

Logic Models for Projects and Proposals March 30, 2022

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Logic Models (a.k.a. Theory of Change)









Why Bother? Well, Logic Models ...

- when created collaboratively, offer highly participatory learning opportunities for everyone involved;
- lead to improved design, planning, management, and evaluation;
- identify important variables to measure and enable more effective use of evaluation resources;
- document and emphasize explicit outcomes;
- provide a credible reporting framework;
- clarify knowledge about what works and why;
- develop common language among stakeholders;



- give everyone involved a clear, ready reference that helps focus on the "forest" and the "trees;"
- it is often REQUIRED!

*Adapted from: Knowlton & Phillips. (2013). *The Logic Model Guidebook: Better Strategies for Great Results.* Thousand Oaks, CA: SAGE.

What is a . . .



Project?

A project is an endeavor with a start and end date, aimed at achieving planned objectives. They could be tangible or intangible. For academics, the project might focus on a problem, on instruction and training, or on research.



Proposal?

A proposal makes a case for receiving support for a project, usually a public or private funder (e.g., NSF, W.T. Grant, *SU CUSE*). Proposals are most often written in response to Requests for Proposals (RFP) from these funders.



Keep in Mind: A Proposal is a Business Plan!

Which came first?



- Sometimes, faculty design a project (including a Logic Model) and seek organizations inviting proposals.
- Sometimes, faculty find promising RFPs in their field and design a project/proposal.
- In both cases, it takes Time!
 - Time to develop and crystalize your idea
 - Time to look for the right funding opportunity
 - Time to write the proposal
 - > Time to maximize the competitiveness of your application
 - Time to obtain pre-submission review.

Sometimes it is just a chicken omelet!

Faculty works back and forth:









→ Whether a PROJECT or a PROPOSAL ...

\longrightarrow Working one way or the other ...

\longrightarrow THEY ALL NEED ONE THING! \longleftarrow





Create a "logic model"



- A graphic illustration of the relationship between a program's resources, activities, and intended effects.
- A tool for planning a project.
- A map for conducting a project.
- A visual representation of what is proposed.

Most Typical Elements of a Logic Model



• Elements nearly ALWAYS included

- Resources (Inputs) (human, financial, organizational, and community)- Directly support the implementation of the program/materials
- Program Activities-What the program does with the resources. The process, tools, events, technology, and actions that are <u>intentional</u> parts of the program.
- Outputs-Direct products of program activities (described in terms of size and/or scope of the services and products delivered or produced by the program) (i.e., number of classes taught, number of hours participants engaged, materials produced).
- Outcomes-Specific changes in participants' knowledge, skills, status, behavior, and impact on "a larger context."
 - Short Term Outcomes-Often a focus on KNOWLEDGE
 - Medium Term Outcomes-Often a focus on BEHAVIOR
 - Long Term (sometimes called Impact)-Focus on ORGANIZATIONAL or SOCIETAL CHANGE

Difference between Outputs and Outcomes?

OUTPUTS	OUTCOMES
Outputs describe what a project has produced or who it has helped through the activities funded by the grant. These are tangible, countable items.	Outcomes describe what will be accomplished or will be expected to change by the activities funded by the grant Short and Long- Term . Outcomes typically represent <u>changes in knowledge</u> , <u>skills</u> , <u>behavior</u> , <u>or attitudes</u> .
Examples: # of people served; # of hours of service; # of presentations (sessions, trainings, meetings, workshops, etc.); # of attendees at presentations; # of volunteers recruited and trained; # of informational materials developed (books, video tapes, brochures, software, newsletters, magazines); etc.	Examples: # and % of adult literacy participants who have subject area advancement as measured by pre and post assessment; # and % of children in the program who are ready for kindergarten as measured by preschool assessment scores versus children who are not in the program; # and % of unique unduplicated homeless individuals who secure permanent housing or jobs, how many of them retain housing or employment for at least 6 months (Short-term) or for 6 years (Long-term); etc.

A Great Start: A Logic Model Primer

RESOURCES	ACTIVITIES	OUTPUTS	SHORT-TERM OUTCOMES	LONG-TERM OUTCOMES	IMPACTS
In order to accomplish our set of activities, we will need the following:	In order to address our problem, we will conduct the following activities:	We expect that once completed or underway, these activities will produce the following evidence of service delivery:	We expect that if completed or ongoing, these activities will lead to the following changes in 1-2 years:	We expect that if completed or ongoing, these activities will lead to the following changes in 2-4 years:	We expect that if completed, activities will lead to the following changes in 7-10 years:
Planne	Planned Work		Your Intend	ded Results	
٩			Formative	, L	Summative

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What we invest:	What we do: • educate • train • mentor • disseminate • facilitate • counsel/advise • recruit	Who we reach: clients decision makers contributors students teachers parents What we create: plans events networks workshops 	Knowledge gained: awareness skill motivation interest opinion concepts	Behavior changed: participation retention decision making policies social actions	Conditions changed, Problem Solved

RESOURCES	ACTIVITIES	OUTPUTS	SHORT-TERM OUTCOMES	LONG-TERM OUTCOMES	IMPACTS
NSF Funds	Involving undergraduate students in research experiences	# and demographic of undergrad students	Advanced discovery and understanding while promoting teaching, training, and learning	↑ participation in undergrad students	Broaden dissemination to enhance scientific and technological understanding
Materials	Training graduate students	# and demographic of grad students	↑ Knowledge		
Staff	Establishing collaboration with students and faculty from institutions serving underrepresented in science	# & type of collaborations with minority-serving institutions	Broaden participation of underrepresented groups	个 Participation in underrepresented groups	Enhance infrastructure for research and education
Administration	Developing partnerships with researchers in industry & government, other U.S. and international academic org. & the general public	# & type of partnerships with researchers, academic organizations, and the general public	Active involvement of general public in research discovery	↑ Community engagement	
Faculty	Representing research results in innovative formats useful to students, scientists, teachers, the general public	# & type of innovative publications, presentations			Increase benefits to society
Students	Informing public policy	# & type of policies affected		Change in Policy	
Planning and Front-end Evaluation		Evidence	Evidence Formative Evaluation		Summative Evaluation
Planned Work		Your Intended Results			

A Template

	LOGIC MODEL				
Prog	ram Goal 1:				
1. 2.	Objective 1: Objective 2:				
Prog	ram Goal 2:				
1. 2.	Objective 1: Objective 2:				
Prog	ram Goal 3:				
1. 2.	Objective 1: Objective 2:				

Resources	Activities	Outputs	Short-Term Outcomes (Yrs. 1-2)	Long-Term Outcomes (Yrs. 3-5)	Impacts (After 5 Yrs.)

Assumptions	External Factors
0	

Goal: Increase number and diversity of applicants to graduate programs in STEM disciplines while fostering education and research collaboration between faculty at partnering institutions.

Financial Supports: Faculty, Grad/Senior Student, Staff, Administration: Students from [University Name]: Collaborating

Activities ¹	Outputs	Short-Term Outcomes	Longer-Term Outcomes
Pre-College Program	 □ Faculty Development Summer Workshop □ 1-wk. virtual program (college readiness, nature of science, STEM identity/careers, research intro, networking) 	□ Faculty prepared to mentor □ Participants more aware of research/STEM pathways than previously/more motivated to pursue STEM research/grad school. □ Participate in academic research in 1 st year □ Summer STEM ishs/research programs	 Ongoing mentoring of participant Participate in Academic Year Program and/or Post-First-Year Program
Apadomia	I carro to diagominate research	Destigmente verite nenero/de programs	Desticingto in Summer Section 2
Асадетк Year Program	 □Learn to disseminate research □Work in faculty mentor's lab □1-week workshop (networking/cohort building, professional identity, skills 	□ Participants write papers/do presentations □ Apply/Get summer (2) STEM jobs or research programs (REUs, etc.)	 Participate in Summer Session 2 Disseminate research Acquire summer STEM research work
	development, applying for REUs/research opportunities.		□ Identify as STEM student/future career
Post-First Year Program	4-week in-person program at [University Name] -balance of research and prof. develop.	□ Participants are more knowledgeable about STEM study and research than previously	 Participate in academic year research (Year 2) Throughout college apply/get summer STEM jobs/research programs
Post- Baccalaureat	 In-person, 1-yr residential program (mentoring, grad school skills, STEM pathways) 	□ Participants will enter a graduate program in STEM	□ Participants will earn a PhD in STEM and pursue a STEM Career
Collaboration	= Faculty Summer Workshop	□ Involved faculty initiate collaborative	□ Faculty of partners develop ongoing
Participating Faculty	□ Travel: faculty visits partners research/guest teach	projects Collaborating faculty work together on research and teaching	joint research/teaching
Faculty Long-Term Impact	 research/guest teach Increase in number of students - especi disciplines critical to the DoD mission. Increase in the number of students - especial students -	Collaborating faculty work together on research and teaching ally underrepresented groups - pursuing PhD pecially underrepresented groups - pursuing a	in a STEM-related field, particularly career in a STEM-related field,

Objectives:

- 1. Participants will apply to and secure STEM summer programs/jobs after each year of college.
- 2. Participants will perform academic year research during each year of college.
- 3. Participants will apply to and be admitted to Ph.D. or other graduate STEM programs.
- 4. Participants will apply to and secure jobs in STEM workforce.
- 5. Faculty at partnering institutions will initiate collaborative projects.

¹See narrative for details.

Resources

Recently Created Logic Model Proposa ന Ð Õ Soon to

NSF Approach to Logic Models

NSF Logic Model Template

Inputs What resources will be used to support the project?	Activities What are the main things the project will do/provide?	Outputs How many and what sort of observable/ tangible results will be achieved?	Short-Term Outcomes What will occur as a direct result of the activities & outputs? (typically, changes in knowledge, skills, attitudes)	Mid-Term Outcomes What results should follow from the initial outcomes? (typically changes in behavior, policies, practice)	Long-Term Outcomes What results should follow from the initial outcomes? (typically changes in broader conditions)
Examples: • NSF Funding • Advisory panel • Industry partners • In-kind contributions • ATE resource centers	 Establish regional partnerships Develop curriculum Conduct workshops Provide research/field experiences Hold conference Establish articulation agreement 	 People engaged (students, faculty, industry partners) Curriculum materials developed Policies created Publications issued Certification standards established 	 High school students have increased awareness of technical career opportunities Faculty improve their pedagogical skills More students enter workforce with 21st century skills 	 Improved retention More effective classroom instruction Increased number of job placements in technical fields Increased employer satisfaction 	 Increased regional economic vitality Increased diversity in the technical workforce A more highly skilled and adaptable workforce

Source: <u>https://www.mdc.edu/grant-development/documents/NSF%20Logic%20Model%20Template.pdf</u>

OSEP Approach to Logic Models



Source: https://osepideasthatwork.org/sites/default/files/documents/ConceptFrmwrkLModel+Defs2012.pdf

Recommended Template for an NIH Proposal Logic Model

Target	Underlying	Resources/	Activities	Outputs	Outcomes
Population	Assumptions	Challenges	→ =	→ -	➡
Whom does <u>the</u> program serve? Who will	<u>Theroetical</u> <u>assumptions</u> <u>about how the</u> <u>program will</u> <u>work</u>	What resources does the program have available to achieve the	Services/interventions provided to fulfill program goals and assist participants in reaching the outcomes	Products of a program's activities such as the neumber of	Benefits that occur as a result of the activities, <u>including short-</u> <u>term</u> ,
benefit from <u>the</u> project?	Assumptions regarding: 1. Participants 1. Staff 2. Environment	program activities?		patients treated, the number of services provided, the number of interventions per patient, etc.	<u>intermediate</u> <u>and long-term</u> <u>outcomes</u> . Types of outcomes include changes in knowledge, attitude, behavior and or status.

Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3266837/

And One More

PARTNERSHIP FOR INNOVATION IN EDUCATION LOGIC MODEL

Situation: The US continues to face a workforce shortage in science, technology, engineering and math (STEM) fields. Our global competitiveness depends on our ability to attract and retain future generations in areas such as chemistry, engineering, the physical sciences, mathematics and computer science. Studies demonstrate that students who enter STEM careers first became decision-making which is critical to open-ended questioning and innovation. Students learn best by doing; yet, there is little engaging, "hands on" curriculum content available for students and educators that also meets STEM State Learning Standards. Case-based, real-world, experiential learning, has been proven to be highly successful in developing critical thinking and problem solving skills. Although case-based learning was pioneered by Harvard and is used in many higher education environments, it had not been used in the K-12 classroom until 2012, when PIE piloted a new model. Local businesses have expressed a desire to become engaged in STEM learning in K-12 schools. Additionally, Harvard is interested in learning to utilize case-based curriculum. PIE brings each of these elements together into a highly effective integrated solution.



And so . . .



• Ideally ...

✓ Develop a Logic Model as soon as possible after you conceptualize a project or program.

- Develop the Logic Model collaboratively with colleagues and the program's/project's stakeholders.
- Distribute the Logic Model widely so everyone involved (staff at all levels, funders, program/project users and other stakeholders) has a clear picture of what is intended.
- Have a copy of the Logic Model "front and center" during every step of design, development, implementation, and evaluation.
- Evaluate the validity of the Logic Model often and make adjustments based on learning from evidence, experience, and evaluation.

• If not ideal ...

 \checkmark Get as close as possible to the ideal.

Now . . .



Key Summary–Logic Models

• Logic Models: "a depiction, or diagrammatic representation, of the various program activities and their linkages to program results"

- 1. Inputs
- 2. Activities
- 3. Outputs
- 4. Outcomes
- 5. Desired Impact



• Logic Models: shows the specific linkages and logic between each of these components

The Project

Design a program for providing faculty with the knowledge and skills to instruct and engage new freshmen students in their classes with a focus on creating a sense of belonging and engagement at SU through a curriculum of social-emotional activities.

Resources	Activities	Outputs	Short-Term Outcomes (Knowledge)	Long-Term Outcomes (Behavior)	Impacts (Org./Soc. Change)
 Consultant/ Instructor(s) Sample SEL Curricula (Univ.) Time for PD during summer Time for CoP during academic year Funding 					

Resources	Activities	Outputs	Short-Term	Long-Term	Impacts
			Outcomes	Outcomes	(Org./Soc.
			(Knowledge)	(Behavior)	Change)
 Consultant/ Instructor(s) Sample SEL Curricula (Univ.) Time for PD during summer Time for CoP during academic year Funding 					 A faculty focus on a sense of belonging and engagement for freshmen will be normalized throughout SU. Social-emotional learning will be valued by faculty at SU. After their freshman year, 75% of students will feel a sense of belonging at SU. Retention of students from freshman to sophomore years will increase by x%.

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			Outcomes	Outcomes	(Org./Soc.
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 Consultant/ Instructor(s) Sample SEL Curricula (Univ.) Time for PD during summer Time for CoP during academic year Funding 			 Participating faculty will express understanding of value of SEL for freshmen. Participating faculty will demonstrate a beginning mastery of the content and skills needed for implementing SEL. By the end of academic year after initial summer PD, participants will have developed a draft SEL curriculum for their freshman classes. 	 Participating faculty will implement their draft SEL curriculum in Yr. 2 Participating faculty will revise their SEL curriculum based on reflection, experience, and feedback. Participating faculty will advocate for SEL for freshmen with colleagues. Freshman students will acknowledge the value of SEL during their first year. 	 A faculty focus on a sense of belonging and engagement for freshmen will be normalized throughout SU. Social-emotional learning will be valued by faculty at SU. After their freshman year, 75% of students will feel a sense of belonging at SU. Retention of students from freshman to sophomore years will increase by x%.

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			Outcomes	Outcomes	(Org./Soc.
			(Knowledge)	(Behavior)	Change)
 Consultant/ Instructor(s) Sample SEL Curricula (Univ.) Time for PD during summer Time for CoP during academic year Funding 	 Pilot PD (Summer 1) ✓ Reading ✓ Instruction ✓ Practice developing curriculum Monthly PD follow-up (group writing) (Academic Yr. 1) Pilot CoP (Academic Yr. 1) Pilot CoP (Academic Yr. 1) Pilot CoP (Academic Yr. 1) Write draft SEL curriculum (Yr. 1) Implement draft SEL curriculum (Yr. 2) Revise/implement SEL curriculum (Yr. 3) PD (Summer 2): Begin cycle with new cohort. 		 Participating faculty will express understanding of value of SEL for freshmen. Participating faculty will demonstrate a beginning mastery of the content and skills needed for implementing SEL. By the end of academic year after initial summer PD, participants will have developed a draft SEL curriculum for their freshman classes 	 Participating faculty will implement their draft SEL curriculum in Yr. 2 Participating faculty will revise their SEL curriculum based on reflection, experience, and feedback. Participating faculty will advocate for SEL for freshmen with colleagues. Freshman students will acknowledge the value of SEL during their first year. 	 A faculty focus on a sense of belonging and engagement for freshmen will be normalized throughout SU. Social-emotional learning will be valued by faculty at SU. After their freshman year, 75% of students will feel a sense of belonging at SU. Retention of students from freshman to sophomore years will increase by x%.

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Recommended Basic Logic Model References

- Brad Rose Consulting. (n.d.). *Logic Modeling.* Wellesley, MA: Brad Rose Consulting. <u>https://bradroseconsulting.com/whitepaper-library/#logic-modeling-download</u>
- Kellogg Foundation. (2004). W.K. Kellogg Foundation Logic Model Development Guide. Battle Creek, MI: W.K. Kellogg Foundation. <u>https://ag.purdue.edu/extension/pdehs/Documents/Pub3669.pdf</u>
- Knowlton, L.W. & Phillips, C.C. (2013). *The Logic Model Guidebook: Better Strategies for Great Results.* Thousand Oaks, CA: SAGE Publications.
- Pell Institute & Pathways to College Network. (n.d.). How to Create a Logic Model. Washington, D.C: Pell Institute & Teaneck, NJ: Pathways to College Network. <u>http://toolkit.pellinstitute.org/evaluation-guide/plan-budget/use-a-logic-model-in-evaluation/</u>
- Shakman, K. & Rodriguez, S.M. (2015). Logic Models for program design, implementation, and evaluation: Workshop toolkit. Washington, D.C.: USDoE.
 <u>https://ies.ed.gov/ncee/edlabs/regions/northeast/pdf/rel_2015057.pdf</u>



Questions, Comments, Next Steps

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