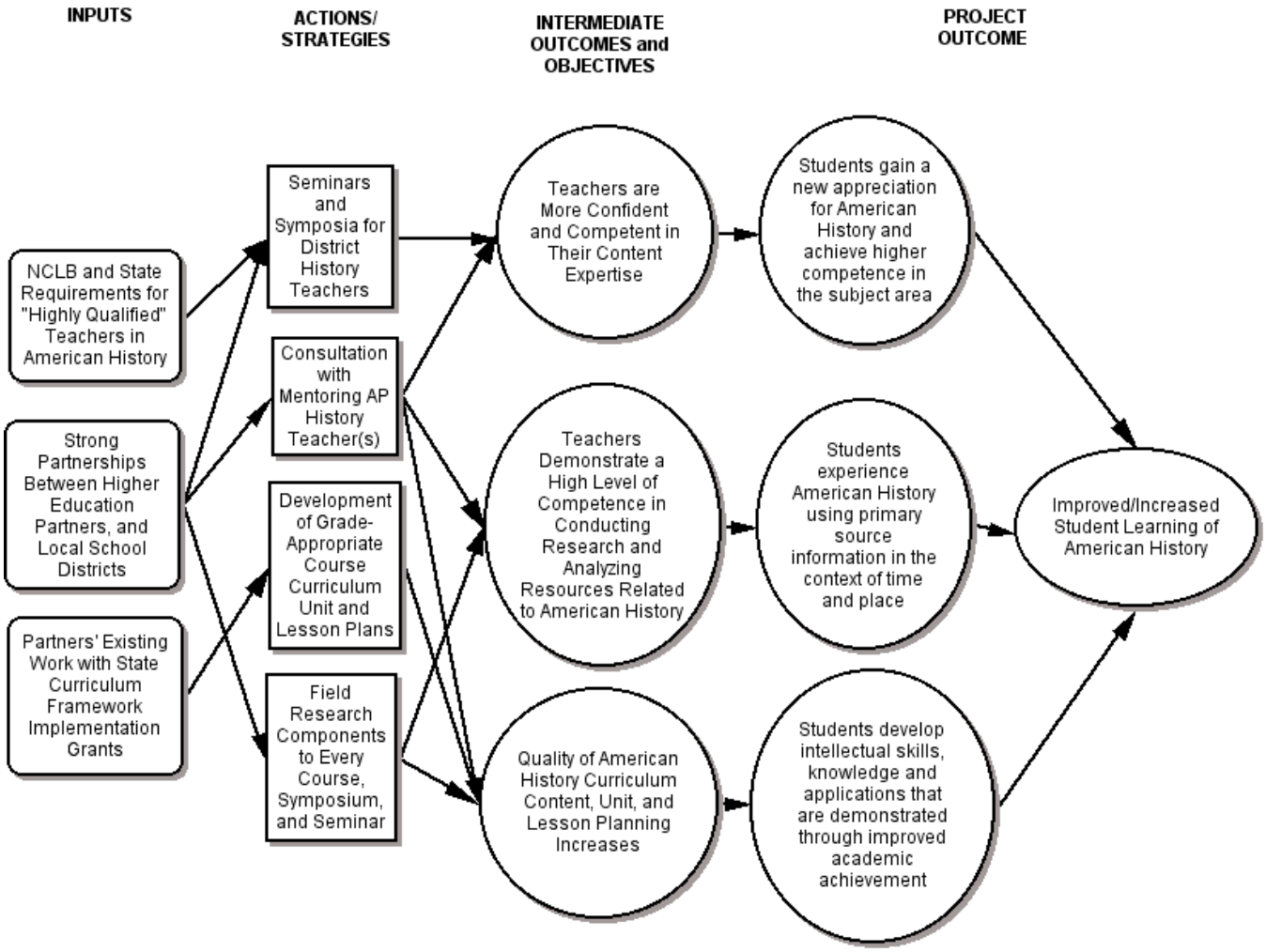
Creating Logic Maps

What is a logic map?

A logic map - or logic model - is a visual representation of the relationship between the various components of your program of work. Traditionally, these components include program inputs, actions, intermediate goals/objectives, and overall program outcomes. The structure of the logic map -- that is, the illustrated relationships between the components -- highlights the "logic" by which you expect your project to work. Therefore, the logic map is a schematic representation of your project.

Here's a simplified example of a project logic map:



information@sun-associates.com

Why create a logic map?

As professional program evaluators, we have found that the number one stumbling block projects encounter when setting out to evaluate their work is a lack of clarity about how planned or anticipated project activities relate to the fulfillment of project goals. In other words, it is not possible to evaluate success if one does not have a clear expectation about what is supposed to happen...and why. All too often projects seem to be managed as an act of faith. Participants just "hope" that with the right combination of resources (e.g., funds) and enough hard work, the right things will happen. Sometimes this works, and it is wonderful when it does; but when more often something in fact goes wrong, or it turns out that something about the project could be improved...in these cases, a lack of program logic means that it is very hard to understand specifically what to fix or what to improve.

A logic model is intended to provide a provide a documented "roadmap" that project managers can use to explain their project's operation. The process of constructing a logic model will help the project planners (in the proposal-writing stage) determine if they have created sufficient solutions to address the needs that are the basis for funding their project. Further, the logic map can show the purpose of various project-supported activities in terms of how these activities meet needs and support goals.

Within the context of program evaluation, the logic model will help the evaluator design meaningful evaluation questions and subsequently an evaluation framework that provides relevant information on project progress. By "meaningful" we mean questions that accurately relate to what the project is all about. The core concept in program evaluation is probing the validity of a project's ideological underpinnings (i.e., did the project do what it set out to do). The logic map helps steer the evaluator toward an examination of the correct - or meaningful - relationships.

In short, a logic map helps refine a project's "logic" and then helps explain that logic in a clear, graphical, manner. The refinement aspect is most beneficial to project planners/managers. The explanation aspect is of particular benefit to project evaluators and others who need to understand the success of your project.

Finally, it should be mentioned that the creation of a graphical map or model is another way that educators can "walk the talk" about adjusting content for various learning styles or ways of understanding. We have found that there are many individuals who can best form an understanding of a project's work when presented with that information in a graphical, visual, manner. Logic maps are often the pictures that can paint "a thousand words" about your project (no doubt a useful concept when considering proposal page counts).

The Process for Creating a Logic Map

There are a number of ways to approach the logic map creation process, and we would be remiss if we did not acknowledge that some of our clients have had negative experiences with creating maps and thus approach the whole process with considerable apprehension. Often these negative experiences have derived from overly theoretical or highly academic approaches to the work which result in many hours of struggling with maps.

We want to take a much more pragmatic approach to the process which emphasizes (somewhat uncharacteristically for us) the end results of the work and not the process. Therefore, our first word of advice is to copy an existing map. We don't mean that you should copy another map's content (not unless you are creating an absolutely identical project, which hardly makes sense), but rather to copy the style of a map that you find appropriate. In the resources section of this article, you can find a number of articles about logic map creation. These all contain sample maps. Likewise, you can simply appropriate the style of our sample map.

Once you have found an appropriate map upon which to style or organize your own map, take note of the basic categories of elements. Here, we will refer to the categories in our sample. If you use another sample, you will need to cross-walk our categories to those used in the other sample. This should be relatively straight forward since all maps contain the same basic elements (just named or arranged differently). Our categories of elements are:

Map Element	Explanation
Inputs	These are the various needs and resources that your project can draw upon as it sets out to accomplish its work.
Actions/Strategies	This is what your project intends to do to address needs and to utilize the available resources. The key word here is action. These are not your goals, but rather the actions you will carry out to ultimately accomplish your goals.
Intermediate Goals/Objectives	Each action has an immediate result. Often these results alone are not the fulfillment of your ultimate goals, but are instead steps toward your ultimate goals. Nevertheless, it turns out that these so-called intermediate goals very much lend themselves to measurement. These are the things that you can measurably accomplish in 1 - 3 years. These outcomes are usually perceived as steps toward achieving your ultimate goals.
Overall Project Goal(s)	This category is also sometimes referred to as "project impact." Simply put, this is what you want to wind up with when all is said and done in your project. Here, you should shoot for describing the "big picture" of your project. It is very likely that you will not be able to "measure" whatever you place in this final "box" on your logic map. That is why it is all that much more important to create measurable intermediate goals in the previous set of boxes.

So, take your (or our) sample, delete the existing content, and insert new content that's relevant to your project. Add or subtract boxes as necessary. There you have it. Well, almost.

The lines or arrows that connect your map's boxes are significant in that they illustrate the relationship between elements. This is obvious, but very critical. While everything may ultimately end up (through the chain of elements) pointing toward your "overall project goal" it should be clear that not all inputs are related to every action which is not related to every intermediate goal. Your arrows need to reflect the most obvious connections that you create, anticipate, and/or are aware of.

Here are some general tips on map creation:

- Give some thought to what will go in your map before you sit down to draw it. Use the planning worksheet on our website (www.edtecheval.org/forms/logicmapelemws.pdf) to list your project's elements, and then proceed to place them onto the map diagram and connect them all with arrows.

- The philosophy of logic mapping as a process that creates clarity of purpose for a project's management team dictates that the mapping exercise takes place in a group. The idea is that the group creates the map; or at very least the group reviews, revises, and finalizes a map that the project leader has initially drafted.

- While it is certainly not mandatory to use software or any sort of computer technology to create your map, it is very apparent that concept mapping software such as Inspiration is ideally suited for this task. The nice thing about using software for this task is that it becomes very easy to adjust your map's relationships many times while forming the map in a group "brainstorming" environment. Then, when your group is finished, you can simply save the map and you will have a final product. Further, the use of mapping software (e.g., Inspiration) vs. drawing software (e.g., the draw component of MS Word, or PowerPoint) provides many benefits as far as automatically creating connections, grouping and linking elements, etc.

- Try to make your "overall project goal" a simple, straightforward, statement. This is your big picture vision or focus. If you find the need to have two or three "big pictures", then your picture isn't big enough. Likewise, you cannot logically have "multiple foci" for your project. Focus = 1. That's where you want to wind up in that final box.

- Someone always wants to draw arrows that go both ways. Don't be that person; and if s/he is on your project team, it is now your job to stop them. The logic map is supposed to show the logical progression from input to final output. It does not have to account for every possible occurrence within your project's universe of chance. Backward arrows don't help this cause.

- Simplify, simplify, simplify! Resist the urge to make an overly complex map that connects virtually everything to everything. You want to strike a balance between a map that is overly simple (i.e., too few connections) and one which attempts to show the whole interconnectedness of the universe within which your project exists. If your map has a scary number of arrows, it's not helping anyone. Simplify.

Once again, a significant part of the value in a logic map is not the final map product! Rather, the value is in the process that a group of project participants engage in to create the map. In other words, the value is in the journey, not the destination.

Still, the final product (the map) does have value as a tool for those individuals and groups external to your project who subsequently need to understand how your project works. Specifically, proposals reviewers can benefit from using your map and project evaluators can use the map to formulate a framework for project evaluation. Finally, there will likely be benefit for your project to review the logic map periodically throughout the project. In this way, your map can help you determine how close your project work has stayed to its original plan. Understanding this variance can be helpful in making formative adjustments and in discovering ways to sustain your project after its initial funding.

Logic Mapping Resources, Examples, etc.

In addition to the sample map and map element worksheet discussed in our text, above, there are a number of other resources available online that pertain to the concept and practice of logic mapping. Many of these resources are particularly valuable for those who seek a more theoretical basis to the mapping process or who are working on projects that do not relate directly to K-12 educational technology.

W.K. Kellogg Foundation Logic Model Development Guide
www.wkkf.org/resource-directory/resource/2006/02/wk-kellogg-foundation-logic-model-development-guide

> This guidebook contains a number of worksheets and related discussion on the process of developing a logic model. The Kellogg Foundation has created this resource for non-profit organizations that seek to apply to private foundations for program funding. **NOTE – if this link does not open properly, just paste the link text into your browser's address field.**

A Start to Developing a Logic Model
www.informalscience.org/news-views/start-developing-logic-model

> This resource focuses on the development of logic models for informal science education/STEM projects. Quite a few good resources from the NSF infomal science community are presented.

Everything You Wanted to Know About Logic Models But Were Afraid to Ask
insites.org/resource/everything-you-ever-wanted-to-know-about-logic-models-but-were-afraid-to-ask/

> Another resource oriented toward non-profit foundation grant-seekers, this short guide addresses the process and purpose of logic model creation in a friendly question/answer format.

Using Logic Models for Research and Technology Development and Deployment Programs
aea365.org/blog/logic-models-week-gretchen-jordan-on-building-on-the-shoulders-of-generic-logic-models/

> This is a blog post by Gretchen Jordan on the American Evaluation Association website. While not targeted specifically at K-12 education audiences, Dr. Jordan's post discusses the value of logic models – using generic examples – for program evaluation.

EvaluATE
www.evalu-ate.org/?s=logic+models

> The EvaluATE program at Western Michigan State University is the evaluation support center for the National Science Foundation's ATE (Advanced Technological Education) program. This site contains a wealth of information about program evaluation tools and techniques. There are a number of resources related specifically to the development and use of logic models.

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