulties in communicating issues related to the program because of lack of structure to guide the discussion. The logic model and the schema we developed are very useful for us to zoom in the issue or problem for discussion. We need to circulate these two models to our partners.

Furthermore, participants indicated that each model has strengths and limitations.

Logic models

In general, participants found logic models relatively easy to learn and apply. Participants stated that logic models helped them effectively identify the major components and elements of the program. For example, they liked the fact that logic models guided the arrangement of major program components in a sequential order on one page, making it very convenient for discussions. One participant stated,

I was overwhelmed by the multiple components and activities of the program. The logic model appears to be able to provide a blueprint for summarizing major components of the program. I feel that I have a better understanding on major components of the program and elements under each component.

Logic models also helped participants identify indicators for monitoring the program:

When we develop an intervention program, we often ignore performance issues. We tend to think out the issue after the program is developed and leave the task for evaluators to figure out. In my opinion, one strength of logic models is to force us to think through performance measure issues in the planning/development stage. I think this provides a chance for us to make a contribution to the evaluation process.

However, participants indicated that logic models have an important limitation: they do not sufficiently reflect the dynamic relationship between different components of the program and their theoretical links. They thought that logic models lump together different types of elements into one component such as activities or inputs, thus obscuring these elements' unique functions. One participant noted,

The activity component included elements of partnership, capacity building, and intervention under the same category, although each served a different purpose for the program. This classification makes logic models easy to apply, but prevents us from examining different functions of elements and how they relate to each other.

Another participant stated:

I am concerned that the “if and then” thinking used in logic models may create an impression that if we do something, then other things will follow. This could be misleading, because it underestimates uncertainties happening in a community. A program may not work in a linear fashion as logic models postulate. For example, teachers in my school used to be highly enthusiastic about the program. However, I found that their interest appears to dwindle. We are figuring out how to bring back their interest.

The action model/change model schema

Participants identified as one limitation of the schema the time and effort necessary for learning and applying the schema compared to logic models. One participant stated,

Some of the components in the schema are challenging for me to understand. For example, it took me quite a while to understand the component of determinant in the change model, and how it is different from the component of ecological context.

However, after participants mastered the concepts, they felt that the conceptual framework of the schema better captured what their program intended to deliver and accomplish:

I was unclear about how my task of classroom teaching was relevant to others. The discussion and application of the schema to the program was very helpful in understanding how my work relates to others' endeavors, and how the overall goals of the program can be achieved.

Furthermore, participants thought that the structure and components of the schema inspired them to discuss theoretical and practical issues that were not even considered before. They felt that the schema provided more insights for understanding the program, and more ideas for how to strengthen the program plan:

I was impressed with the schema's capability for nicely describing different layers of the program and how they were connected to each other for producing impacts. I feel that I have a better understanding of the program now.

Another participant pointed out that the schema provided a clear direction for addressing capacity-building issues:

The schema provides me a better way to think and address capacity building issues. Each component of the action model reminds me to think over whether we had built proper capacity in that area. For example, I think the strengths of our program is the intervention protocols and training provided to teachers and administrators. One area that we may not do enough is in the ecological context. I am not sure whether we have done enough to change school culture to sustain the program. I guess this area is difficult to address.

In general, the schema took the participants' understanding of the program one step further than logic models did, by stimulating critical thinking not only about program components but also about their relationships with contextual factors and causal mechanisms. One participant indicated,

One of the advantages of logic models is its simplicity by classifying program activities into four or five major categories. However, the simplicity may also be its limitation. For example, I feel some components of the logic models seem to overload with a

variety of items. This is especially true for the activity component. It seems to me anything we do can be put in this component. In this case, the activity component could become a garbage can. I think the schema overcomes this problem by differentiating components between the action model and change model.

CONCLUSIONS AND DISCUSSION

This comparative case study provides novel information about applying logic models and the action model/change model schema in practice. The key stakeholders and the evaluator of the Learning Community Program in Taiwan reported that both models were useful tools for assisting them in clarifying major components of the program and for strengthening the program plan. In addition, this study provides empirical information on the relative strengths and limitations of these two models, as reported from practical applications. According to key stakeholders and the evaluator's experiences, logic models have the following merits:

1. they are relatively easy to learn and apply to programs;
2. they are very useful for identifying major components of the program;
3. output components are useful for monitoring implementation progress.

However, participants also identified the following limitations of logic models:

1. identifying the elements of the four components of logic models (input, activities, outputs, outcomes) does not sufficiently articulate the theoretical significance of a program;
2. logic models do not adequately describe programs with multiple levels of interventions and outcomes.

Similarly, stakeholders reported the following strengths and limitations of the action model/change model schema:

Strengths:

1. it addresses issues that are important to real-world practice;
2. it provides insights for better understanding the theoretical foundation of the program;
3. it is capable of clarifying relationships among multi-level components;
4. it provides guidance for strengthening program planning and/or evaluation design in greater detail.

While the only limitation reported for the schema was that it takes more time and effort to understand and to apply it, this is a significant finding. Capacity-building will be an important issue for promoting the use of the schema.

The above information about relative strengths and limitations will benefit the future application and dissemination of these evaluation models for program planning purposes. Potential users may want to consider this information when selecting a model that better fits their situation and their need for improving planning/development processes or for guiding evaluation activities. For example, after the research team of the Learning Community Program understood the relative strengths and limitations of the logic model and schema, they decided to use the schema to guide the evaluation of the program. They are currently preparing to conduct theory-driven process and outcome evaluations for the Learning Community Program.

The application of the schema to a complex program such as the Learning Community Program led to an unintended learning experience. In 2013, during a panel at the American Evaluation Association annual meetings, presenters discussed the potential benefit of adding multiple action models and/or change models within a typical schema (as illustrated in [Figure 1](#)); however, no empirical basis existed at that time for illustrating this idea. This study provides a concrete demonstration of the feasibility of using multiple change models in the Learning Community Program. To address all layers, the basic schema was expanded to three change models, as illustrated in [Figure 2](#). Theoretically, the action model can also be expanded if needed. This study demonstrates the versatility of the schema to address complex programs.

Comparative studies not only will be useful for guiding evaluation practitioners but may also encourage theorists to develop better evaluation theories and approaches in the future. Evaluation theorists have developed evaluation theories and approaches individually in the last several decades ([Alkin, 2004](#)). Comparative studies provide information on relative strengths and limitations of existing theories and approaches that may lead to enhance evaluation theories and approaches through integration.

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