Defining Learning

There are two basic ways to define learning. The usual descriptive definition is to say that learning has occurred whenever there is a change in behavior or belief. For example, Hilgard and Bower (1975, p. 17), in the standard advanced text in educational psychology, propose that Learning refers to the change in a subject s behavior to a given situation brought about by his repeated experiences of that situation, provided that the behavior change cannot be explained on the basis of native response tendencies, maturation, or temporary states of the subject (e.g., fatigue, drugs, etc.). (Note that in some cases this conception can be tricky - if you do it right the first time and then simply persist, learning has occurred even though there is no change; learning in this case must be indexed not as change within a situation but as a nonrandom deviation from the organism s baseline behavior or search patterns.)

A second, analytical definition, which I propose to use in this review, is that true learning should be assessed not by behavior change or attitude change but by the dual criteria of increased *intelligence and sophistication of thought* and increased *effectiveness of behavior*.[1] To take the first criteria, various people who previously opposed the SALT II

---

[1] I will leave unaddressed the issue of the alternative goals and values in relation to which effectiveness can be assessed. There are many, and it would require a major essay to codify the alternatives systematically. I will list just a few criteria different observers or different decision makers currently do (or could) employ: (a) achieving official program goals; (b) democratic responsiveness; (c) political stability; (d) impact (net or minimizing downside risk) on swing voters in congressional and presidential elections; (e) advancing the personal career of the decision maker; (f) serving presidential interests; (g) maintaining or developing credits with key members of Congress to increase overall executive effectiveness; (h) military deterrence capability based on realistic-encounter scenario performance; (i) military deterrence capability based on symbolic political assumptions, (j) efficiency; (k) rational consistency; (l) equity; (m) symbolization of a collective myth of hope and efforts for progress; and so on.

Greater effectiveness is probably, in part, a function of both increasingly accurate factual

treaty could become favorable to it, yet very different internal processes might be involved (e.g., either simple instinctive, amoeboid reaction to possible electoral defeat or thoughtful and detailed study of the issues). An intelligent analyst will want to know which process is involved to decide if the individual is thinking and understanding with greater intelligence and sophistication.

Changes in intelligence and sophistication can be assessed, as they are in teaching, by expert judgment of those who possess these qualities. But three useful indices can be drawn from Heinz Werner s (Werner, 1948; Werner & Kaplan, 1963) application of Herbert Spencer s earlier view that intellectual development always involves processes of both *increased differentiation* (recognition and articulation) and *increased levels of hierarchical integration.* To apply these criteria, we would first assess how many new and different relevant arguments and considerations a person thought about when considering the SALT II problem; and we would further assess the depth and degree of differentiation of thought within each argument (if the person holds views about Soviet motivation, is the Soviet Union seen only as a unitary actor or is the issue differentiated as a problem of internal Soviet politics with discussion of the different actors and processes involved)? Werner also believed that intellectual development involves increased capacity for the *differentiation of the self from its symbols and first-order thought processes*, so a second assessment would be how much perspective, insight, and self-reflective capacity (see Hofstadter, 1979; Natsoulas, 1978) an individual showed about his or her own assumptions, models, and inference processes (an inquiry that would also assess whether the subject is deeply self-reflective or only developing better rationalizations; see Etheredge, 1978; Lane, 1969; Searles, 1972/1979). Finally, we would assess the hierarchical integration of the thought processes: Does our subject coherently pull together and systematically organize all the complexity,

knowledge and the usefulness of increased intelligence and sophistication (see Lindblom & Cohen, 1979) **as** well as other sources (e.g., greater power) discussed in the text.
 Knowledgeable is a term which can be used to refer to the marriage of intelligence and sophistication with accurate information content.

relate parts of the problem to each other, relate parts to wholes, to evidence and inference? (On methods of assessment see Goldstein & Blackman, 1978, pp. 136-173; Miller & Wilson, 1979.)

These indices can be used to generate a quick preliminary diagnosis of the intelligence and sophistication attained by a government official about a policy area. For example, someone who speaks only of the poor, shows less intelligence about the problem than someone who talks sensibly about different categories of poor people. Thirty years ago, people spoke of underachieving children ; today, a sophisticated government expert can discuss types of underachievers produced by different processes (reading problems of differentiated types; nutritional deficiencies; subcultural disadvantage; subcultural, community, and school norms; school phobias; etc.) and point to different programs and current research about each of these. Or in national-defense debates, one can compare the big bangs for a buck sophistication in political-elite discussions of the 1950s with the current differentiated concepts of first-strike, second-strike, counterforce, and other types of strategic-weapon systems.

Being able to talk and think with more intelligence and sophistication does not, however, mean government can be more successful in translating available resources into effective problem solutions. Mental patients can have brilliantly elaborated and integrated beliefs and yet be out of touch with reality; social scientists may only invent new - but unhelpful - ways to talk about the same old things or develop a sophisticated capacity to reject old answers more rapidly than their capacity to find better ones. And even brilliant individuals can be ineffective in organizational surroundings.

However, increased effectiveness cannot, by itself, index increased learning. Increased effectiveness can result from perseverance, more money, more power, changed public receptivities, and many other causes. Nor does decreased effectiveness necessarily warrant the inference of poor learning. For example, if relevant societal processes change (as in the

success of American macroeconomic policy in the early l960s compared with stagflation of the l970s), government s effective intelligence, growing less rapidly than the phenomenon changes, may still decline. And not everyone in America or the world cheers for the success of Washington: conflicting individuals, corporations, or other countries may themselves become more intelligent over time and thus decrease government effectiveness (some economic policy tools, for example, may have become less effective because of investor game plans that now take account of the government s plans for them; see Andersen, 1977). And there is the problem of quagmire public policy, as incremental changes to increase effectiveness in the short term (e.g., escalations of the Vietnam War) lead to even larger problems in the long term. It is also possible that the nature of individuals (Bass & Brown, 1973; Hurlbert, 1979) or of social processes (including successful implementation of government policy) will turn out to be stochastic, so complete knowledge can provide only limited control and effectiveness.

Finally, it is important to be self-reflective - and empirical - about the hope that better learning will yield solutions to social problems, a hope which is currently strong in America and has also captured people s imaginations at other times throughout history (Frankena, 1973, pp. 79-80). First, you may learn that you cannot solve some problems. Second, you may find that solutions are not politically or practically feasible in an America with a limited government. For example, we already know, in principle, how to reduce violent crime by 90% (turn America into Japan). We already know how to solve poverty (massive transfer payments). Often, the call in American politics to learn about how to solve problems is not a call for good ideas but a call for practical solutions - that is, incremental rather than radical, and involving bureaucratic programs, appropriations, and management rather than leadership or strengthened norms.

Types of Individual Learning

With this initial overview, I now want to develop a more differentiated view of learning by discussing five distinct types of individual learning (scientific-method learning, intuitive

understanding, creativity, skill, and wisdom), within which the criteria for differentiated recognition and articulation, hierarchical integration, and perspective (i.e., for appropriate selection among alternatives) can he applied.

Scientific Learning. The best developed image of a formal learning process is the well-known scientific positivist vision. The type of learning requires clarity and explicitness for all key terms and procedures, and explicit codification of the degree of confidence in conclusions.

An individual can be said to have increased scientific intelligence to the extent that his or her ways of thinking about the world exhibit use of:

" Explicit models, theories, and hypotheses

" Key terms within such formulations which are translated into operational definitions that point clearly to the phenomena in the external world being discussed - that is, good (valid, reliable) referential indexing for all terms

" Inferences of causation based on explicit evidence which is further subscribed in the individual s mind by explicit reference to the following: (1) the degree of reliability and validity of all measures employed; (2) the sample characteristics and the validity of such samples for drawing broader conclusions; (3) the inferential criteria (proba- bilistic inferential logic) supporting the causal hypothesis; and (4) the alternative hypotheses or additional relevant variables that still remain untested or uncontrolled

Here, and for the other four types of learning, it seems useful as well to consider two further second-order characteristics to index good learning within different modes:

" Speed and completeness of knowledge scanning and summary - how quickly and com-

prehensively an individual can scan, retrieve, and combine pieces of relevant scientific information from memory to reach conclusions both about what is known and what is not known

" Efficiency of processing - judging not just speed and completeness but efficiency (effortlessness); going through all the steps with less effort and less wasted motion (by analogy, the better athlete runs a mile in 6 minutes using 45% of capacity compared with someone who can do the same using 85% of capacity); a person can be said to know something better when processing, storing, and combination of information are virtually effortless and automatic (a beginning driver may shift gears and steer at the same speed as an experienced driver, but for the experienced driver the task is second-nature, whereas the beginner has to concentrate all his attention and capacity on what he is doing) (see Brown, 1962; Moray, 1979; Reason, 1977)

Intuitive Capacity. Intuition refers to the capacity to sense or grasp, with incomplete objective data, the nature, qualities, or operating principles of physical objects, people, or situations. The relevant data and rules of inference in intuition may, as Polanyi (1958, 1966) has argued, not be amenable to explicit codification.

Scientific knowledge refers to learning about causes. Intuitive knowledge can refer to this and more - for example, to grasping what is going on here, the essential dynamic, in a given situation, to understanding meaning (Bernstein, 1978), to sizing up people, to viscerally knowing what to say to put people at ease or the timing of when to be firm in a negotiation.

A promising theory is that intuition is a function of empathy, of identification, and hence a function of insight - the capacity of access to the self and its own actual or potential experiences as a resource for being sensitive to what is happening in the world (Gauss, 1973; Maslow, 1969; Royce, Coward, Egan, Kessel, & Mos, 1978; Stotland, Mathews,

11

Sherman, Hansson, & Richardson, 1978; Westcott, 1968). It is important to emphasize, I think, that intuition is a *capacity*. Although some positivists have proposed that intuition is merely prescientific, it is probably more useful to note the psychometric evidence for at least two forms of mental functioning, the analytic (scientific) and the verbal (intuitive), based on the two brain hemispheres (Ornstein, 1972; Jaynes, 1976), and to respect the possibilities that both modes can be usefully developed. Weimer (1974), however, makes an argument that almost all knowledge is tacit and intuitive and that investigation, use, and refinement of this mode ought therefore to take precedence over the formally scientific mode.

Creativity. Creativity refers to the activity of generating novel ideas, conceptions, or perspectives which others find to have value, It is especially important to governmental effectiveness in times of change or increased responsibilities where older theories, methods, or concepts based on previous experience prove ill-suited to new conditions. The problem of creativity has been studied primarily at the individual level and secondarily at the small-group level (e.g., Bion, 1977; Brenman-Gibson, 1976, 1978; D. Campbell, 1960, 1974; Ducey, 1976; Gruber, 1974; Kohut, 1976/1978; Mitroff, 1974; Stein, 1974). There is also increasing work on creation of smart organizations in research and development management which I will discuss in a later section. There has yet to be a systematic integration of this literature into the study of political or public-policy behavior.

Skill. Skill refers to the capacity, given adequate technologies and resources, to translate intentions into successful outcomes. It is engineering knowledge, applied practical knowledge of how to make things happen. It may be the skills of drafting a good briefing paper or an effective State of the Union address. It may involve applying current intellectual technologies to analyze the costs and benefits of a neutron bomb. It may be the skills necessary to set political agendas, to maneuver a Panama Canal or SALT II treaty through Congress or to pass a windfall profits tax through the mastery of standard techniques of psychodrama and symbolic politics, salesmanship, and coalition building, or the skill to implement a program once it is enacted (Bardach, 1972).

Skills obviously draw on scientific knowledge, intuition, and creativity, but their core involves the know-how to combine these efficiently and with grace (effortlessness and economy of effort) and with appropriate linkage of ends to means to translate intentions into desired consequences while avoiding or minimizing undesired or unknown outcomes.

<u>Wisdom and Good Judgment</u>. A fifth type of learning one would want of individuals in the executive branch is wisdom. We can decompose the concept of wisdom into three related components: a sense of values and goal hierarchies, a sense of perspective, and a mature integrative capacity to draw efficiently on scientific knowledge, intuition, creativity, and skill. Together, these qualities produce people who can be depended on for good judgment about important issues (Plato, *The Republic, 4,* 428a).

Aristotle held that the development of moral learning was, basically, learning to love and praise what one ought to love and praise and learning to reject and condemn what one ought to reject and condemn. But major approaches to the study of values seem only partly suited to measure a government employee s learning by Aristotle s agenda: Rokeach s value inventory (1973) allows self-reports of what people value positively, but it omits some values important in the political process, such as pragmatic compromise, genuine belief in democratic processes, or a favorable press image, and it does not assess what people condemn or how strongly they condemn it. Kohlberg s (1969, 1971) approach to the study of developing moral reasoning (toward a rationalist Kantian universalism) is well structured to assess distributions of different approaches traditional to political philosophy, although there have been continuing methodological and conceptual problems (Gilligan, 1977; Kurtines & Grief, 1974). But here again, the relevant question is not whether someone can think like Kant in a paper-and-pencil dilemma whose content is quite different from his job. What is of greater importance is whether there are many issues in Washington defined solely as moral issues distinct from confounding or supervening role responsibilities (including the belief that moral judgments are not one s appropriate job), political costs and benefits, and personal risk (Minsky, 1975; Neisser, 1976; Schank & Abelson, 1977).

Values and qualities of moral reasoning are a part of wisdom about politics and public policy, especially in forming a public philosophy, but it is more important to assess the sense of perspective - whether, beyond short-term pragmatism, there is a well-developed sense of what is valuable and what goals are more important for the long run (the knowledge of where one wants to go). Such perspective, rather than being solely moralistic, might also include a sense of perspective on morality itself - when a highly moral solution or a more pragmatic one is called for (Machiavelli, 1935). And it might include, too, a perspective on the appropriate restraint of American government power.

Organizational Learning

Organizational learning can be indexed similarly to individual learning, by primary reference to the intelligence and sophistication of thought which informs decisions, policies, and programs and to external efficacy, and by secondary reference to speed, completeness of relevant knowledge scan, and efficiency of thought and action. And we can look to the scientific learning base, the intuitive understanding, creativity, skill, and wisdom and good judgment embodied in (and summed across) the actions of individuals in their official capacities.

Organizational learning, however, has several likely requirements which transcend the case of individuals, even though there may be analogies at the personal level, The first of these, the intelligence embodied in standard operating, staff analysis, and decision-making procedures, reflects the fact that what one individual within an organization knows can be qualitatively different from what other individuals in the organization know. For example, in a special sense most federal officials above about the GS-12 level are increasingly out of touch with specific details about concrete reality. That is, the specialists who know technical details and technologies about coal gasification or who understand problems of running the public service jobs program in Chicago arc at lower levels. It is one of the responsibilities of senior officials to design such a specialized division of labor and then to

establish reporting, monitoring, and analysis systems so they will learn what they need to know, when they need to know it, and without being distracted by more information than they need (Wohlstetter, 1962). Without good internal learning systems, an organization s manifest policy decisions may be less intelligent than the intelligence located in its constituent parts. In the ideal case, of course, such decisions can actually be more intelligent when a good analysis staff uses an internal process to structure, clarify, and debate issues or initiate proactive learning activities so that new perspectives and understandings are generated.

Internal role networks and operating procedures within organizations thus crucially affect the intellectual quality of the overall policy direction senior officials can provide. But a second dimension is that of the consultative and adversarial procedures involving people outside government employment - agencies can be open systems (Katz & Kahn, 1978) with much learning from critics, lobbyists, consulting firms, public regulatory hearings, political constituencies, academic specialists, the professional and mass public news media, congressmen and senators and their staffs, and so forth. Weick (1979) reports few organizations change fundamentally from their own internal resources, and an agency which listens only to itself, however efficiently, is unlikely to learn well, (In a later section I will argue that major government learning often occurs as a dependent variable, only after people outside of government become more intelligent or more knowledgeable, or at least more vocal.)

A third factor in organizational learning is adequate organizational memory, potentially a crucial problem because of the high rate of job turnover at political, and often bureaucratic, levels (with high turnover rates being official policy in the foreign service and military).

Finally, organizational learning involves the embodiment of new understandings or revised policies in the action and understanding of people throughout the organization. In

this sense, policy is a matter of executive decision only as a first step; coherent and effective policy, crucially, is a matter of attitude change, of creating common objectives and capturing imaginations, of a social movement (see Berman, 1974, for a case study of highly effective implementation) and an action mood, perhaps of change in organizational identity and culture, of getting people rounded up, coordinated, and moving in the same direction - and in Washington, civilian bureaucratic cooperation and enthusiasm is partly voluntary, not produced only by orders (Neustadt, 1960).

Learning Agendas

It may be useful to think of seven agendas for learning by individuals and/or organizations: the individual, a specific job, interpersonal and organizational relationships, external problem conceptualization, external substantive policy issues, the political environment, and intra- and inter-organization functioning. It is in these functional areas that we can look to assess shortfalls in learning.

The Individual. Each of the five types of learning can be examined by using oneself as an agenda for understanding: How much systematic data collection, appraisal, and self-reflection is there in a scientific mode? How much intuitive feel and rapport is there with one s own feelings and internal processes? How much creativity is there in synthesizing and inventing new concepts or capacities for thought, feeling, behavior? How much self-reliant skill is there at science, at problem-solving using a creative interplay of preconscious and conscious processes? How much wisdom does one have about one s own life decisions? How well does one learn about oneself ? (See Duval & Wicklund, 1972; Fingarette, 1969; Kleinke, 1978.) Such assessments may be particularly important for individuals with key positions for independent decision making.

The Specific Job. Most people spend most of their time on the job doing their job. Usually this is not an enterprise of big think contemplation but of traditional management and routine work responsibilities. Most people at career levels probably do learn how to do what

16

is expected of them. But a critical issue here concerns those more self-defined jobs at senior and White House levels which require special initiative, vision, good judgment in novel situations, and taking the leadership to deal with or effect change. In such positions, effectiveness cannot be acquired by asking a superior who can be counted on to know the answer.

Interpersonal Relations. Most learning in Washington is probably created not from reading but through interpersonal relationships: living, sharing, talking with, going to meetings with, and gossiping about other people. Much of the learning about how to do things in Washington is personalistic, learning how to work well with these people. It is important how well people learn from (or about) each other (Adams-Webber, 1979; Thomas & Harri-Augstein, 1977). It is also important to question how much these discussions yield accurate and sophisticated learning or simply become the creation and uncritical acceptance of a conventional wisdom of (contrary to Katz & Kahn s, 1978, view of open systems) a peculiarly ineffective and out-of-touch Washington-based view of the world?

External Problem Conception. A fourth learning agenda is iterative clarification and reformulation of what a problem is and of what one is trying to do. What business are you really in? is a standard question management consultants find many clients cannot readily answer. (See also footnote on p. ~). For example, one might think of the problem of better education as a problem of better teachers and thus charge off to upgrade credentials and increase salaries to attract better teachers. If, however, one slightly alters the problem to terms of better learning, one might devote more efforts to other arenas - for example, the problem of norm creation in schools (see also pp. ~ ~). Perhaps the crucial agenda and contribution of academic social science lies in this area of generating better problem conceptions (Cohen & Garet, 1975; Etheredge, 1976a; Rein & White, 1977).

External Substantive Policies and Programs. Program design, implementation, and evaluation in high policy decisions to solve major problems with major, multibillion-

dollar programs is perhaps the most visible and important agenda of inquiry. Fifteen years after the Great Society, executive-branch agencies have not codified their organizational memories to learn how to implement programs or how to design programs that can be implemented. Why not? In 30 years of foreign aid and 80 years of hemispheric (and then global) military interventions, what has been learned?

Political Processes. Working within the political environment is probably also a useful area to differentiate; learning in this area may take special sensitivities, and it is conventional wisdom that some people, who may be very apt at scientific method learning, just will never understand politics. Learning to deal with the political environment, in this conception, would include not only learning to work with specific people and committees on Capitol Hill, the media, and the constituency groups of substantive programs, but also, in part, learning how to cooperate usefully with (or gameplan) other agencies, the Office of Management and Budget, and the president and White House staff members (see, e.g., Halperin, Clapp, & Kanter, 1974; Wildavsky, 1964).

Intra- and Interorganizational Functioning. A final agenda for learning is intra- and interorganizational functioning. This might include management (or bureaucratic politics), or simply organizing (or gameplanning) subordinates, superiors, and processes. It might include learning how to run a good committee meeting with different people and different issues, allegedly a rare ability everywhere (see Meehl s, 1977, likely classic essay on feckless vocalizing and other annoyances). But the broad issue is learning about the optimal design and efficient operation of massive organizations employing tens or hundreds of thousands of people and annual expenditures of tens or hundreds of billions of dollars (see Cherns, 1977; Cohen, March, & Olsen, 1972) and how to interface and coordinate in a federalist system (see Evan, 1978; Fesler, 1978; Yin, 1979). Indeed, one study of 30 policymakers found that the major problems they consistently voiced were organizational and specific interpersonal issues rather than policy content issues (Lindblom & Cohen, 1979, p. 55).