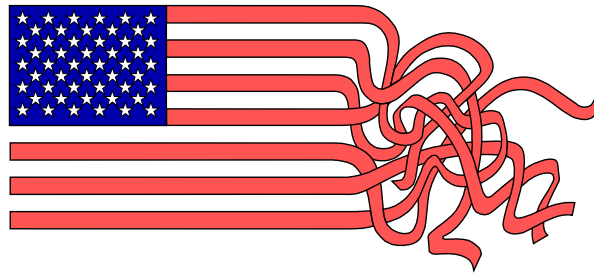


PADM 7090 POLICY ANALYSIS



HANDOUTS AND ASSIGNMENTS

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PADM 7090: POLICY ANALYSIS

Policy Quiz

1. You are an advisor to the President on foreign affairs, and Israel has just requested that the United States station two batteries of Patriot Missiles there on a permanent basis in light of growing tension in the region. What is your recommendation?
2. An American Military Attache was recently assassinated in Serbia. What steps should the United States take to protect diplomats abroad?
3. You are an assistant to the head of the Department of Agriculture for the State of North Dakota. The dreaded Caribbean Grain Fly has been spotted in wheat fields near the Canadian border. You have to prepare a position paper for your boss to submit to the Governor. What should you say?
4. You are a member of the Scroggins Independent School District Board of Education. A child has been struck by a car while crossing Abraham Street on her way to kindergarten at the Ronald Reagan Elementary School, and a group of neighborhood parents is demanding that you provide an elevated crosswalk so students do not have to cross Abraham Street traffic. What should you do?
5. What, if anything, do each of the above questions have in common?
6. How would you place a value on a human life? Under what circumstances might a public administrator be forced to do so?

FIRST TAKE-HOME EXAMINATION

Your examination is due at the beginning of class, April 4, 2006.

Part One: (50%)

Complete the Teen-Age Driver exercise found on pages 66 - 73. You are to complete only the first three items listed on page 67:

1. Verify, define, and detail the problem for your client. Has the problem been identified correctly?
2. Establish the evaluation criteria against which you would test possible alternative solutions.
3. identify as many relevant alternative policies as possible.

Your response is to be typed, double spaced, and presented in a policy position-paper format. The length should be between six and nine pages.

Part Two: (50%)

Complete either problem # 15 on page 145 or problem 16 on page 146. (25%)

Complete problem # 10 on page 224. (25%)

Policy Mode Argument From Focus of Warrant

Authoritative	Authority	Achieved or ascribed status of actors ("experts", "insiders")
Analycentric	Method	Validity of analytic methods or rules ("universal selection rules" of mathematics, economics, systems analysis)
Explanatory	Cause	Generative Powers ("causes") and their results ("effects") (general propositions and "laws" within theories of organizational behavior)
Value-critical	Ethics	Rightness or wrongness, goodness or badness of policies and their consequences (individual worth)
Pragmatic	Motivation	Motivating power of goals, values intentions (desires of policy stakeholders)
	Parallel case	Similarities among cases (parallel policies)
	Analogy	Similarities among relations (analogous policies)
Intuitive	Insight	Inner mental states of actors (insight, judgment, "tacit knowledge")

Dunn's Definition of Policy Analysis

Dunn defines policy analysis as "an applied social science discipline which uses multiple methods of inquiry and argument to produce and transform policy-relevant information that may be utilized in political settings to resolve policy problems."¹ His definition can be broken down as follows:

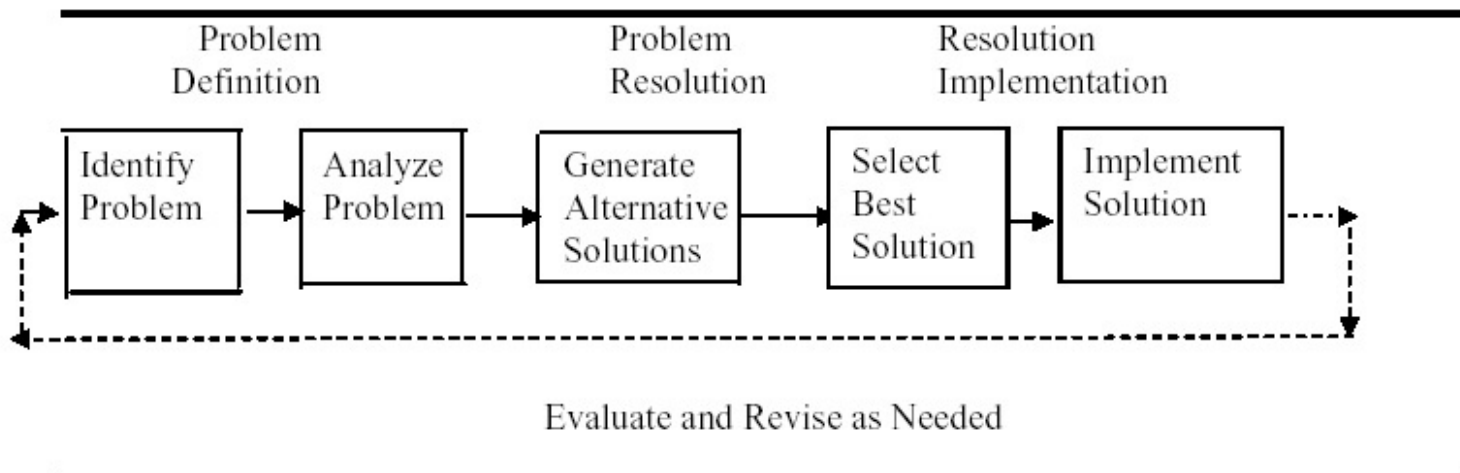
- 1) Applied social science discipline, concerned with:
 - a) empirical questions/designative claims
 - b) evaluative questions/evaluative claims
 - c) normative questions/advocative claims
- 2) Uses multiple methods of inquiry; 4 basic policy-analytic methods:
 - a) monitoring (description)
 - b) forecasting (prediction)
 - c) evaluation
 - d) recommendation (prescription)
- 3) Produce and transform policy-relevant information:
 - a) policy problem: an unrealized value, need, or opportunity which, however identified, may be attained through public action
 - b) Policy alternatives: a potentially available course of action that may contribute to the attainment of values and, hence, the resolution of a policy problem
 - c) policy actions: a move or series of moves guided by a policy alternative that is designed to achieve values outcomes
 - d) policy performance: the degree to which a given policy outcome contributes to the attainment of values [impact evaluation] also, the degree to which relevant policy actors' actions conformed to a normative standard [process evaluation]
- 4) utilized in a political setting

Decision-Making Models

Dewey	Simon	Elbring
1. Controversy: consisting of opposing site claims regarding the same objective situation.	1. Intelligence Activity: searching the environment for conditions calling for decisions.	1. Disequilibrium: recognition of problem situation
2. Clarification: defining and elaborating claims.	2. Design Activity: inventing, developing, and analyzing various possible alternative courses of action.	2. Diagnosis: Developing assumptions about the underlying causes of the problem.
3. Choice: which is the decision between claims, closing the current dispute, and serving as a precedent or rule for the future.	3. Choice Activity: selecting the particular course of action to be followed from all available alternatives.	3. Definition: specific statement of the problem as diagnosed.
selection in 4	(feedback may lead back to 1)	4. Discovery: selection of a method of solution
		5. Doing: the implementation of the

SUMMARY OF A SYSTEMS ANALYSIS APPROACH TO PLANNING

Figure 1. Systems framework



Definition of Terms

Analysis: a process of breaking something down into its constituent parts.

Constraint: a limiting condition to be satisfied in the design or operation of a system. It may be a specific constraint such as a given supply of manpower or a particular item of information; a general constraint such as total cost ceiling, the percentage of system life consumed in downtime, or requirements for the compatibility of a system with other systems; or a legal, social, or political constraint.

Function Analysis: the process of determining what functions or jobs must be done to accomplish the mission objective. It is essentially the process of breaking a function down into its constituent parts. Function analysis is conducted at several levels, until all the functions, subfunctions, etc. that are needed to fill out the mission profile have been identified.

Goal: outcomes, options, conditions, or relationships held socially desirable by a consensus of persons or a group. Goals provide broad direction and guidance as opposed to more specific objectives. They are stated in qualitative rather than in quantitative terms, and do not specify a time period.

Mission: a single large operation or task, or a continuing specific function. A mission specifies intent and purpose, and indicates which actions are to be taken and why. Examples of missions might include the construction of a number of housing units, the taking of a military objective, or the development of a new weapons system.

Mission Analysis: the process for identifying, for the problem selected, the elements of (1) where are we going? (2) what criteria will we use to let us know when we have arrived? and (3) a management plan to show what functions must be performed to take us from where we are to where we wish to be.

Mission Objective: an objective that measurably states the specifications for

determining when we have successfully reached where we wish to be. It is, then, a performance objective, and has four elements: (1) what is to be done to demonstrate successful completion? (2) by whom is it to be demonstrated? (3) under what conditions is it to be demonstrated, and (4) what criteria will be used to determine successful completion?

Mission Profile: a management plan depicting, in flowchart form, the functions or elements necessary to get from where we are to where we wish to be. It is comprised of the major, logically sequenced, but mutually exclusive functions which must be performed to accomplish a mission.

Objective: a situation or condition of people or of the environment which responsible program personnel consider desirable to attain. To permit subsequent evaluation, the statement of an objective must specify: (1) what--the nature of the situation or condition to be attained, (2) extent--the quantity or amount of the situation or condition to be attained, (3) who--the particular group of people or portion of the environment in which attainment is desired, (4) where--the geographic area of the program, and (5) when--the time at or by which the desired situation or condition is intended to exist.

Performance Requirements: a series of criteria or standards by which the success--or failure--of the system or mission is to be ascertained. Performance requirements will contain product specifications, restrictions, and performance characteristics of the product (where applicable) and will identify measurement criteria. Thus, they specify in detail what is meant by the accomplishment of the objectives for a particular problem or program.

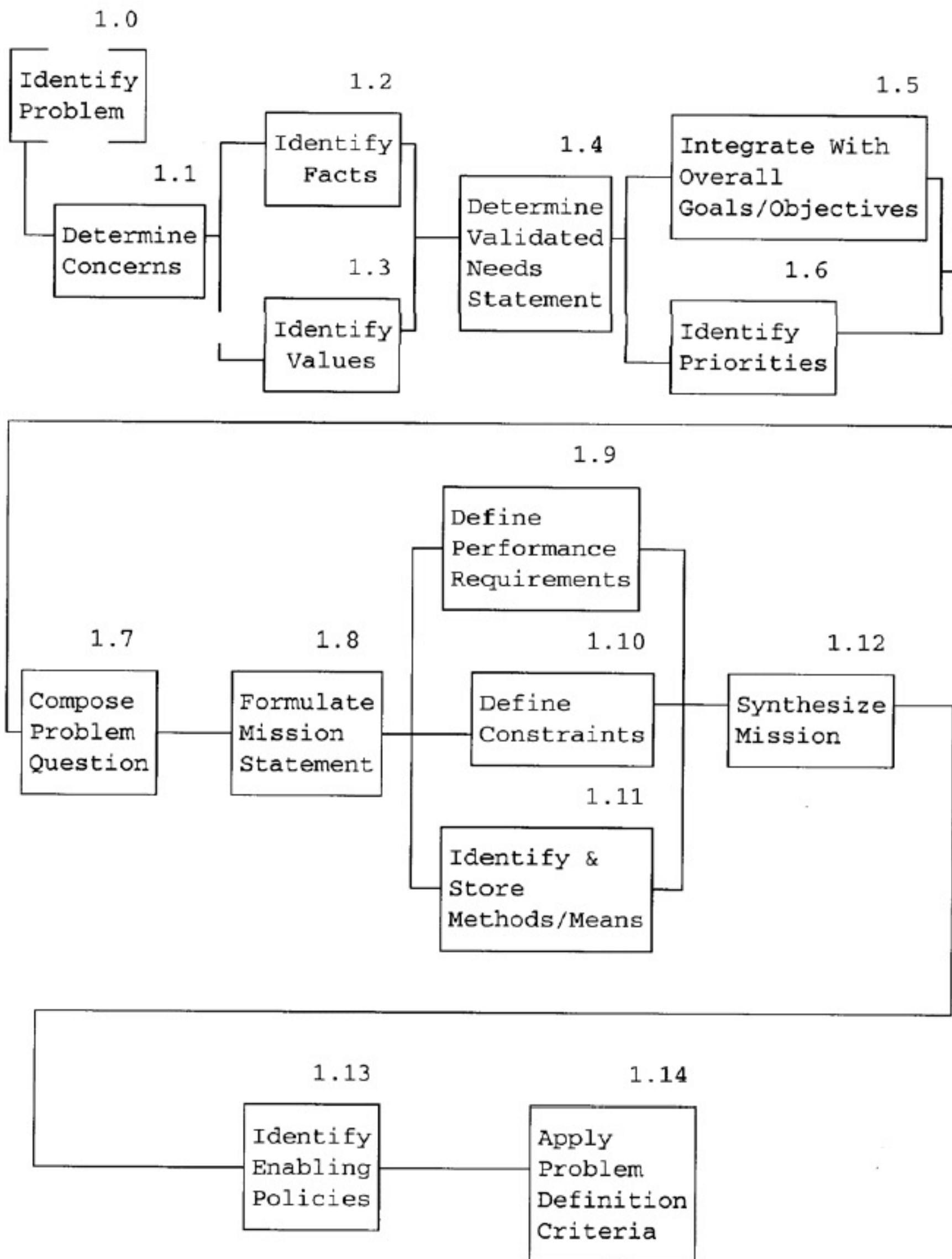
System: an entity made up of a number of interacting and interdependent variables, components, or elements.

Systems Analysis: derived in part from general systems theory, systems analysis involves both the development of a framework to facilitate the analysis of data and the application of analytical techniques to that data. Systems analysis draws heavily upon economic analysis and operations research techniques.

Systems Approach: a method of disciplining and organizing data which facilitates the analysis of that data.

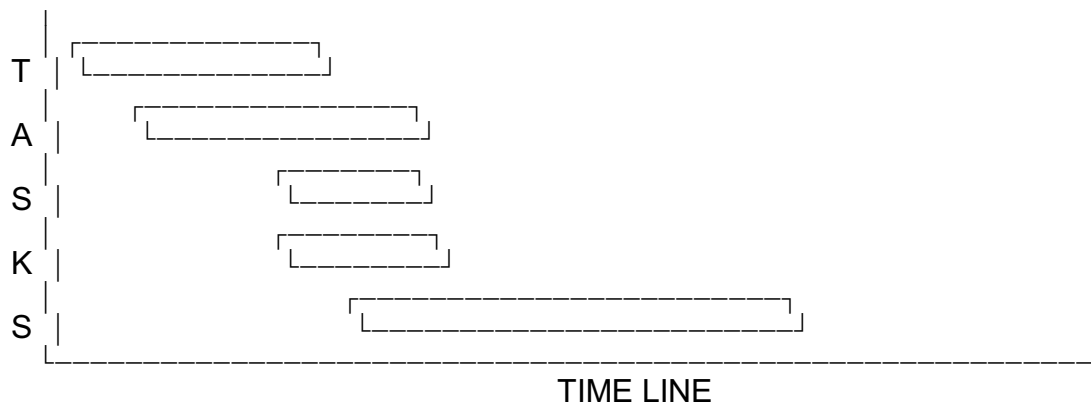
Systems Theory: an attempt to explain or predict the organization and behavior of phenomena in terms of dynamic interactions among interdependent elements within a contextual environment. Systems theory is highly interdisciplinary and is aimed at developing principles and models that are applicable to systems across a wide range of phenomena.

Task Analysis: the lowest level of systems analysis. Tasks are units of performance which, when collected, constitute a subfunction. Task analysis shows, usually in tabular form (rather than flowchart form) the units of performance associated with each subfunction.



Note: Iteration lines in this and other figures are either omitted or severely truncated to facilitate reading.

GANTT Chart



Activity

PERT Conventions

An activity is a time consuming effort required to complete the project. It is represented by an arrow drawn from left to right. The arrows are not drawn to a time scale (although this may be done for management purposes). Passage of time is indicated by numbers above the arrows. By convention, an activity is designated by the node number at the beginning and the node number at the end of the activity.

Event

An event is a particular instant in time marking the beginning or end of an activity. Events do not require resources nor time. An event is represented by a circle, called a node, containing a number. An event is considered accomplished only after all the activities leading to it have been completed.

Dummy

A dummy is used to represent a restraint relationship which requires no time. It is indicated by a dotted line from the prerequisite activity to the restricted activity. It is treated as an activity with zero time.

Restrictions

A restriction is a prerequisite relationship which establishes the sequence of activities.

a. A prerequisite activity is one which immediately precedes the activity being considered.

1-2 is prerequisite to 2-3

b. A postrequisite activity is one which immediately follows the one being considered.

2-3 is postrequisite to 1-2

c. A descendent is any activity restricted by the one being considered.

2-5, 5-7, 2-4, 4-6, 3-7,
and 6-7 are descendents

d. An antecedent is any activity which must precede the one under consideration.

of 1-2

1-2 and 2-5 are antecedents of 5-7

Merge

When two or more activities converge at a single event, a merge exists. All the activities merging at an event restrict all activities beginning at that event. The event is not considered to occur until all the activities merging at the event have occurred.

Burst

A burst exists when two or more activities begin at a single event. All the activities have a common prerequisite.

Merges and bursts occur when concurrency exists.

Network

An arrow network is a graphical representation of the activities and events needed to complete a project which shows the logical relationships existing among the various activities. Conventionally, networks are drawn from left to right. No two activities may have the same starting and ending events. (Use of dummies eliminated the problem.) It is customary to number the events in such a way that the event at the right of the activity arrow has a higher number than the event at the left of the arrow. The length of the activity arrows has no meaning, and may vary to provide clarity to the network. Crossovers are permitted but should be avoided wherever possible. Loops are not permitted, i.e., no path subsequent to an event may lead to a prior event.

Determine the Critical Path

Estimate the time, t_e , by the following formula:

$$t_e = \frac{a + 4m + b}{6}$$

where a = optimistic estimate

m = most likely estimate

b = pessimistic estimate

T_E = earliest time an event may be completed

T_L = latest time an event may be completed and not delay project

$T_E = T_L$ is the critical path

PERT Exercise¹

Task	Depends on task	Estimated Time
I. Planning project	--	1-1.5-2
II. Preparing research design & sampling plan	I	1-1.5-2
III. Doing library & documentary research on program	I	4-7-11
IV. Hiring & training interviewers	II	1-1.5-2.5

¹Susan Welch and John C. Comer, Quantitative Methods for Public Administration, Homewood, Il: Dorsey, 1983, p. 271.

V. Conducting initial interviews with program personnel	IV	1-2-3	
VI. Conducting client interviews	V	.5-1-1.5	
VII. Conducting remainder of personnel interviews	IV	2-3-5	
VIII. Hiring coders and keypunchers	II	2-3-3.5	
IX. Coding data from interviews	VI, VII, VIII	1-1.5-2	
X. Hiring computer programmers		II	2-3-3.5
XI. Doing computer analysis	X, IX	1-1.5-2	
XII. Writing first draft of report & recommendations	XI, III	3-4-5.5	
XIII. Circulating draft for comments & critiques	XII	2-3-5	
XIV. Revising report & recommendations		XIII	3-4-6
XV. Completion of report	XIV	1-2-2.5	

Prepare a PERT Chart in the Space Below

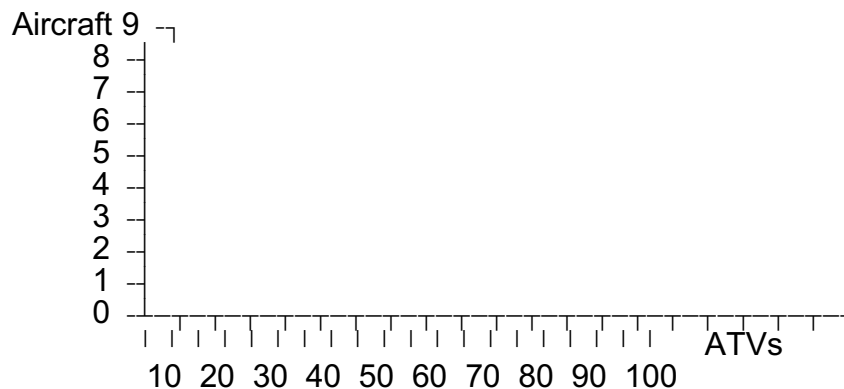
Possibility Frontier Exercise

You are running a program designed to prevent Californians from overrunning pristine Oregon wilderness, and you have several hundred miles of border to patrol. You will patrol that border with some combination of all-terrain vehicles and aircraft. Each ATV costs \$45,000 fully equipped, and each aircraft costs \$450,000. You have a budget of \$3.9 million. Draw your possibility frontier. (This type of possibility frontier is called a budget line.)

The next step is to determine the decision-maker's preference. Unfortunately, we are seldom faced with a clear-cut, automatic decision. For example, let's suppose that you have the good fortune to have been offered three jobs, and that you are going to use three criteria to choose from among them: pay, quality of the job experience, and quality of living in the job location. You have ranked them as follows (pay in nearest \$k, others on your own index of 1-10):

Job	Pay	Quality of Work	Quality of Life
A	\$35,000	7	3
B	\$40,000	2	5
C	\$30,000	9	8

Which job do you take? You get into how much pay are you willing to trade off for how much quality of work v. quality of life, etc. That trade-off becomes your indifference curve. Now, compute your preference curve for the problem given above. Assuming that your curve is also linear, draw it in (it may not be--after so many aircraft, for example, their value relative to ATVs may decrease). With two linear curves, the point at which they cross is your optimal choice.



Benefit/Cost Exercise

Project	Gains to Consumers	Loss to Suppliers	Costs to Taxpayers	Net Benefit/Cost	Benefit/Cost Ratio
A	200	50	100	50	1.50
B	200	50	200	-50	.75
C	450	50	300	100	1.33
D	100	10	100	-10	.90
E	650	0	500	150	1.30

Given this data, what is the optimum budget for the agency?

Benefit/Cost Matrix

PROJECT A
(An Irrigation Project)

	Benefits	Costs
Real		
Direct Tangible	Increased farm output	Cost of pipes
Intangible	Beautification of area	Loss of wilderness
Indirect Tangible	Reduced soil erosion	Diversion of water (opport. cost)
Intangible	Preservation of rural life	Destruction of wildlife
Pecuniary (transfers)	Relative improvement in position of farm equipment industry	

SECOND TAKE-HOME EXAMINATION

Your examination is due at the beginning of class, 2/3/95.

Part One: (50%)

Revise the Teen-Age Driver exercise done for the first exam, using the additional information contained in Exercise #1 on pp. 179 - 180 and in Exercise #1 on p. 255 (additional assignments on this exercise are contained in each chapter's assignments). Then complete the remainder of the assignment as indicated on p. 67. Your finished position paper should be between twelve and fifteen pages in length.

Part Two: (50%)

- Complete any two of the following problems (25% each):
- Problem # 2, p. 255
 - Problem # 22, p. 323
 - Problems # 3 and # 4, p. 360 (treat as one problem)
 - Problem # 3, pp. 395 - 396

TECHNIQUES FOR RECOMMENDATION CLASSIFIED²
BY TYPES OF QUESTIONS

Type of Question	Techniques
OBJECTIVES	Assumptional Analysis Objectives Mapping Value Clarification Value Critique
COSTS	Cost Element Structuring Cost Estimation Shadow Pricing
CONSTRAINTS	Cost Mapping Feasibility Assessment Technique
EXTERNALITIES	Cost Internalization Assumptional Analysis Policy Delphi Cross-Impact Analysis
TIME	Discounting
RISK AND UNCERTAINTY	Sensitivity Analysis <u>A Fortiori</u> Analysis

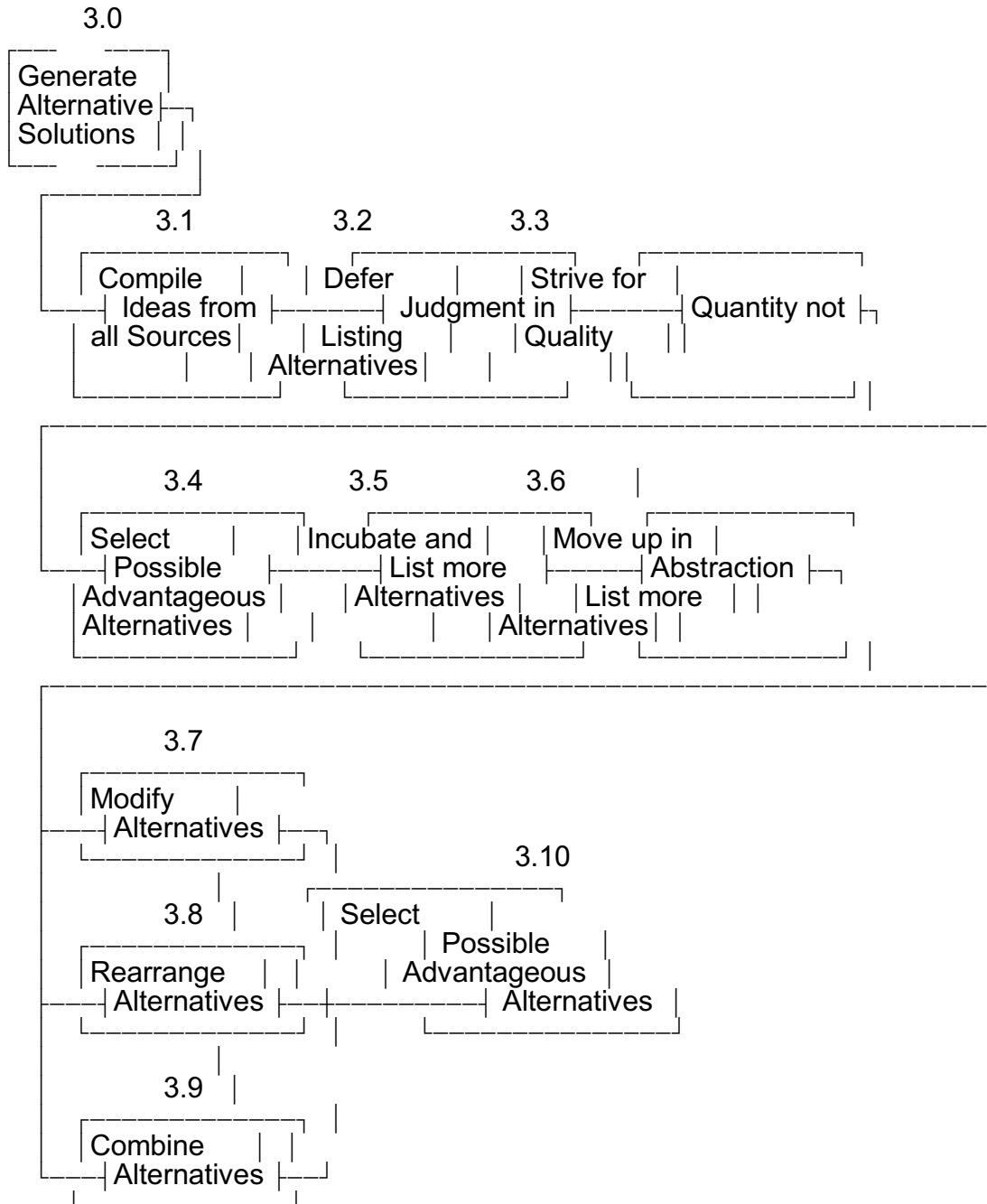
COST ELEMENT STRUCTURE³

-
- I. PRIMARY (DIRECT) COSTS
1. *One-Time Fixed Costs*
 - Research
 - Planning
 - Development, Testing, and Evaluation
 2. *Investment Costs*
 - Land
 - Building and Facilities
 - Equipment and Vehicles
 - Initial Training
 3. *Recurring (Operating and Maintenance) Costs*
 - Salaries, Wages, and Fringe Benefits
 - Maintenance of Grounds, Vehicles, and Equipment
 - Recurrent Training
 - Direct Payment to Clients
 - Payment for External Support Services
 - Miscellaneous Materials, Supplies, and Services
- II. SECONDARY (INDIRECT) COSTS
1. Costs to Other Agencies and Third Parties
 2. Environmental Degredation and Pollution
 3. Disruption of Social Institutions
 4. Other

MARK TWAIN ON THE VALUE OF FORCASTING

In the space of one hundred and seventy-six years the Lower Mississippi has shortened itself two hundred and forty-two miles. That is an average of a trifle over one mile and a third per year. Therefore, any calm person, who is not blind or idiotic, can see that in the Old Oolitic Silurian Period just a million years ago next November, the Lower Mississippi River was upward of one million three hundred thousand miles long and stuck out over the Gulf of Mexico like a fishing-rod. And by the same token any person can see that seven hundred and forty-two years from now the Lower Mississippi will be only a mile and three-quarters long, and Cairo and New Orleans will have joined their streets together, and be plodding comfortably along under a single mayor and a mutual board of alderman. There is something fascinating about science. One gets such wholesale returns of conjecture out of such a trifling investment in fact.

THE BRAINSTORMING PROCESS



Cross-Impact Matrix Illustrating Consequences of
Mass Automobile Use

		Events (E)						
		E ₁	E ₂	E ₃	E ₄	E ₅	E ₆	E ₇
Events (E)	E ₁		+	0	0	0	0	0
	E ₂	⊕		+	0	0	0	0
	E ₃	⊕	0		+	0	0	0
	E ₄	0	0	0		+	0	0
	E ₅	0	0	0	0		+	0
	E ₆	0	0	0	0	0		+
	E ₇	0	0	0	⊕	⊕	0	

E₁ = Mass production of automobiles

E₂ = Ease of travel

E₃ = Patronization of large suburban stores

E₄ = Alienation from neighbors

E₅ = High social-psychological dependence on immediate family members

E₆ = Inability of family members to meet mutual social-psychological demands

E₇ = Social deviance in form of divorce, alcoholism, juvenile delinquency

NOTE: (1) A plus (+) indicates direct one-way effects.
 (2) A zero (0) indicates no effect.
 (3) A circled plus sign (⊕) indicates positive feedback effects.

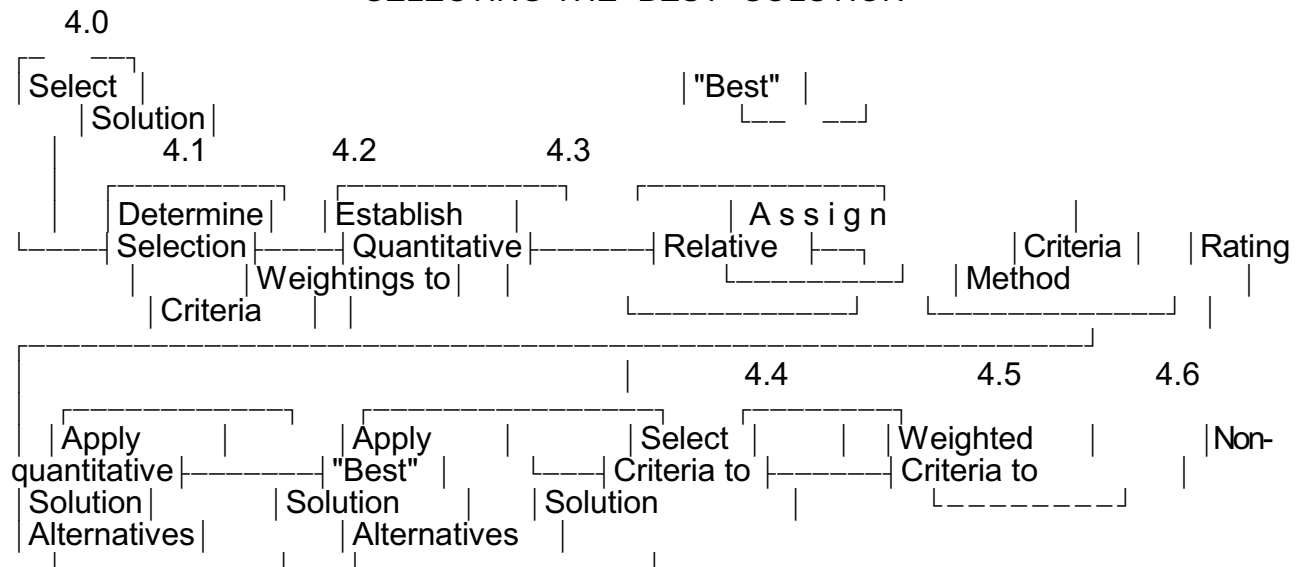
SOURCE: William N. Dunn. (1981). *Public policy analysis*. Englewood Cliffs, N.J.: Prentice-Hall.

Hypothetical illustration of a first round (play) in the construction of a cross-impact matrix

If this event occurs (P = 1)	Then the probability of occurrence of these events is			
	E ₁	E ₂	E ₃	E ₄
E ₁ Gas to \$3 Per Gallon		.7	.8	.5
E ₂ "Gentrification"	.4		.7	.4
E ₃ Crime Doubles	.5	.4		.1
E ₄ Electric Autos	.4	.5	.7	

Events	Original Probabilities (P)
E ₁	P ₁ = .5
E ₂	P ₂ = .5
E ₃	P ₃ = .6
E ₄	P ₄ = .2

SELECTING THE "BEST" SOLUTION



Present Value Problems

1. A proposed reclamation project has an estimated cost of \$10 million and an effective life of ten years, with no residual value. Annual operating costs are estimated to be \$500,000 and annual revenues are estimated to be \$2 million. The construction costs will be paid in a lump sum at the beginning of the first year of operation. Prepare:
 - a) a cash flow schedule
 - b) discounted cash flow schedule using a 10% discount rate and taking the beginning of operations as the starting date.

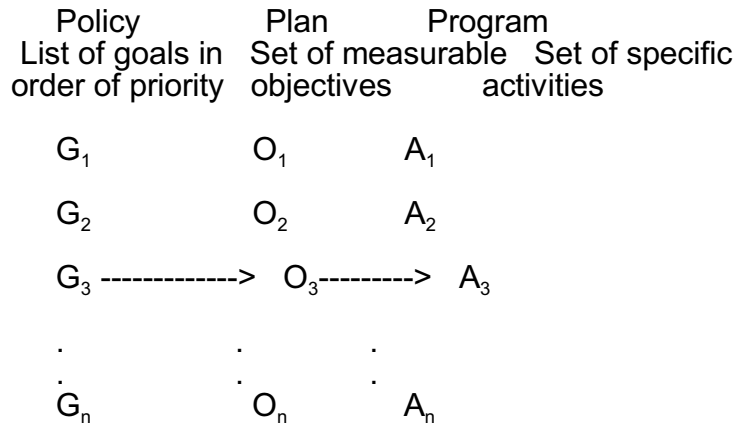
 2. A proposed toll road has an estimated construction cost of \$100,000,000 and an effective life of twenty years (from time of completion). Annual operating costs are estimated to be \$10,000,000 and annual revenues are estimated to be \$20,000,000. In the eleventh year of operation, the road will require major repairs, costing an estimated \$20,000,000, payable at the end of that year. The road will take three years to build with the state paying \$10,000,000 to begin the project, \$20,000,000 at the end of the first year, \$40,000,000 at the end of the second year, and the remainder of the \$100,000,000 construction cost at the end of the third year. Assuming construction starts today, prepare:
 - a) a cash flow schedule
 - b) a discounted cash flow schedule using an 8% interest rate
 - c) same as (b) using a 4% interest rate.
-
-

Format for Application of Weighted Criteria:

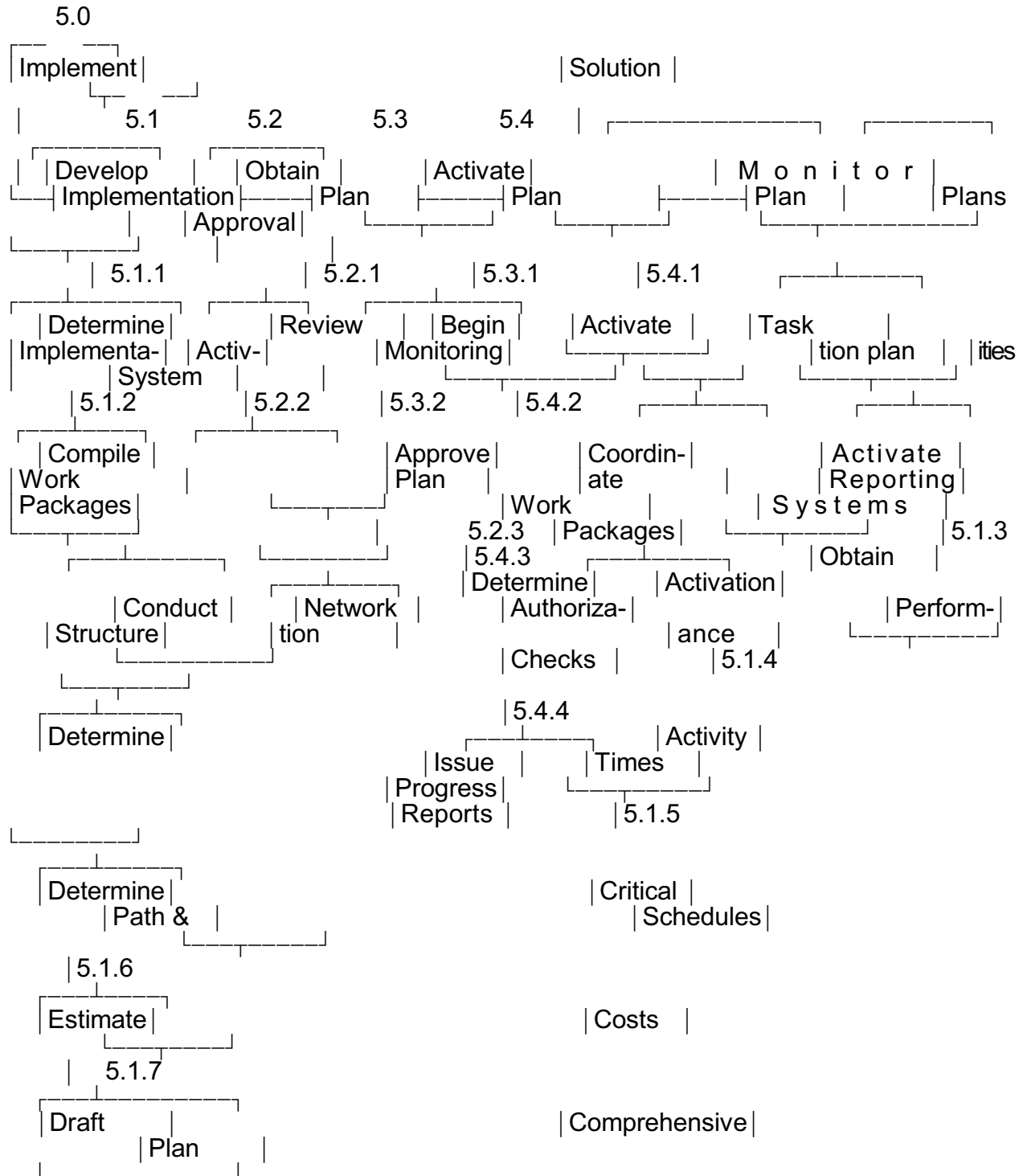
Selection Criteria
(Ranked by Weights)

Mission El. # Alternative #											Total
1.											
2.											
.											
.											
n											

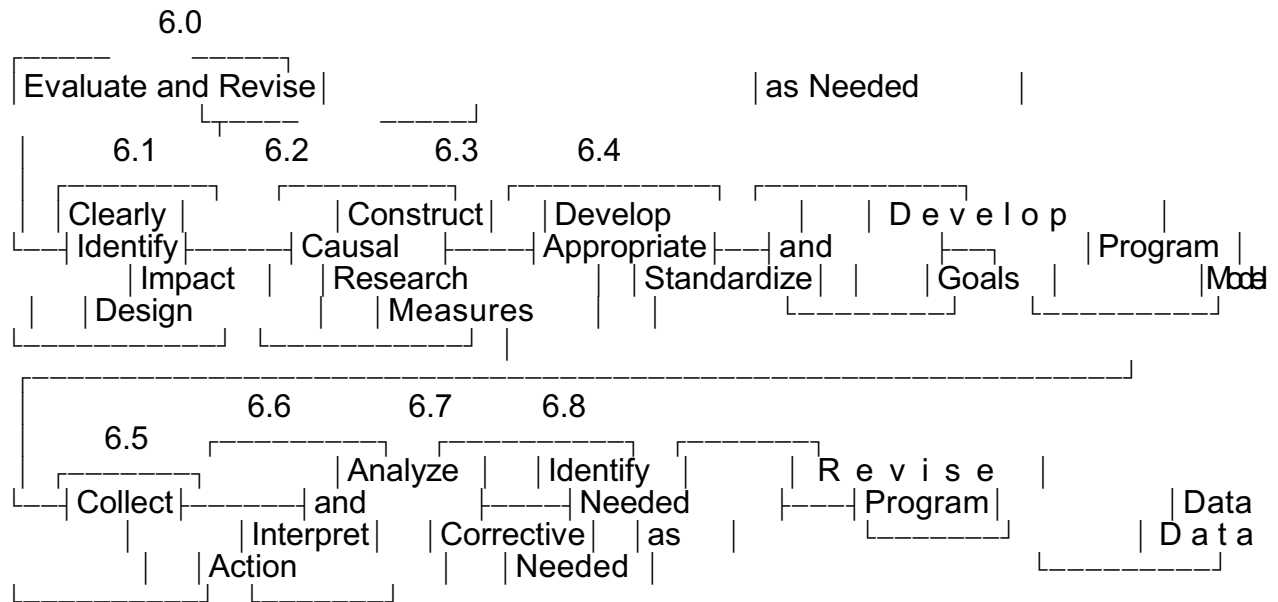
LINK BETWEEN GOALS, OBJECTIVES, AND ACTIVITIES



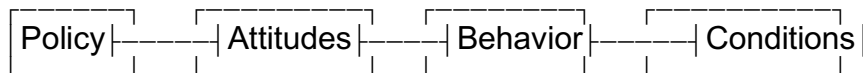
IMPLEMENT "BEST" SOLUTION



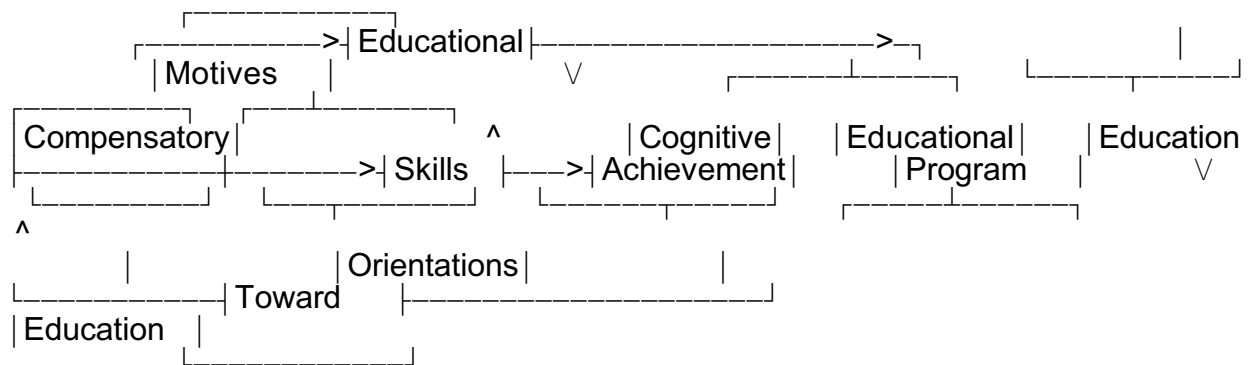
EVALUATE & REVISE AS NEEDED



The general format for a causal impact model is presented below:



An example of a more specific causal impact model, one to measure the impact of a compensatory education program (i.e., Head Start, a migrant farm workers program, etc.) is presented below:



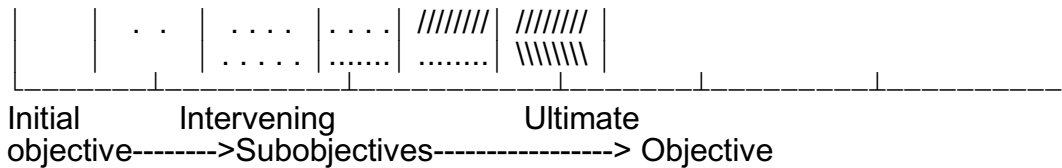
Developing an Evaluation Model

Assumptions Underlying Program Plans

1. the expenditures of resources as planned will result in the performance of the planned activity,
2. each activity, if properly performed, will result in the attainment of the subobjective with which it is linked, and
3. each subobjective must necessarily be accomplished before the next one is achieved, and if all subobjectives are attained, the program objective will be attained.

Cumulation of Subobjectives





Evaluative Questions

1. Appropriateness--is the program directed at an important problem.
2. Adequacy--how much of the total problem has been controlled.
3. Effectiveness--the extent to which **predetermined objectives** were obtained.
4. Efficiency--the actual cost of obtaining objectives measured against **predetermined standards**.

Measures of Program Effectiveness²

1. Use of resources: AR/PR
2. Activities Performed: AA/PA
3. Attainment of Objectives: AO/PO

Measures of Program Efficiency

1. Objectives Obtained to Resources Expended: AO/AR
[AR/AO = average cost]
2. Activities Performed to Resources Expended: AA/AR (AR/AA)
3. Objectives Attained to Activities Performed: AO/AA (AA/AO)

Relation of Effectiveness to Efficiency

Typically, continuous evaluative measures can be obtained in the following sequence:

1. The extent to which resources are being expended as planned: AR/AP
2. The extent to which activities are being performed in the quantity and quality planned: AA/PA
3. The efficiency of resource expenditures: AA/AR
4. The net attainment of selected subobjectives: AOsub/POsub
5. The efficiency of subobjective attainment: Osub/Rsub & Osub/Asub
6. Program effectiveness: AO/PO
7. Program efficiency: AO/AR
8. Activity efficiency: AO/AA

1. William N. Dunn. (1981). Public policy analysis: An Introduction. Englewood Cliffs, N.J.: Prentice-Hall, p.35. In his 2nd edition (1994, p. 85), his definition is: "An applied social science discipline that uses multiple methods of inquiry in contexts of argumentation and public debate, to create, critically assess, and communicate policy-relevant knowledge."

2. W. N. Dunn (1981). An introduction to public policy analysis. Englewood Cliffs, N.J.: Prentice-Hall, p. 252.

²Key to Abbreviations:

AO = Attainment of objectives attributable to program activity
 PO = Proposed objectives for attainment through program activity
 AA = Actual activities performed
 PA = Planned activities to be performed
 AR = Actual resource expenditures
 PR = Planned resource expenditures

3.Dunn, p. 257.